

2018 CityMatCH Conference Compendium

Partnering with Purpose

DATA, PROGRAMS, AND POLICIES FOR HEALTHY MOTHERS, CHILDREN, AND FAMILIES

September 12-14, 2018 🌲🌲🌲 *Portland, Oregon*

Table of Contents

| | |
|--|-----------|
| 2018 CITYMATCH CONFERENCE COMPENDIUM..... | 1 |
| PROGRAM & POLICY TRACK..... | 1 |
| ORAL ABSTRACTS | 1 |
| <i>Elevating Youth Voice through Peer Wellness Specialist Training and Certification</i> | <i>2</i> |
| <i>Improving Adolescent-Centered Care in Primary Care Settings through Targeted Quality Improvement Initiative: The Adolescent Champion Model</i> | <i>1</i> |
| <i>A Novel Approach to Developing Shared Plans of Care for Transition-Aged CYSHCN.....</i> | <i>1</i> |
| <i>Providing Family Planning Services for Pregnant and Parenting Youth in a School-Based Health Center Setting</i> | <i>3</i> |
| <i>Is Universal Screening Really Universal? Examining Racial and Ethnic Differences in Screening for Pregnancy Related Depression.....</i> | <i>1</i> |
| <i>Stillbirth Surveillance using PRAMS Methodology - Will this Approach be Successful?</i> | <i>1</i> |
| <i>Measuring Success in a “Pay for Success” Funding Model: A Healthy Start Program Case</i> | <i>1</i> |
| <i>Understanding Local Maternal Child and Adolescent Health Home Visiting Reach for Pregnant Women Eligible for Services</i> | <i>3</i> |
| <i>Lessons Learned: Evaluation of a Pilot Universal Postpartum Nurse Home Visiting Program</i> | <i>5</i> |
| <i>Mental Health Enhancement Collaborative Partnership.....</i> | <i>7</i> |
| <i>Utilizing Tablet-based Technology as a Home Visiting Aid: A Pilot Study.....</i> | <i>1</i> |
| <i>Improving Coordinated Intake and Referral Processes for Home Visiting in Queens, NY</i> | <i>3</i> |
| <i>What we don't know is killing us: how better data will help solve infant mortality</i> | <i>1</i> |
| <i>Impact of the New York City Newborn Home Visiting Program on Safe Sleep Knowledge and Behavior</i> | <i>1</i> |
| <i>Characterizing Changes in African American Infant Mortality Rates across Multiple Jurisdictions during Gentrification: A Geographic Analysis to Identify High-Need Areas.....</i> | <i>1</i> |
| <i>Decolonizing Data: Developing the Future Generations Collaborative Maternal & Child Health Data Book.....</i> | <i>1</i> |
| <i>Operationalizing equity for American Indian families at Children’s Minnesota</i> | <i>3</i> |
| <i>Moms2B: an innovative academic community-based pregnancy support program for high-risk women.....</i> | <i>1</i> |
| <i>When Cultures Clash - Lessons Learned from CHW and Clinical Integration Attempts to Improve Birth Outcomes in Detroit</i> | <i>3</i> |
| <i>State Partners – An Invaluable Resource to Positively Influence LARC Policy and Activities.....</i> | <i>5</i> |
| <i>LARC Use for Patients with Substance Use Disorder During an Established Syringe Exchange Program</i> | <i>7</i> |
| <i>Using a Learning Community Model to Address the Opioid Crisis.....</i> | <i>8</i> |
| <i>Lessons Learned: Milwaukee’s One Key Question® Pilot Results.....</i> | <i>10</i> |
| <i>Addressing African American Infant Mortality through a Health Equity Lens Using a Community Engagement Model.....</i> | <i>1</i> |
| <i>Using Fetal, Infant and Child Death Review to address disparities and improve health equity</i> | <i>3</i> |
| <i>Linking Foster Children to Medical and Dental Care.....</i> | <i>5</i> |
| <i>Bridging the GAP*: providing comprehensive sexual health education to adjudicated youth in Oregon.....</i> | <i>1</i> |
| <i>Testing an innovative sex education program for teens in the foster care system</i> | <i>3</i> |
| <i>Fast-track for Fathers: Navigating barriers to engage dads</i> | <i>1</i> |
| <i>Partnerships for Equitable Early Childhood Systems Transformation: ECCS CoIIN Teams, Families, and Measurement</i> | <i>1</i> |
| <i>Collaborative & Multi-tiered Approach to Accelerate Improvement Outcomes and Measurement for Children 0-3</i> | <i>1</i> |
| <i>Cross-jurisdictional partnership for alignment and improved early childhood outcomes.....</i> | <i>3</i> |
| <i>Novel Partnership: Public Health & Law Enforcement Infant Mortality Response Initiative</i> | <i>5</i> |
| <i>Multi-System Collaborative to Increase Preventive Oral Health for Pregnant Women and Children.....</i> | <i>7</i> |

| | |
|--|----|
| <i>Implementation of a Health Equity Impact Assessment with North Carolina Health Departments: Lessons Learned</i> | 9 |
| <i>Improving Postpartum Screening Rates among Women Impacted by Gestational Diabetes Mellitus (GDM)</i> | 1 |
| POSTER ABSTRACTS..... | 1 |
| <i>Adoption of Innovation: Spinning Babies®, an Interdisciplinary Labor Support Program to Mobilize Pregnant Women and Improve Birth Experiences</i> | 2 |
| <i>Patient-Centered Connect Care Helps Connect Working Families with the Medical Home</i> | 1 |
| <i>Academic-Practice Fellowships: An Apprentice Model for the Next Generation of Public Health Leaders</i> | 1 |
| <i>Health programs excel with student internships</i> | 1 |
| <i>From Competition to Collaboration - How to Lead Community Engagement</i> | 3 |
| <i>Learning Community In Action: Illinois' Statewide Initiative on Neonatal Abstinence Syndrome and Breastfeeding</i> | 1 |
| <i>State strategies to increase access to long-acting reversible contraceptives among adolescents</i> | 3 |
| <i>Use of Complementary Surveillance Systems for Collecting Pregnancy, Infant, and Birth Defects Data during the Zika Epidemic in Puerto Rico</i> | 5 |
| <i>Reducing Maternal Mortality and Morbidity in Ohio: Using Obstetric Simulation to Train Providers for Emergencies</i> | 7 |
| <i>Mental Health Consultation in Early Care and Education: A Capacity-Building Approach to Supporting Young Children's Social-Emotional Development in NYC</i> | 1 |
| <i>Using the Epic Electronic Health Record to Integrate the federal Healthy Start program into a regional health care system</i> | 1 |
| <i>Improving Florida's Birth Certificate Accuracy (BCI): A Pilot Initiative</i> | 3 |
| <i>Public Health Nurses' (PHNs) Role in Reducing the Risk of Sudden Infant Death Syndrome (SIDS) and Other Sleep-Related Infant Deaths</i> | 5 |
| <i>Maintaining Focus and Aligning Partners: A Demonstration Project for Reducing Peripartum Racial and Ethnic Disparities</i> | 1 |
| <i>Mental Health and Nurse Family Partnership: Comprehensively Addressing the Needs of New Moms</i> | 3 |
| <i>Wellness Strategies for Health: Policy, Systems, and Environmental Changes Related to Tobacco-Use to Improve Alaska Native Maternal Health Disparities</i> | 1 |
| <i>Community Action Leadership: A Community Based Approach to Reducing Disparities in Birth Outcomes Among African American Women and Families</i> | 3 |
| <i>Development of the Community Health Workforce in Delaware: Implementation of a Sustainable CHW Training and Certification Program</i> | 5 |
| <i>Labor Support at The Dimock Center: Program Development and Implementation to improve birth outcomes among low income women of color</i> | 7 |
| <i>Oregon's Birth Anomalies Surveillance System-- Surveillance method expansion and improvement</i> | 9 |
| MIECHV COORDINATED INTAKE AND REFERRAL ACTION LEARNING COLLABORATIVE: THE HEALTHY START COALITION OF FLAGLER & VOLUSIA COUNTIES TEAM POSTER | 11 |
| <i>Increasing Impact of Healthy CPS Through Parent Engagement</i> | 1 |
| <i>Women Connect: Providing Healthy Living Education to At-Risk Women & Children in New Jersey</i> | 1 |
| <i>Filling the Gap: Building Stronger Families with the Men's Health Toolkit</i> | 3 |
| <i>National Center for Fatality Review and Prevention Data Quality Initiative</i> | 1 |
| <i>Reducing the Incidence of Sleep Related Infant Death by Half in Cincinnati, Ohio</i> | 3 |
| <i>Development of an infant vitality toolkit for men and fathers</i> | 1 |
| <i>Virtual Lactation Visits to Improve Breastfeeding Success</i> | 3 |
| <i>Prenatal Care - What are we missing?</i> | 1 |
| <i>Spatial and Temporal Trends of Cesarean Section Deliveries in Uganda: 2012-2016</i> | 1 |
| <i>Focus on Fathers to improve Child Outcomes</i> | 2 |
| <i>Outcomes and Policy Implications of an Early Brain Development-Focused Collective Impact Convening</i> | 1 |

| | |
|---|----------|
| <i>Strong Babies in Knox County, Tennessee: The Birth and Infancy of a Public Health Movement</i> | <i>3</i> |
| <i>Improving Adherence to Recommended Standards for the Provision of Confidential Care to Adolescent Patients through Structured Quality Improvement Project.....</i> | <i>1</i> |
| <i>Oregon Women's Experiences of Preventive Care.....</i> | <i>1</i> |
| <i>Wisconsin Child Psychiatric Consultation Program: Situation-Response-Activities-Outcomes</i> | <i>1</i> |
| <i>Promoting CYSHCN Workforce Leadership through Strategic LEND – Title V Collaboration</i> | <i>3</i> |
| <i>Adoption of Innovation: Spinning Babies®, an Interdisciplinary Labor Support Program to Mobilize Pregnant Women and Improve Birth Experiences</i> | <i>5</i> |
| <i>Patient-Centered Connect Care Helps Connect Working Families with the Medical Home</i> | <i>1</i> |
| <i>Academic-Practice Fellowships: An Apprentice Model for the Next Generation of Public Health Leaders.....</i> | <i>1</i> |
| <i>Health programs excel with student internships</i> | <i>1</i> |
| <i>From Competition to Collaboration - How to Lead Community Engagement</i> | <i>3</i> |
| <i>Learning Community In Action: Illinois' Statewide Initiative on Neonatal Abstinence Syndrome and Breastfeeding</i> | <i>1</i> |
| <i>State strategies to increase access to long-acting reversible contraceptives among adolescents</i> | <i>3</i> |
| <i>Wellness Strategies for Health: Policy, Systems, and Environmental Changes Related to Tobacco-Use to Improve Alaska Native Maternal Health Disparities.....</i> | <i>5</i> |
| <i>Community Action Leadership: A Community Based Approach to Reducing Disparities in Birth Outcomes Among African American Women and Families.....</i> | <i>7</i> |
| SCIENTIFIC RESEARCH TRACK | 1 |
| ORAL ABSTRACTS | 1 |
| <i>Engaging youth to assess their own health: a novel approach to health assessment in Denver</i> | <i>1</i> |
| <i>Pilot Testing a Case Definition for Surveillance of Pregnancy-Related Depression in a Large Safety Net Health System</i> | <i>3</i> |
| <i>Prenatal Depression Counseling and Depression Help-Seeking, Massachusetts PRAMS, 2012-2015.....</i> | <i>5</i> |
| <i>Stressful Life Events Experience and Asian and Pacific Islander Subgroups are Associated with Self-Reported Postpartum Depression in Hawaii, PRAMS 2012-2015</i> | <i>1</i> |
| <i>A Bayesian Approach to Estimating Birth Defect Prevalence in Alaska</i> | <i>1</i> |
| <i>Opportunities for Reducing Adverse Pregnancy Outcomes in Maryland – Findings from PPOR Phase 1 and 2 Analyses, 2010-2016.....</i> | <i>1</i> |
| <i>Understanding Variation in Extremely Short Inter-Pregnancy Intervals in the United States</i> | <i>1</i> |
| <i>Pregnancy Outcomes among Women who are Deaf and Hard of Hearing</i> | <i>1</i> |
| <i>Exploring the relationship between household dysfunction and contact with child welfare: a prospective cohort study.....</i> | <i>1</i> |
| <i>Joint and Separate Effects of Neighborhood Violence and Food Insecurity on Child Behavioral and Emotional Wellbeing in Chicago.....</i> | <i>1</i> |
| <i>The Impact of Maternal War Trauma on Children: A Study of South Sudanese Families Resettled in the U.S.....</i> | <i>1</i> |
| <i>Examining racial variations in the relationship between severe adverse childhood experiences and adult body mass index.....</i> | <i>1</i> |
| <i>Adverse Childhood Experiences and Associated Sexual Risk Behaviors among Adolescents, Results from the 2017 Michigan Youth Risk Behavior Survey</i> | <i>1</i> |
| <i>An evaluation of three prenatal care home visitation programs in Palm Beach County</i> | <i>1</i> |
| <i>Factors Associated with Client Attrition from the Nurse-Family Partnership Program in New York City.....</i> | <i>1</i> |
| <i>Women's experiences in the hospital around the time of a stillbirth: Results from a pilot study in Georgia.....</i> | <i>1</i> |
| <i>Capturing the Experiences of Pregnant Survivors of Intimate Partner Violence: A Qualitative Interpretive Meta-Synthesis</i> | <i>1</i> |
| <i>Bringing voice to women, through women: jointly defining disrespect and abuse of women during facility based childbirth</i> | <i>1</i> |
| <i>Maternal Healthcare Needs Identified in South Carolina: A Qualitative Analysis of the 2015 Pregnancy Risk Assessment Monitoring System</i> | <i>1</i> |

| | |
|--|----------|
| <i>Disparities in Knowledge of Preterm Birth Topics among Women with Very Premature Births in Utah, 2009-2012</i> | <i>1</i> |
| <i>Trends in non-resident abortion rates in New York City from 2005 to 2015: a time series analysis.....</i> | <i>1</i> |
| <i>Tracking the Storm: Monitoring Surveillance System Response Rates with PRAMS after a Natural Disaster</i> | <i>1</i> |
| <i>Linked Birth-Infant Death Files: Period? Cohort? What's all the fuss?.....</i> | <i>1</i> |
| <i>Association of Smoke-free Policies with Premature Deliveries -- A Multistate Analysis</i> | <i>1</i> |
| <i>Impact of the California Medi-Cal Incentives to Quit Smoking Program on Maternal and Child Health</i> | <i>1</i> |
| <i>Cost analysis of statewide implementation of an incentive-based prenatal smoking cessation program targeted at low-income women in Colorado.....</i> | <i>1</i> |
| <i>Maternal Tobacco Cessation and Risk for Small for Gestational Age: Risk Varies by Race</i> | <i>1</i> |
| <i>Electronic cigarette use before and during pregnancy: Findings from the 2016 Ohio Pregnancy Assessment Survey.....</i> | <i>1</i> |
| <i>Evaluation of Indiana 2014 Sudden Unexpected/Unexplained Infant Death data: Prevention through understanding</i> | <i>1</i> |
| <i>Implementation of Safe Sleep Practices in Massachusetts NICUs: A State-Wide Quality Improvement Collaborative.....</i> | <i>1</i> |
| <i>Perinatal Characteristics of 2016 Sudden Unexpected Infant Death Cases, Compared to Kentucky's Birth Population</i> | <i>1</i> |
| <i>Identifying Contraceptive Deserts at the Census Tract Level of Analysis: Feasibility and Usefulness.....</i> | <i>1</i> |
| <i>The impact of spatial social polarization on preterm birth.....</i> | <i>1</i> |
| <i>Producing Estimates of Child Health and Well-Being for Cities, Counties, and Other Sub-State Areas</i> | <i>1</i> |
| <i>Cluster analysis ranking in public health decision-making: Exploring childhood asthma inpatient hospitalizations in Cook County, Illinois, 2011-2014.....</i> | <i>1</i> |
| <i>Maternal opioid use during pregnancy and infant health outcomes in Massachusetts, 2002-2010</i> | <i>1</i> |
| <i>Hepatitis C Virus Infection among Women who had a Live Birth in Florida, 2012-2016</i> | <i>1</i> |
| <i>Examining neonatal outcomes and characteristics of mothers delivering infants with neonatal abstinence syndrome in Delaware, 2010-2015.....</i> | <i>1</i> |
| <i>Neonatal Abstinence Syndrome in Maryland Newborns, 2007-2016</i> | <i>1</i> |
| <i>Effects of Early Discharge on Readmission Rates among Newborns with NAS</i> | <i>1</i> |
| <i>Hospital Variation in Length of Stay for Infants with Neonatal Abstinence Syndrome: Contribution of Individual and Hospital Factors in Florida.....</i> | <i>1</i> |
| <i>Using linked data to examine prevalence of birth defects among infants with neonatal abstinence syndrome in Delaware, 2010-2014.....</i> | <i>1</i> |
| <i>Inpatient Hospitalizations and Emergency Department Visits Related to Mental Health or Substance Use among Women of Reproductive Age, Illinois 2012–2014.....</i> | <i>1</i> |
| <i>Assessing Effective Interventions to Improve the Health of Pregnant and Postpartum American Indian and Alaska Native Women: A Systematic Review</i> | <i>1</i> |
| <i>The Effect of Prenatal Care Coordination on Birth Outcomes: A Sibling Fixed Effects Analysis</i> | <i>1</i> |
| <i>Comparing postpartum visit attendance for Medicaid-enrolled women receiving CenteringPregnancy compared to individual prenatal care.....</i> | <i>1</i> |
| <i>Highly Effective Reversible Contraception in Title X Clinics: Variation By Selected State Characteristics</i> | <i>1</i> |
| <i>Women's Informed Choice and Satisfaction with Immediate Postpartum Long-Acting Reversible Contraception in Georgia</i> | <i>1</i> |
| <i>Explaining county-level variation in cesarean delivery rates in U.S.-Mexico border states.....</i> | <i>1</i> |
| <i>Assessment of NTSV Cesarean Delivery Indications and Compliance with Guidelines, Florida 2017</i> | <i>1</i> |
| <i>Trends and Factors Associated with Maternal Reported Indications for Low-Risk Cesarean Delivery in 17 States, PRAMS 2009-2015.....</i> | <i>1</i> |
| <i>Birth Options After Cesarean: Perceptions of Hispanic Women Living in the United States.....</i> | <i>1</i> |
| <i>Impact of Maternal Risk Factors on Racial and Ethnic Differences in Low-Risk Cesarean Delivery Rates.....</i> | <i>1</i> |
| <i>Assessment of Contraceptive Use in Puerto Rico during the 2016-2017 Zika Virus Outbreak.....</i> | <i>1</i> |
| <i>Postpartum Care among Oregon Women with Gestational Diabetes and Hypertensive Disorders of Pregnancy.....</i> | <i>1</i> |

| | |
|---|-----------|
| <i>Estimates of Pregnancy Intention and Family Planning Methods in the General Population of Women of Reproductive Age, Hawaii BRFSS 2016.....</i> | <i>1</i> |
| <i>The health and social service needs of women experiencing unintended pregnancies.....</i> | <i>1</i> |
| <i>Why are African American Infant Mortality Rates in Wisconsin the Highest Among US states?</i> | <i>1</i> |
| <i>Black and White Preterm Birth and Infant Mortality: An Evaluation of State and County Progress toward Healthy People 2020 Objectives.....</i> | <i>1</i> |
| <i>Big Bird Goes to Prison: Incarceration as an Opportunity for Maternal/Child Health</i> | <i>1</i> |
| <i>An analysis of the recommendations stemming from reviews of fetal and infant mortality cases and the potential for recommendation optimization.</i> | <i>1</i> |
| <i>Contextualizing Mental Health Issues for MCH Populations and the Role of Title V.....</i> | <i>1</i> |
| <i>Impact of Medicaid Expansion on Prenatal Outcomes in Oregon.....</i> | <i>1</i> |
| <i>Racial and Ethnic Differences in Caregiver Satisfaction with Pediatric Healthcare Providers and Child Insurance Coverage</i> | <i>1</i> |
| <i>The Association between Intimate Partner Violence before Pregnancy and Short Interbirth Interval in the US: The Role of Insurance Status</i> | <i>1</i> |
| <i>Experiences of Previously Uninsured Women in the Years after the Affordable Care Act was Implemented</i> | <i>1</i> |
| <i>Increasing Parent-clinician Engagement and Clinical Outcomes Using Mobile Apps</i> | <i>1</i> |
| <i>The effectiveness of “Push to Web” as an option for a survey of new mothers</i> | <i>1</i> |
| <i>Evaluation of Mother’s Own Milk (MOM) Initiative’s Impact on Racial Disparities.....</i> | <i>1</i> |
| <i>Does peer counselor support influence breastfeeding initiation and duration in an upstate New York WIC population?....</i> | <i>1</i> |
| <i>Association between Self-Reported Breastfeeding and Postpartum Depressive Symptoms: Results from the 2012-2015 Michigan Pregnancy Risk Assessment Monitoring System (MI PRAMS)</i> | <i>1</i> |
| <i>Impact of Cultural and Economic Differences on Disability Labeling.....</i> | <i>3</i> |
| <i>Does structural racism drive higher rates of preterm birth for Black and Latinx babies in Massachusetts?.....</i> | <i>5</i> |
| <i>Favorable preterm birth (PTB) rates among African-born Black women suggest social not genetic factors in the Black-White disparity in PTB.....</i> | <i>7</i> |
| POSTER ABSTRACTS..... | 9 |
| <i>Pregnancy-related deaths among Hispanics, United States, 1998-2013</i> | <i>10</i> |
| <i>Maternal Tetanus, Diphtheria, Acellular, Pertussis Vaccination Coverage in Los Angeles County:</i> | <i>1</i> |
| <i>Ohio Primary Care Providers' Practices to Prevent Type 2 Diabetes in Women with a History of Gestational Diabetes, 2010/2015.....</i> | <i>1</i> |
| <i>Opioid prescription claims among women aged 15-44 years – United States, 2013-2016</i> | <i>1</i> |
| <i>Differences in Formal and Parental Sex Education in Young Women with Disabilities in the United States.....</i> | <i>1</i> |
| <i>When the bough breaks: Exploring the reasons behind persistently higher U.S. state infant mortality rates among African Americans</i> | <i>1</i> |
| <i>Big Disparities in a Small Town: Utilizing Perinatal Periods of Risk (PPOR) in a Rural County.....</i> | <i>1</i> |
| <i>AAP Nutrition and Physical Activity Recommendations for Preschoolers: Are racially/ethnically diverse families adhering to guidelines?.....</i> | <i>1</i> |
| <i>Youth transitional support differs by race/ethnicity and functioning: Data from the National Survey of Children with Special Health Care Needs.....</i> | <i>1</i> |
| <i>Maternal and Infant Vulnerability in Relation to Congenital Anomalies and Infant Mortality</i> | <i>1</i> |
| <i>Association of maternal characteristics with delivery <32 weeks in a non-level III NICU and subsequent infant transfer among Colorado mothers</i> | <i>1</i> |
| <i>The Evidence Base for Maternal and Infant Health: Moving Down the Health Impact Pyramid.....</i> | <i>1</i> |
| <i>Violence Against Youth with Disabilities: Residual Physical and Mental Health Symptoms.....</i> | <i>1</i> |
| <i>Health behaviors associated with oral health status and practices in second grade children in Texas, SPAN 2015-2016....</i> | <i>1</i> |

| | |
|---|---|
| <i>Maternal pregnancy complications in women with a history of bariatric surgery</i> | 1 |
| <i>Area poverty and the Leading Causes of Term Infant Death: United States 2012-2013</i> | 1 |
| <i>Examining prenatal care initiation and barriers for women with pre-existing conditions in Virginia</i> | 1 |
| <i>Medical home and impact on health care experiences and family functioning among children with and without special health care needs</i> | 1 |
| <i>Risk factors associated with inadequate gestational weight gain among recent mothers in Maryland, 2004-2015</i> | 1 |
| <i>Trends in HIV testing among men and women attending Title X-funded family planning clinics, 2005–2016</i> | 1 |
| <i>An Examination of Newborn Screening Specimen Collection and Transit Time in Mississippi, 2012-2017</i> | 1 |
| <i>Effect of question changes on reported pregnancy intentions: Findings from a natural experiment in the United States</i> | 1 |
| <i>Classifying children with ASD by service utilization and treatment type: A cluster analysis</i> | 1 |
| <i>Closing the Gap? Assessing Racial/Ethnic Disparities in Breastfeeding Initiation and Duration</i> | 1 |
| <i>The Effects of Prenatal Cannabis Exposure on Child Development: A Review of the Literature</i> | 1 |
| <i>Maltreatment Related Outpatient Visits among Children Ages 17 Years and Younger in New York State, 2011-2013</i> | 1 |
| <i>Assessing Implementation of Safe Sleep Education in Illinois Hospitals, an Illinois Infant Mortality CoIIN Initiative</i> | 1 |
| <i>Smoking during pregnancy modifies the effect of 17P on subsequent preterm birth: a 2012-2015 Pregnancy Risk Assessment Monitoring System analysis</i> | 1 |
| <i>Impact of new racial and ethnic categories from the birth certificate on disparities in preterm birth</i> | 1 |
| <i>In-Hospital Mortality Among Adults with Autism Spectrum Disorder in the United States: A Retrospective Analysis of U.S. Hospital Discharge Data</i> | 1 |
| <i>The Impact of Prenatal Stress on Breastfeeding Outcomes: Comparing WIC and non-WIC Enrollees in Wyoming, 2012-2015</i> | 1 |
| <i>Screening for Illicit Drug Use in Pregnancy: Focus Group Findings from Prenatal Clinic Staff</i> | 1 |
| <i>Neighborhood Gun Violence and Birth Outcomes in Chicago</i> | 1 |
| <i>Relationship of Bullying and Parental Concerns with Child's Weight and Difficulty Making Friends on Physical Activity Participation among Children</i> | 1 |
| <i>Adverse Childhood Experiences (ACEs) and Chronic Health Conditions Among Different Adult and Racial Groups in TN, WI, NC, and IA</i> | 1 |
| <i>Maternal pregnancy complications in women with a history of bariatric surgery compared to obese women without bariatric surgery</i> | 1 |
| <i>Social, Demographic, and Situational Characteristics of Fire Deaths Among US Children</i> | 1 |
| <i>Electronic Cigarette Use among Women of Reproductive Age</i> | 1 |
| <i>Age differences in women's use of contraception</i> | 1 |
| <i>Decline in California's maternal mortality ratio: The role of mothers' age and race/ethnicity</i> | 1 |
| <i>Ohio's Gestational Diabetes Postpartum Care Learning Collaborative: demonstration of improved postpartum care among Medicaid-insured women</i> | 1 |
| <i>Geographic variation in very preterm birth risk among Hispanic women as indicator of spatially varying risk environments</i> | 1 |
| <i>Common Risk Factors Associated with Cesarean Delivery in Hawaii, PRAMS 2012-2015</i> | 1 |
| <i>The effects and inequalities of the death of family members in young adults</i> | 1 |
| <i>Availability of Services Related to Achieving Pregnancy in U.S. Publicly Funded Family Planning Clinics</i> | 1 |
| <i>Hypertension in Women of Reproductive Age in the United States: NHANES 2013-2014</i> | 1 |
| <i>Relationship Between Screen Time and Depression in Children Aged 6-17</i> | 1 |
| <i>A qualitative approach to exploring barriers and facilitators to maternal engagement in the NICU</i> | 1 |
| <i>Association between a high adverse childhood event (ACEs) score and disability, Oregon 2013-2016</i> | 1 |
| <i>Disparities in Early Intervention Access Among a Low-income Safety Net Population: A cohort study using 2013-2015 linked administrative data</i> | 1 |

| | |
|---|---|
| <i>Predictors of maternal use of risk-reduction strategies to prevent mosquito-borne Zika virus transmission during pregnancy: PRAMS-ZPER, Puerto Rico, 2016</i> | 1 |
| <i>Smoking Cessation Two- years after Pregnancy in Los Angeles County</i> | 1 |
| <i>Association between source of prenatal care and receipt of postnatal health care in the National Survey of Family Growth</i> | 1 |
| <i>Women from racial/ethnic minority and low socioeconomic background receive more prenatal advice: Results from 2012-2014 Pregnancy Risk Assessment Monitoring System</i> | 1 |
| <i>Intimate Partner Violence and Bed-sharing, Florida PRAMS 2012–2015</i> | 1 |
| <i>Zika virus awareness, prevention, and information sources among low-income pregnant Latina</i> | 1 |
| <i>A State-by-State Analysis of Key Maternal and Child Health Mortality Measures</i> | 1 |
| <i>Adolescent birth outcomes in the United States: an analysis of racial and ethnic differences</i> | 1 |
| <i>Household Language, Poverty, and the Social Environment: An Analysis on Latino Children’s Health</i> | 1 |
| <i>Associations Between Work Place Leave and Breastfeeding Initiation, Duration and Postpartum Depressive Symptoms: Pregnancy Risk Assessment Monitoring System—8 Sites, 2015</i> | 1 |
| <i>Exploring Regional Variation in Black Infant Mortality: The Contribution of Contextual Factors</i> | 1 |
| <i>Piloting the March of Dimes Supportive Pregnancy Care Model in Tennessee: Addressing Providers’ Perceived Barriers to Group Prenatal Care Implementation</i> | 1 |
| <i>Postpartum Visit Attendance and Contraceptive Use among Women Less Than 25 Years Old, Massachusetts, 2012–2015</i> .. | 1 |
| <i>Early Engagement of High-Risk Pregnant Women in Enhanced Prenatal Care: System of Care Strategies to Address Population Health</i> | 1 |
| <i>Intended Pregnancy by State, PRAMS 2015</i> | 1 |
| <i>ADHD and Technology Usage: An Analysis from the 2016 National Survey of Children’s Health</i> | 1 |
| <i>Healthcare Utilization in CenteringParenting® and Individual Well Baby Care in a Low Income Community</i> | 1 |
| <i>Child Clinical and Social Characteristics and Receipt of Core Early Intervention Services</i> | 1 |
| <i>Tobacco Outlet Density and Sociodemographic Disparities in Urban and Rural Tennessee Public Schools</i> | 1 |
| <i>Assessing labor intervention timing among obese women in a retrospective cohort study</i> | 1 |
| <i>Effectiveness of an academic community-based pregnancy support program in improving pregnancy outcomes among high-risk women: the Moms2B experience</i> | 1 |
| <i>Variation in Sudden Unexpected Infant Death Reporting by State and Urbanicity — United States, 2011–2015</i> | 1 |
| <i>Health professionals’ knowledge, beliefs, and practices regarding concurrent breastfeeding and maternal medication-assisted treatment for opioid use disorder</i> | 1 |
| <i>Increasing Number of Maternal Chronic Conditions is Associated with Preterm and Early Term Births, Hawaii PRAMS, 2012–2015</i> | 1 |
| <i>Repeat Cesarean Among Hispanic Women in the United States</i> | 1 |
| <i>An Examination of Low Birthweight Births and Subsequent Low Birthweight Births in Florida, 2012-2015</i> | 1 |
| <i>Understanding and Describing the Black-White Disparity in Fetal and Infant Mortality in Illinois: Perinatal Periods of Risk Analysis, 2014-2015</i> | 1 |
| <i>The Effectiveness of Tdap Counseling during Pregnancy in Florida, 2012-2015</i> | 1 |
| <i>Impact of Maternal Transfers on Neonatal Mortality in Very Preterm Infants</i> | 1 |
| <i>Clinical Chorioamnionitis and Cerebral Palsy in Term and Near-Term Infants: A Population Based Nested Case-Control Study in South Carolina</i> | 1 |
| <i>A Scorecard to measure the Success of Healthy Start Services In Palm Beach County, Florida</i> | 1 |
| <i>Variation in Birth Outcomes by Mother’s Country of Birth Among Hispanic Women in the United States</i> | 1 |
| <i>Racial Disparity in Influenza Vaccine Recommendation from Healthcare Provider and its uptake among Pregnant Women</i> | 1 |

Factors associated with knowledge of the recommendation for Tdap vaccination during pregnancy among women with a recent live birth, 2017 1

Maternal Medical and Social Factors Associated with Very Preterm Infant Delivery at Level III Perinatal Hospitals..... 1



Program & Policy Track

Oral Abstracts



Elevating Youth Voice through Peer Wellness Specialist Training and Certification

Authors: Lennisha Walker
Victor Fears

Category first choice: Mental/behavioral health

Category second choice: Children and youth with special health care needs

Issue: The National Institute of Mental Health states that approximately 20 percent of youth ages 13-18 have a mental health condition. Local data regarding Houston reflects that an estimate of 38% of children and youth have behavioral health needs (The Meadows Mental Health Policy Institute, 2017). The aforementioned research aligns with internal program data that City of Houston Health Department (HHD) reviewed which reflected a 40% increase in the request for mental health services for youth and their families. In response to an increase in requests for mental health services HHD developed a training program for Transition Age Youth with lived experiences to assist other youth with mental health conditions.

Setting: Houston Health Department (HHD) received grant funding from the Hogg Foundation for Mental Health to develop and implement a training program for and by TAY with lived mental health experiences. This program prepares TAY ages 15-24, with lived mental health experiences to provide an array of peer supports and effectively utilize their story to help others. Training occurs in Houston, Texas at HHD's Sunnyside Multi-Service Center. Trainees reside in the Houston area, have lived experience, and are willing use their story to help other TAY.

Project: The Peer Wellness Specialist Training and Certification Program is evidence informed and influenced by curricula including Community Health Worker and Recovery Coach Training. Training includes: 56-hour of classroom instruction, 25 hours supervision, and monitoring of 500 hours of field experience. In addition to receiving HHD's PWS Certification, participants meet the requirements to sit for The State of Texas Peer Recovery Support Specialist Certification.

Accomplishments / Results: Three PWS cohorts have been trained, representing 19 youth and young adults in the Houston area. To address the growing demand for PWS training, HHD has implemented a modified training to provide TAY and youth-serving organizations a training overview. HHD's PWSs have been invited to provide this modified training in Austin, Texas in March 2018. This expands the reach of the Peer Wellness Specialist Training and Certification Program, as well as, provides an avenue for sustainability. Despite the impacts of Hurricane Harvey, HHD's PWSs have completed 514 peer encounters October to January 2018. One accomplishment is HHD launched the first peer support training and certification program for and by TAY in the State of Texas.

Barriers: Because peer supports are offered in school settings, there are limitations with scheduling and access to students, especially during testing periods. Providing services at HHD's Multi-Service Center increases access to students. Transportation during out of school hours presents a barrier for some students who may want to work with PWSs outside the school environment.

Lessons Learned: Bringing TAY and families to the table in meaningful ways creates an environment where they can share their expertise, demonstrate their role as partner, and is necessary to ensure programming best meets their needs. TAY schedules and developmental needs must be accommodated. Information Replication: Costs have been detailed for modified training and the entire PWS training program. Collaborating with campus administrators, faculty and staff helps to ensure continuity of programming beyond leadership and staff changes.

Information for Replication: Costs have been detailed for modified training and the entire PWS training program. HHD will continue work with interested entities regarding budgets and training needs. Partnerships with local schools are crucial for success. Collaborating with campus administrators, faculty and staff helps to ensure continuity of programming beyond leadership and staff changes. Considering way to incentivize expertise of lived experiences for TAY and their caregivers is helpful in securing long-term support from these stakeholders.

Improving Adolescent-Centered Care in Primary Care Settings through Targeted Quality Improvement Initiative: The Adolescent Champion Model

Authors: Lauren Ranalli
Ellen Wagner

Category first choice: Child/adolescent health

Category second choice: Medical home

Issue: Research shows that adolescents access primary care services at lower rates than all other age groups. Less than half of adolescents receive a yearly preventive visit, and most do not spend time alone with their provider during that visit, limiting the number of topics addressed. Adolescents often report concerns about confidentiality as a major barrier to accessing care. Confidential screening of all adolescent patients for high-risk behaviors is recommended, but in practice rates of screening and counseling adolescents varies. The Adolescent Health Initiative (AHI) developed and implemented the Adolescent Champion model to improve the care provided to adolescent patients seen in a primary care setting.

Setting: The Adolescent Champion model was evaluated with 9 primary care sites in Michigan including pediatric, family medicine, and medicine-pediatric clinics.

Project: Adolescent Champion sites identified a multidisciplinary champion team to participate in the project. Champion teams underwent training on adolescent-centered care, delivered ready-to-use trainings to other staff and providers, completed an assessment of the health center's environment, policies, and practices, and complete a quality improvement project regarding confidentiality practices. Adolescent patients, staff, and providers were surveyed at baseline, year-end, and one-year follow-up to assess changes.

Accomplishments / Results: Adolescent patients' experiences with both their provider and the site overall significantly improved. Adolescent patient satisfaction surveys revealed a 6% increase in adolescents feeling that providers talked directly to them rather than their parents ($p=0.003$), and a 10% increase in patients feeling that their providers explained things in a way that they could understand ($P<0.0001$). At baseline, 50.5% of patients reported that they knew what health services they can get without their parents knowing or providing consent, increasing to 67.2% at year-end ($P<0.0001$). Finally, at baseline 76.3% of patients said that they would recommend that clinic to other teens, rising to 86.4% at year-end ($P<0.0001$). Staff also reported significant improvements in clinic practices relating to adolescents. At baseline, 42.9% of staff reported that their clinic accommodates the needs of individual adolescent patients, increasing to 62.8% a year-end ($P<0.0001$). Additionally, staff also reported a 24% increase in their clinic engaging in continuous learning to maintain high standards of practice ($P<0.0001$). Clinicians reported significant improvements in their perception of their adolescent patients' opinions, knowledge, and behaviors ($P=0.0011$). Providers also reported significant improvement in their confidence in caring for adolescents and access to referral resources ($P<0.0001$). Frequently noted site improvements included: (1) initiating a method to gather feedback from adolescent patients; (2) adding

trainings on confidentiality, cultural humility, and using a non-judgmental approach; (3) updating immunizations at every visit; and (4) training providers in long acting reversible contraception via implant training.

Barriers: Coordinating in-person training schedules of sites located across regions can be a barrier for implementation.

Lessons Learned: The Adolescent Champion model demonstrates an effective intervention to build the capacity of primary care sites to provide youth-friendly services to adolescents.

Information for Replication: AHI is currently replicating the Adolescent Champion model with cohorts of primary care and school-based health centers in Arizona, Colorado, Texas, and Wisconsin. State health departments have often used MCH funds or other funding sources to replicate the model.

A Novel Approach to Developing Shared Plans of Care for Transition-Aged CYSHCN

Authors: Alison Martin
Sheryl Gallarde-Kim
Tamara Bakewell
Marilyn Berardinelli
Caroline Neunzert

Category first choice: Children and youth with special health care needs

Category second choice: Medical home

Issue: Children and Youth with Special Health Care Needs (CYSHCN) require greater services than those without special health care needs and, consequently, have greater needs for coordination among their care professionals. Additionally, youth with special health care needs (YSHCN; ages 12 and older) and their families require significant, coordinated preparation to successfully transition from pediatric to adult health care. Results of Oregon's 2015 Title V Block Grant needs assessment suggested that care coordination is not well implemented for Oregon CYSHCN and their families, and that care plans are an under-utilized care coordination tool. Results also indicated that medical providers do not consistently address transition issues for CYSHCN. The Oregon Center for Children and Youth with Special Health Needs (OCCYSHN) developed a novel approach to address both of these issues, which well complements medical home care coordination activities. This presentation will describe the intervention and share findings from our first year of formative evaluation.

Setting: For more than 25 years, OCCYSHN has contracted with local community partners to implement strategies to coordinate care for CYSHCN. This has included contracting with local health departments (LHD) across Oregon to implement a public health nurse home visiting program for CYSHCN under 21 years of age. In 2016-2017, OCCYSHN required LHDs statewide to use part of their contract funds to initiate shared plans of care (SPOC) for a limited number of CYSHCN.

Project: LHD staff convene and participate on SPOC teams, which are composed minimally of representatives from family, health care, education, mental health, and payor. OCCYSHN requires that 20% of the required SPOC address a transition goal(s) for YSHCN between the ages of 12 up to 21 years. OCCYSHN reviewed key national, state, and programmatic documents to determine the core components of effective SPOC process and content; the SPOC: (a) is responsive to a family/CYSHCN's needs, goals, language, and culture; (b) addresses the child's range of health, development, and support needs; (c) is jointly developed by family, health and community professionals; (d) describes family and professionals' roles and accountabilities; and (e) is used to implement care for the CYSHCN and updated regularly.

Accomplishments / Results: Of the 137 SPOC that were initiated, 25% served YSHCN; higher than Oregon's evidence-based/informed strategy measure (ESM) target of 20%. Of those SPOC, 47% included a transition-specific goal; lower than Oregon's 80% ESM target. About one-third of the SPOC served Hispanic or Latino youth, and on average, the YSHCN were 15 years old. The reasons that LHD staff most

often reported developing a SPOC for the young adult and family centered on needs for additional support generally, health care transition specifically, and difficulty in accessing care.

Barriers: Barriers experienced by LHDs in implementing SPOC included: team member time and buy-in; infrastructure gaps, such as methods by which to share and update the SPOC among partners; and limited LHD capacity

Lessons Learned: LHD staff successfully engaged YSCHN in SPOC but need greater support in developing transition-related goals. OCCYSHN also will examine how to measure alignment with goals and family culture.

Providing Family Planning Services for Pregnant and Parenting Youth in a School-Based Health Center Setting

Authors: Tara Thomas-Gale
Erin Girardi
Elizabeth Madrid
Jessica Garcia

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Issue: While the Denver teen birth rate dropped 63% since 2006, more than 420 teens gave birth in 2016. In 2015, 1 in 7 (14.6%) of births to Colorado teens were repeat births. Parenting teens often face significant barriers to accessing family planning, including lack of transportation and childcare, cost, and inconvenient clinic hours.

Setting: Adolescent females at Florence Crittenton School, Denver

Project: Florence Crittenton School-Based Health Center (SBHC) opened in 2015 to serve pregnant / parenting youth and their children. Services include: well child & adolescent, prenatal care, and mental health. Clinic goals are to improve the health status of students and their children, improve pregnancy outcomes, and increase school attendance. To address the unique needs of students, the SBHC offers a reproductive health educator, STI testing & treatment, pregnancy tests, and full range of contraceptive methods. Both provider and health educator aim to create a postpartum contraceptive plan with every OB patient during 3rd trimester, check in with all students returning from maternity leave, and complete a family planning visit with every parenting student.

Accomplishments / Results: This study included 206 female patients, age 12 to 21, who were seen at the SBHC during 2015-16 and 2016-17 school years. Eighty percent identified as Hispanic, 10.7% White and 8.7% Black. Seventy-seven percent had Medicaid, 20% had no insurance, and 2.9% had commercial insurance. Of 206 patients, 167 (81%) had at least one of the following: family planning provider visit, postpartum visit where contraception addressed, or health educator visit where family planning addressed. Of 96 patients seen for their OB care at the SBHC between Sept 2015 - May 2017, 58 (60%) delivered at Denver Health (DH), enabling us to determine contraceptive choice at delivery. Thirty-three percent chose a LARC method (i.e. IUD implant) prior to discharge from Mom & Baby

Barriers: One challenge in providing services to patients is school attendance. The attendance rate averages 58% per day. To address this barrier, the SBHC offers same-day family planning and an open door policy for students not attending school that particular day. During maternity leave students can be difficult to reach and their postpartum visit is often scheduled with another clinic. SBHC staff work closely with the school to obtain dates of maternity leave return, followed by the health educator scheduling a visit. During the study, 33 students were seen for family planning services. Of these, 18 (55%) were seen for a family planning visit, 10 (30%) for a postpartum visit, and 5 (15%) for a health educator visit. Of the 18 family planning visits, 10 (56%) resulted in a contraceptive method being chosen. Of the 10 postpartum visits, 6 (60%) resulted in a contraceptive method being chosen. Of the 5 health educator visits, 3 (60%) resulted in a contraceptive method being chosen. The most common contraceptive method chosen was the IUD implant (10/33, 30%).

4c4o4m4m4u4n4i4t4y4 4h4e4a4l4t4h4 4c4e4n4t4e4r4 4f4o4r4 4i4n4s4e4r4t4i4o4n4.4 4l4n4 4M4a4y4 424041474,4 4F4l4o4r4e4n4c4e4 4C

Lessons Learned: The overall interest and uptake of family planning services in this unique school-based health center setting is promising. This model helped remove transportation, cost & clinic access barriers facing new mothers, while reducing time away from school. The provider-health educator team enables DH to meet the family planning-health education needs of patients during the prenatal and postpartum periods.

Information for Replication: Key partners include Florence Crittenton school and Denver Public School district staff

Is Universal Screening Really Universal? Examining Racial and Ethnic Differences in Screening for Pregnancy Related Depression

Authors: Kelly Stainback-Tracy
Kaylynn Aiona
Kenneth Scott

Category first choice: Mental/behavioral health

Category second choice: Racism, equity, and social justice

Issue: Pregnancy related depression (PRD) is the most common complication of pregnancy and is associated with detrimental outcomes for both mother and child. Many organizations recommend depression screening to improve early detection and initiation of treatment. Identifying and addressing depression early improves the transition to parenthood for the mother and other caregivers and decreases the risks associated with PRD for the infant, including compromised health and developmental trajectories across the life course.

Setting: In 2015, Denver Public Health (DPH) began implementing universal PRD screening in obstetric, family medicine, and pediatric settings within Denver Health (DH), a large public safety net health system that includes a network of federally-qualified health centers serving approximately 25% of Denver's population. The target audience for this program included medical providers and staff in clinics providing screening. By September 2017, all 10 DH clinics had implemented screening. From December-June 2017, approximately 75% of women each month were screened as recommended during pregnancy and well child care visits.

Project: DPH provided clinics with quarterly summaries of screening performance and used the data to support quality improvement efforts. With an additional analysis of disparities by race/ethnicity, we examined equity in the screening process, with the goal of developing strategies to address identified disparities.

Accomplishments / Results: PRD screening rates have increased steadily. On average, 40% of women with a positive screen receive support from an integrated behavioral health consultant (BHC) within 2 weeks of the screen. Data on other types of follow up has been more difficult to collect. Analysis of data from January – May 2017 revealed that some racial and ethnic groups were less likely to receive PRD screening during prenatal or well child visits, and that the driver of this difference was a primary language other than English or Spanish. We found no difference in BHC follow up for positive screens related to race and ethnicity. However, in the postpartum cohort, Spanish-speaking women were less likely to screen positive than English-speakers. Latina women, regardless of language, were also more likely to score a "0" on the measure, a finding that may indicate that the patient is withholding information about depressive symptoms.

Barriers: Quality improvement data is rarely stratified to examine racial and ethnic disparities in health care processes. However, this extra step in data examination is necessary to reveal systematic barriers that contribute to inequities in health and to develop interventions to address them.

Lessons Learned: Our findings indicate a need to address language and other cultural barriers to screening. To address this, we have made translations of the PRD screening tool in multiple languages easily accessible to health providers. The differences we found in positivity in the postpartum cohort may indicate a need for culturally specific awareness, education, and trust building to assure women feel safe reporting depressive symptoms in a pediatric health care setting. We are promoting the use public awareness and educational materials in clinical settings to decrease stigma and improve trust.

Information for Replication: We engaged DH leadership to implement PRD screening. Providing quality improvement data improved engagement and performance at the clinic level. Partnership across programs within DPH (Maternal Child Health and Informatics) was critical to quality improvement efforts, including examination of the data to reveal health disparities.

Stillbirth Surveillance using PRAMS Methodology - Will this Approach be Successful?

Authors: Nicole Stone
Laurie Baksh
Barbara Algarin

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Issue: Over the last decade, the incidence of stillbirth (fetal deaths ≥ 20 weeks' gestation) in Utah and the United States has remained steady while the number of infant deaths has declined over the same period. Stillbirths are now more prevalent than infant deaths. One of the challenges to conducting epidemiological studies of stillbirth has been the limited availability of reliable population-based surveillance data. Fetal deaths are required by law to be registered with Vital Records, however the information collected on the fetal death certificate is insufficient for in-depth analysis of stillbirth risk factors. One new approach to enhancing stillbirth research is to collect information directly from women who have experienced a stillbirth. The methodology used by the Pregnancy Risk Assessment Monitoring System to collect information from women who have had a live birth has been shown in an Emory University study to be effective for stillbirth surveillance as well.

Setting: Every woman in Utah who experiences a stillbirth during 2018 will be selected to participate in the Stillbirth Surveillance project. Surveillance activities will be conducted by staff of the Utah Department of Health.

Project: The objective of our project was to develop and implement population-based surveillance by collecting data on selected maternal attitudes, behaviors, experiences, and health status from women who experienced a stillbirth. The project was funded by the Centers for Disease Control and Prevention (CDC), Division of Reproductive Health. Formative research included focus groups with women who experienced a stillbirth, meetings with subject matter experts, and consultations with researchers from Emory University. Findings were used to revise an existing questionnaire, establish timing and number of survey mailings, and to develop accompanying materials. Short-term process evaluation data will focus on survey response rates. The plan for short-term outcome evaluation is to collect baseline survey data. Long-term outcome evaluation will focus on analytic results being translated into usable information for public health initiatives to reduce the incidence of stillbirth.

Accomplishments / Results: Protocols for data collection and a 65 question survey were developed along with an introductory sympathy card, informed consent document, descriptive letter, program name and logo, and a community resource guide. A data sharing agreement with the Office of Vital Records was authorized and a system for transferring fetal death data was established. Process evaluation is in the early stages.

Barriers: The sensitive nature of the subject and gaining institutional review board (IRB) approval were the greatest barriers. Consultations with maternal grief and department legal experts were key to overcoming these barriers.

Lessons Learned: We learned that many women who have experienced a stillbirth are eager to participate in epidemiologic studies and their involvement in every step of the process is crucial. Also, the amount of time it took to develop this program was greater than anticipated.

Information for Replication: The budget for stillbirth surveillance must cover for personnel, survey printing, postage, and incentives. The annual budget for Utah's pilot was approximately \$35,000. Evaluation findings of Utah's experience will determine future CDC funding and will inform other funded PRAMS sites in their efforts to implement stillbirth surveillance. Partnerships with Vital Records staff, medical experts, and maternal grief support groups are key to the success of a stillbirth surveillance project.

Measuring Success in a “Pay for Success” Funding Model: A Healthy Start Program Case

Authors: Peggy VanderMeulen
Jennifer Raffo
Celeste Sánchez Lloyd
Emily Ludtke
Maria Gajewski
Cristian Meghea
Zhehui Luo
Kelly Strutz Lee Anne Roman

Category first choice: Home visiting

Category second choice: Community collaboration

Issue: Interest in Pay-for-Success (PFS) or social impact bond models has grown in the United States. With this innovative funding model, government, private funders, service providers, and evaluators partner to fund and deliver established programming that achieves predetermined successful impact such as a change in health outcomes along with a financial return on investment. Critical to PFS is the appropriate measurement of outcomes to be used for payment by an external evaluator and a validator. However, measurement is complicated especially for Healthy Start programs that engage highest risk women and face limited administrative data that reflects similar risk for comparison or control groups. Strong Beginnings, a federal Healthy Start program, partnered with the State of Michigan and private funders to test a PFS model. This is the first PFS partnership in Michigan. If successful, this approach could lead to long-term sustainability and expansion.

Setting: Strong Beginnings is a home visiting program that utilizes community health worker and nurse or social worker team care and mental health therapists to ameliorate adverse birth outcomes and maternal-child health disparities among African American and Latina Medicaid-insured women. Strong Beginnings serves Kent County with the second largest city in Michigan and high rates of Black and Hispanic infant mortality and enrolls nearly 1,000 families per year.

Project: In efforts to understand the program’s readiness to implement PFS, a six-month pilot study was conducted. The goals of the study were to: 1) determine readiness to operationalize program utilization, implementation and outcomes; 2) evaluate fidelity of the program model during expansion; 3) resolve data sharing and database functionality; 4) conduct a baseline impact analysis for the primary payment outcomes (preterm birth and rapid repeat pregnancy); and 5) refine and submit a Final Evaluation Plan.

Accomplishments / Results: The pilot resulted in improved implementation of reporting structures and pilot program evaluation; improvement in service delivery and prenatal enrollment; a signed five-year agreement with the State of Michigan and investor commitments. For example, total visits per month increased from 736 to 944 by pilot end. Preliminary analysis of payment outcomes indicated African American women enrolled in the program were less likely to have a preterm birth compared to matched Medicaid-insured African American women in Kent County (11% vs. 13.1-18.0%).

Barriers: Barriers included: 1) identifying relevant payment outcome measures, reliable data sources, and efficient evaluation mechanisms; 2) engaging sufficient number of women to achieve statistical significance; and 3) resistance to change programming, reporting requirements, and organizational culture by adopting PFS approach.

Lessons Learned: PFS is a complex process that requires extensive planning and rigorous evaluation. Changing mindsets from one of providing direct services to demonstrating financial benefits takes time, as does the additional staff training, reporting and supervision needed. A well formulated evaluation plan with relevant comparison groups is essential. The pilot project strengthened program implementation which could result in larger impact on maternal and child health. Although it requires additional time and funding, a pilot period prior to full PFS launch is a worthwhile investment to ensure greater chance of success.

Understanding Local Maternal Child and Adolescent Health Home Visiting Reach for Pregnant Women Eligible for Services

Authors: Aracely Tamayo
Karen M. Pfister
Anand Chabra
Srija Srinivasan

Category first choice: Women's/maternal health

Category second choice: Home visiting

Issue: This analysis aimed to examine the service reach of the eligible pregnant female population targeted by our home visiting programs. These include home visiting programs focusing on first-time low-income pregnant teens and young adults, African-American mothers, and other low-income (Medicaid) pregnant populations. Our second aim was to examine any disparities in program reach by race/ethnicity, geography, and for specific populations of focus.

Setting: This population level analysis was conducted by the San Mateo County Health System to ensure that eligible county residents have access to voluntary home visiting services.

Project: We used 2013-2015 birth data to establish a "Target Population" of pregnant women eligible for Medi-Cal (California Medicaid) services while pregnant. We defined eligible women for services as those who had a Medi-Cal paid delivery in the birth data. We compiled the number of pregnant women enrolled by county home visiting programs using the home visiting program case management system for 2013-2015. The number of pregnant women enrolled was an unduplicated count of women who were enrolled in programs for pregnant women and women who were pregnant at the time of other program enrollment. We calculated percent of pregnant women reached as the number of women enrolled in the programs divided by the target population. We derived an estimate of the overall percent of pregnant women reached and percentages of women reached by county region and by race/ethnicity.

Accomplishments / Results: Our analysis found that we reached 67% of eligible women in our county programs. The northern region of the county, North County, had the lowest percent of women reached (47%), compared to the Mid-County (82%), South County (74%), and the Coastside (97%) regions. Race information was missing for 28% of women reached but for women where race was collected we found that Asian residents were least likely to be reached by county programs (17%), followed by White (31%), Pacific Islander (33%), Latina (59%), and African-American women (118%). We found that we served 94% of teen birth mothers and 103% of African-American mothers with Medi-Cal deliveries. Our analysis is a rough estimate of the reach of our programs for pregnant women as we did not yet have access to 2016 birth data.

Barriers: Percentages served could be greater than 100% as some pregnant women enrolled in 2015 programs could deliver their babies in 2016, and there are no income requirements for the Black Infant

Program for African American women. In addition, some populations may not list a San Mateo County address on the birth certificate, but may receive services in the county. Despite these limitations, we believe disparities between regions will be stable over time. In addition, in our analysis we found substantial missing race/ethnicity data in our county case management system and have prioritized collecting this data with program staff.

Lessons Learned: Certain regions of our county (Coastside, Mid-County) and focus populations such as pregnant teens and African-American women are relatively well served by county home visiting programs. Other regions such as North County and county populations may require additional resources to increase enrollment.

Lessons Learned: Evaluation of a Pilot Universal Postpartum Nurse Home Visiting Program

Authors: Christine Silva
Susan E. Manning
Katie Stetler
Milton Kotelchuck
Karin Downs

Category first choice: Home visiting

Category second choice: Women's/maternal health

Issue: Universal home visiting programs have the potential to reach all families and have demonstrated an increase in connections to community resources. Further, these programs may avoid possible stigma and missed opportunities associated with risk-based programs, resulting in more equitable connection to the health care system in the postpartum period. An evaluation of Welcome Family, a universal short-term home visiting program piloted in select Massachusetts communities, was completed in 2016 to assess program implementation and short-term outcomes. Evaluation results and program implications from four pilot communities will be presented with a focus on connections to the system of care.

Setting: Four Massachusetts communities (Boston, Fall River, Lawrence and Lowell).

Project: Welcome Family offers mothers with newborns residing in pilot communities a one-time nurse home visit and follow-up call within eight weeks of delivery. The goal is to promote optimal maternal and infant well-being and facilitate connections to the early childhood system of care. During the visit, the nurse identifies family needs and either provides support and education necessary to address those needs or refers them to community services and programs. A comprehensive, mixed-methods evaluation, focused on the first three years of program implementation, was conducted using program data, a survey of participants conducted two to three months after the visit, key informant interviews, and a focus group of program participants.

Accomplishments / Results: Among the 2,830 families from the four pilot communities who received a Welcome Family visit, approximately 91% had at least one concern identified related to unmet health needs, nutrition, emotional health, substance use, and intimate partner violence, resulting in 3,794 referrals offered to community services. Among the 2,866 referrals accepted by participants for which follow-up information was documented, 21% had resulted in receipt of services within 2-3 weeks of the visit. An additional 9% of referrals were successfully initiated, but families were not yet engaged in services due to wait-lists or lengthy enrollment processes. In qualitative analysis, key informants and focus group participants identified limited community systems capacity to address identified needs as an important challenge to successfully connecting to services. Among participants who completed a post-program evaluation survey, 71% reported knowing “a lot” or “some” about community supports for themselves or their child. Among them, 27% reported that Welcome Family helped them learn about these supports.

Barriers: Quantitative analysis highlighted programmatic and data collection challenges related to connecting to a system of care, including improving outcomes of referrals offered by Welcome Family nurses. Participants identified lack of time to follow-through with referrals as the major barrier to accessing services. Through quality improvement work, program practices were modified to facilitate the referral at the time of the visit to increase successful connection to services.

Lessons Learned: The Welcome Family evaluation provided valuable information on the extent to which a universal program can serve as an entry point into a system of care. Designing the evaluation in collaboration with the program implementation plan allowed for real-time assessment of performance and enabled timely modifications to improve program benefits and data quality.

Mental Health Enhancement Collaborative Partnership

Authors: Rosalie Finer
Cindy Chow

Category first choice: Community collaboration

Category second choice: Mental/behavioral health

Issue: There is a substantial need in Los Angeles County (LAC) to address the mental health of vulnerable low-income mothers during and after pregnancy to mitigate social-emotional risk factors for their children. This population served by Nurse Family Partnership (NFP) experiences disparity in reliable access to mental health and disproportionately experiences a higher presentation of mental health risk factors than the general population. Silos between systems of care further complicate this need, resulting in restricted access to mental health services and coordinated care. Increased education supports, and tools are needed to address this issue. NFP – Mental Health Enhancement (NFP-MHE) have the following project aims: Enhance collaboration between Public Health and Mental Health Systems of Care Strengthen NFP Nurse mental health literacy and engagement skills Expand NFP Nurse efficacy, and comfort to screen, refer, link, and track integrated services Increase mental health service access and availability

Setting: NFP-MHE is being implemented within LAC to serve pregnant and parenting mothers who demonstrate significant risk factors, meet Medi-Cal eligibility criteria, and are less than 28 pregnant.

Project: The project augments traditionally delivered NFP by integrating additional services and supports to address mental health and social-emotional risk factors, contributing to mother-child attachment. Expansion of this partnership provides an essential backdrop to these efforts. The NFP-MHE consists of six components and constitutes the foundational layer of intervention efforts: Mental Health Training Assessment and Screening Engagement, Referrals, and Linkages Outreach and Coordinated Services Community Partnership Program Evaluation and Data Driven Decision

Accomplishments / Results: NFP-MHE is in the early stages of implementation and has achieved a number of process benchmarks, contributing to the long-term goals. These achievements include: Expansion of collaborative partnerships Development of a shared culture and language Implement measures reflecting risk and protective factors across clients' life course Training on mental health measures, engagement, and resources Establishment of policies and procedures Implementation of data collection methodology Ongoing collaborative data analysis and data-driven decision making Referral and linkage monitoring Enhanced leadership support Enhanced horizontal and vertical communication

Barriers: A short implementation timeline resulted in challenges to stakeholder engagement. Continued need for mental health service portals enhancement and treatment to address the family as a whole.

Lessons Learned: Collaboration encompasses commitment that requires time, shared goals, clarification of concepts and terms, and determination to provide enriched care for the clients. The benefits of the clients must be the foundation and the guiding light in making the partnership work despite challenges. The leadership support and believe in the NFP program to deliver the MHE was vital. Consistent and

ongoing collaborative partnerships, at the service delivery level, are needed to facilitate client engagement into treatment.

Information for Replication: Mental Health Services Act (MHSA), Prevention and Early Intervention (PEI) Funding supports this project and is intended to reduce risk and increase protective factors. Project outcomes reflecting achievement towards these benchmarks are required by the State for future replication consideration.

Utilizing Tablet-based Technology as a Home Visiting Aid: A Pilot Study

Authors: Larissa Loufman
Brittney Delev
Rachel Smith
Carley Riley

Category first choice: Home visiting

Category second choice: Other

Other category second choice: Technology

Issue: In low-income communities such as Price Hill, Ohio, the social and health needs of individuals and families are disproportionate to other areas in Cincinnati due to lack of access to stable housing, work, food, and other resources. Home visiting services have shown potential in aiding this community and have resulted in positive outcomes. Many families require immediate assistance that is often communicated too late. However, modern technology has the potential to facilitate quick solutions to these family's needs by aiding in home visiting data collection, providing real-time access to information and online applications, and significantly improving learning and interactions with families. Current literature lacks studies that have tested the value of tablet use as a home visiting aid. Consequently, we launched the Technology Development Program (TDP) to gauge the effectiveness of utilizing tablets to better collect data, inform our community-based initiative, and serve families.

Setting: Healthy Homes Block by Block (HHBbB), a 501c3 in Cincinnati, Ohio, employs informal community leaders called Block Captains (BCs) who engage their neighbors to identify, build trusted relationships with, and provide support to neighborhood families with pregnant women and/or children under 6 years, as a means of improving local child health and well-being and addressing related disparities.

Project: Our TDP is comprised of three phases: 1) tablet/REDCap application training; 2) REDCap application field testing; and 3) integration of educational applications, online resources, referral tracking, and communication. Currently, in phase 2, lead BCs and, in turn, the rest of the team, have been trained to use tablets and REDCap during home visits.

Accomplishments / Results: Tablets afford BCs an efficient way to enter and access data, improve data accuracy, and secure personal information. Regular group and individual discussions serve to evaluate and adapt the program as needed. BCs are discovering that tablet-based resources greatly improve their interactions with families by providing them with real-time access to needed information. For individuals with low literacy levels, tablets provide a different learning mechanism compared to frequently used paper brochures.

Barriers: Deploying tablets in the community has required support from multiple team members, from technology expertise to on-the-ground support. Training BCs to use tablets has taken time, due to varying levels of skill using technology.

Lessons Learned: Data input via tablets has reduced time needed to enter information into REDCap and has improved access to reliable data and personal information security. Moreover, it has made data collection and compilation more efficient, accurate, specific, and comprehensive.

Improving Coordinated Intake and Referral Processes for Home Visiting in Queens, NY

Authors: Marci Rosa
 Poulette Brewster
 Camille Tinder
 Dayana Bermudez

Category first choice: Home visiting

Category second choice: Women's/maternal health

Issue: In 2015, Public Health Solutions (PHS) and its home visiting partners (Healthy Start) created a coordinated intake (CI) system for three home visiting (HV) programs (Nurse Family Partnership [NFP], Healthy Families New York [HFNY], and Community Health Workers [CHW]), to utilize shared resources for increased efficiency, and to connect vulnerable women with services that best fit their needs and preferences. While our CI has connected over 1,000 families to services, the conversion rate (referral to enrollment) among our partners has fallen short of our goal of 35%. Thus, we have embarked on an evaluation to improve our conversion rates and close the feedback loop (complete the referral) in a more systematic way.

Setting: Jamaica/Southeast Queens, New York is an urban community, with a large African and Caribbean American population. In 2015, there were nearly 3,000 births, 75% of which were covered by Medicaid. The infant mortality rate at 6.2% is the 8th highest in New York City.

Project: We implemented two strategies to improve our conversion rate moving forward: We track referrals and outcomes electronically to increase accountability and efficiency. This system helps us close the feedback loop of referrals in a more systematic manner and reduces the number of "lost" referrals. Referrals outcomes are tracked for all HV programs to monitor our conversion rates citywide. The PHS Research and Evaluation Unit developed an evaluation plan to improve our conversion rates and gain insight into the partner programs' current referral process. The findings are informing our understanding of why women who were referred to a program did not enroll, and identify areas in the referral process and the program delivery process that can be improved.

Accomplishments / Results: In 2017, Healthy Start received 1,438 referrals for potential program participants and we made contact with 1,235. Of those 937 (76%) were referred for services; 448 were referred to HV services throughout NYC., Overall, 179 were referred to our partner programs. The number of referral agencies grew from 18 in 2015 to 50 in 2017.

Barriers: While we made 179 referrals to our partner HV programs in 2017, 41 (23%) enrolled in services. Gaps in communication, lost referrals and incomplete information on referral outcomes have proved to be significant barriers to enrollment.

Lessons Learned: We identified 66 women to survey that expressed interest and were referred to a HV program, but did not enroll; of these women we have administered 13 surveys. Preliminary results show the most common reason that they didn't enroll was that they were never contacted by the program.

Coordinated intake for home visiting requires a solid feedback loop to assure that referrals are received and enrollments are reported.

Information for Replication: One full-time mid-level staff person is needed to implement the coordinated intake unit and engage families in the process.

What we don't know is killing us: how better data will help solve infant mortality

Author: Ryan Adcock

Category first choice: Community collaboration

Category second choice: Leadership

Issue: The social sector is program rich and systems poor. Social service agencies use different measures and data systems, keeping us from knowing where gaps are and what is working best. An aversion to data can cause communities to work tirelessly on the wrong interventions. We need real time, comprehensive data in order to evaluate our collective work. Five years ago in Cincinnati, we were operating on outcome data that was years out of date and program data that was so disconnected that it was impossible to use as a measurement tool.

Setting: In Hamilton County, Ohio we have transformed the ways that we use Maternal and Child Health data. This has allowed funders, program leaders and policy makers all to make dramatically more effective decisions.

Project: Specifically, we suggest 7 steps for using data to build strategic solutions: 1) Develop a focused, common agenda, 2) Gather and report on as much data as is available, 3) Create a culture around data, 4) Understand the complexity of the system, 5) Understand the size of the gaps, 6) Use continuous improvement methods and 7) Unite around a shared system of data. We will share learnings from each step along the journey as well as outcomes that we believe have changed because of this new approach. In laying out these 7 steps, we will share tools including dashboards, mapping techniques, annual reports, run charts and other quality improvement tools, system maps, and communications strategies that can help make data more accessible.

Accomplishments / Results: Cradle Cincinnati has developed a strong culture of valuing data. Decisions are routinely based on granular, up-to-date information. Examples include real-time access to outcome data (including preterm birth, smoking status, infant deaths) and census tract level results that allow for targeted interventions. Additionally, social service providers have exchanged a competitive mindset for systems thinking - using a shared data system that allows for us to learn from each other. Competing prenatal care systems are also using a shared system of data to fuel quality improvement projects around 12 measurable points of change.

Barriers: Some of the steps on our journey took years to implement and we will share our failures along the path. Challenges include developing common definitions, overcoming the political barriers inherent in program measurement (entrenched programs sometimes have a tangible interest in a lack of thorough evaluation), and numerous technical challenges from legal agreements to IT infrastructure at low resource organizations.

Lessons Learned: We will lay out the specific steps another community can take in order to improve their approach to data. This is absolutely foundational to any change package a community hopes to implement. For example, in 2016, we were able to pivot quickly when we saw the efficacy of a safe sleep initiative decreasing. This ability to act nimbly allowed us to change strategy and cut our sleep-related

death numbers in half. Had we been operating under the old system, we would not have known that we needed to improve for years and dozens more kids would have died.

Information for Replication: We have found that funders spend a lot of time and effort on evaluation and therefor have an incredible interest in building data infrastructure. The United Way of Greater Cincinnati supports our data work each year at a level of \$25,000. Additionally, we are careful to build evaluation into every request for dollars that we pursue.

Impact of the New York City Newborn Home Visiting Program on Safe Sleep Knowledge and Behavior

Authors: Christina Fiorentini
Natalie Felida
Libby Carter-Otuya
Crystal Hawkins

Category first choice: Home visiting

Category second choice: Other

Other category second choice: Safe Sleep

Issue: Eliminating racial disparities in infant mortality rates is a priority for the NYC Department of Health and Mental Hygiene (DOHMH). Sleep-related deaths are a particular focus as known, modifiable risk factors exist. A recent report shows NYC has high rates of modifiable risk factors compared to other jurisdictions, specifically non-supine sleep positioning and use of soft bedding.

Setting: The Neighborhood Health Action Center areas are 12 community districts in the Bronx, Brooklyn, and Harlem with high concentrations of poverty, Black and Latinx residents, and adverse health outcomes including infant mortality. Data from 2012-2015 show higher rates of non-supine sleep positioning (41.9% vs 34.2%) and soft bedding (57.8% vs. 53.6%) in these areas compared to the rest of the city.

Project: The Traditional Model (TM) of the Newborn Home Visiting Program (NHVP) was launched in 2004. It is a health education model in which a trained paraprofessional offers 1-2 home visits to families with a newborn residing in the Action Center neighborhoods. Home visitors provide health education in numerous areas, including safe sleep. They educate families around infant positioning, co-sleeping (sleeping separately but in the same room), and bed sharing, and provide a Pack 'n Play crib and demonstrate proper set up to those in need. Lastly, they reinforce American Academy of Pediatrics (AAP) guidelines which include that no soft objects be placed in the crib and remind parents that items should be approved by the US Consumer Product Safety Commission. In 2016, the TM team visited and provided education to 2,600 families and distributed 376 cribs. A formal evaluation of the program commenced in April 2017. A sample of 407 mothers from the TM along with 398 mothers from a control group completed a phone survey at 6-9 months postpartum that probed healthy infant care knowledge and behaviors. Control group mothers had similar characteristics to program participants in terms of race/ethnicity, age, nativity, and education level, but resided outside the Action Center neighborhoods.

Accomplishments / Results: Evaluation results show program respondents were more likely than control respondents to report supine sleep positioning (71.2% vs. 58.0%) and a sleep environment consistent with AAP recommendations (20.6% vs 14.8%). They were less likely to report using soft bedding (58.6% vs. 68.0%) or a sleep environment with three or more risk factors (24.8% vs. 36.9%). There was no significant difference in terms of bed sharing.

Barriers: Funding is a barrier to having a population impact, as resources only allow us to offer visits to a small share of neighborhood residents with newborns (28% in 2016). In addition, only about half of

families who are offered a visit agree to and ultimately receive one. Barriers around delivering safe sleep messages include cultural and family beliefs and traditions and structural housing issues that influence sleep behavior including pests, heat, and overcrowding.

Lessons Learned: Program activities appear to make a difference in families' safe sleep behavior that persists for months after the home visit. Additional efforts are needed as the overall percent of families with at least one modifiable risk factor remains high.

Information for Replication: Required staffing for NHVP includes the paraprofessional home visitors (called Public Health Advisors or PHAs), supervisors, site and program directors, administrative, and data support staff. In 2016, the Traditional Model of NHVP employed 23 PHAs, each of whom was assigned an average of 229 cases and successfully visited an average of 113 families over the course of the year. Clients are referred to the program through linkage agreements with 7 hospitals in New York City. Hospitals provide a daily listing of women who give birth and NHVP staff conduct recruitment activity either at bedside or over the phone in order to determine eligibility for the program (based on breastfeeding intent and residence within the service area). Eligible clients are offered up to 2 home visits and a follow-up phone call.

Characterizing Changes in African American Infant Mortality Rates across Multiple Jurisdictions during Gentrification: A Geographic Analysis to Identify High-Need Areas

Authors: Kenneth Scott
Kaylynn Aiona
Callie Preheim
Jodi Drisko

Category first choice: Perinatal outcomes

Issue: During a period of gentrification, neighboring public health agencies identified contrasting trends in African American infant mortality rates (IMR) in their respective jurisdictions. Maternal and Child Health (MCH) program staff conjectured that the trends might be explained by migration of low- and middle-income families to suburban areas with lower housing prices. MCH program leaders requested analytic support to (a) assess whether there is evidence cross-county migration might explain changes in IMR and (b) determine whether Healthy Start resources should be allocated differently.

Setting: The Denver metropolitan area (DMA) includes a dense urban core, contained in Denver County, and surrounding counties (including Adams and Arapahoe Counties) that tend to have lower density and lower housing costs. The DMA and Denver County in particular are experiencing rapidly increasing housing prices, as well as associated concerns about involuntary displacement of low- and middle-income residents. The African American IMR in Denver County decreased from 14.8 deaths per 1,000 live births during 2012-2014 to 9.0 per 1,000 births during 2014-2016. Rates in Adams and Arapahoe counties, eastern suburbs of Denver, increased from 7.4 to 15.8 deaths per 1,000 live births and 10.5 to 13.1 deaths per 1,000 live births, respectively, over the same time periods. Staff from Denver Public Health (DPH) and Tri-County Health Department (TCHD) collaborated to investigate possible relationships between migration and IMR.

Project: The project aimed to address the following questions: How many black infant deaths have occurred in Adams, Arapahoe, and Denver Counties from 2007-2016 and what were the common causes of death? Are there geographic areas where black births or deaths are occurring that can assist in targeting Healthy Start resources, irrespective of jurisdictional boundaries? Are there observable trends in migration and settlement patterns of specific population subgroups that might describe recent changes in infant mortality rates in Denver, Adams and Arapahoe Counties? Is it feasible to conduct a cross-jurisdictional (DPH and TCHD) public health project requiring processes for sharing vital records data, analytics, and reporting? MCH program staff and analysts at TCHD and DPH jointly determined the scope, clarified objectives, selected relevant data sources, submitted data release forms required to access vital records data on multiple jurisdictions, plan geospatial and statistical analyses and discuss interpretation of results. Data sources include vital records for African American births and infant deaths, the American Community Survey and aggregated migration data from Women, Infants and Children (WIC) participants.

Accomplishments / Results: An analytic plan has been finalized, required permissions have been granted and data have been provided for analysis. Results will be presented at CityMatCH, if accepted.

Barriers: Working across jurisdictions adds time and administrative burden to projects. During rapidly-changing socioeconomic conditions the scarcity of timely geographic data is a serious challenge.

Lessons Learned: Working across jurisdictions is possible, valuable and necessary, particularly when population migration is common.

Information for Replication: Vital records and WIC data provide a valuable source of relatively timely and geographic information that can be used to inform local-level public health planning.

Decolonizing Data: Developing the Future Generations Collaborative Maternal & Child Health Data Book

Author: Aileen Duldulao

Category first choice: Racism, equity, and social justice

Category second choice: Community collaboration

Issue: Data on maternal and child health is often presented from the viewpoint that such data is unbiased and objective. Yet, the collection, interpretation, and presentation of data is highly subjective and these processes often embody power differentials between government and marginalized communities, and replicate historical trauma and oppression. As a result, data that has been collected or is presented on Native and other communities impacted by colonization is often not viewed as being valid or reliable by members of those communities. In the Multnomah County Health Department's work with the Future Generations Collaborative, a collaboration of Native serving organizations in Multnomah County, Oregon, we have sought to develop processes to "decolonize" the collection, interpretation, and presentation of data. These processes work to re-envision and re-establish the critical role epidemiologists can play in the community and how we can better work in authentic, heart-centered partnership with communities who have been harmed in the past by government data and policies.

Setting: Multnomah County, Oregon.

Project: We used several strategies in working towards decolonizing data with the Future Generations Collaborative (FGC). These strategies center the building of the capacity of the FGC to critically understand data sources, methods for collection and analysis, and in particular the coding of race and ethnicity. Activities have included: 1) developing a matrix of data sources that include Native populations and a critical evaluation of how this data is collected and how race is coded; 2) developing a logic model of how epidemiologists will engage and partner with the FGC which includes elements for ensuring transparency and accountability; 3) engaging in collective decision making processes that are Native-led; 4) developing methods of data presentation and communication that are strengths based (compared to deficit based) and centered on storytelling; 5) framing data within a Native-specific life-course model.

Accomplishments / Results: The result of this work will culminate in the release of the Future Generations Collaborative Maternal and Child Health Data Book in September 2018. The Data Book will be a major resource for information on Native MCH in Multnomah County.

Barriers: Barriers included 1) lack of familiarity of public health partners with decolonizing strategies in research and program evaluation and 2) challenging dominant ways of knowing and processes driven by Western conceptions of timeliness and efficiency. These barriers were addressed through providing education and workshops on decolonizing research and program evaluation, using collective determination and providing an evidence-base as to why decolonizing strategies are needed, and working with internal partners to ensure they understood the need for extended timelines and flexibility.

Lessons Learned: Decolonizing data and MCH epidemiology done in partnership with communities impacted by colonialism and historical trauma and oppression are an initial step to improving relationships between government and these communities. Thoughtful, transparent, and authentic relationships between community members and epidemiologists can result in robust data and analytical products that embody the story of a community, use a strengths based context to address maternal health and birth outcomes, and provide a holistic evidence base to support prevention and intervention programs.

Operationalizing equity for American Indian families at Children's Minnesota

Authors: Meghan Porter
Lisa Skjefte
Stephanie Graves

Category first choice: Racism, equity, and social justice

Category second choice: Community collaboration

Issue: Following examination of hospital data, disparities for American Indian/Alaska Native (AI/AN) families at a Children's Minnesota hospital prompted an equity initiative focusing on the Minneapolis AI/AN community.

Setting: AI/AN families from over 60 Tribal nations live in Minneapolis, and citizens of many nations travel to the city for specialty care; both urban and reservation-based AI/ANs utilize Children's Hospital, which is located in a neighborhood with a high concentration of AI/ANs.

Project: Children's Hospital created a new position: the AI/AN Liaison. To provide culturally-sensitive advice to guide the Liaison's work, Children's assembled a community-based advisory group. Initially, the position was intended to be a patient advocate, to help families navigate Children's and to improve patient care experiences. The Liaison quickly discovered that to improve patient experiences, wide-spread system change was needed to build trust with the community and hold the system accountable by looking at the sources of disparities in care. Therefore, the Liaison's activities transformed to focus on trust-building and system change.

Accomplishments / Results: With the objective of providing equitable care to the community by investing in community knowledge and community-generated solutions, so that the community can negotiate their health needs and have those needs met, community and hospital-based activities have been implemented. The First Gift, a community engagement tool to build partnerships and trust within the AI/AN community, connects traditional knowledge, community healing, and positive storytelling/narratives to promote healthy AI/AN babies, through hand-craft baby moccasins—a baby's traditional first gift. AI/AN community members are recruited and trained to come into the hospital to hold AI/AN babies to provide nurturing and healing touch. While Minnesota has the highest out-of-home placement rate for AI/AN children in the nation, Children's is addressing systemic bias through an internal 'Equity in Social Work' workgroup that partners with AI/AN professionals in the community to create system recommendations and social work practice changes. Hospital staff have required education on AI/AN spirituality, particularly the fact that families deserve privacy to engage in their practices. The liaison has coached hospital leaders on equity by providing language and suggesting strategies, and has assisted families in understanding the system's expectations for them and offered suggestions on how to interact with systems in a way that more effectively protects families' wellbeing.

Barriers: Barriers to increasing equity system-wide include continued entrenched institutional racism. Changing the course of a large hospital/clinical system is a monumental task not easily accomplished by a single individual, even with strong leadership support. The liaison's non-leadership position near the

base of the organizational structure presents challenges for influencing strategic priorities or policy to create hospital-wide change.

Lessons Learned: A truly equity-driven initiative must listen and respond to community, not system, needs. Organizations must be willing to turn the mirror onto themselves and scrutinize how their systems perpetuate racism and resist culture change. Patient care improvement activities can consist of community-based programs that promote wellness and connection that extend beyond medical systems.

Information for Replication: Systems that genuinely prioritize improving underserved groups' health must be willing to fund equity initiatives. Systems must listen to and enact directives from the community to create meaningful change.

Moms2B: an innovative academic community-based pregnancy support program for high-risk women

Authors: Courtney Lynch
 Patricia Gabbe
 Twinkle Schottke
 Brooke Meadows
 Tomassina Richards
 Brandy Warne
 Katie Calhoun
 Jamie Sager Courtney Lynch

Category first choice: Perinatal outcomes

Category second choice: Racism, equity, and social justice

Issue: Ohio has one of the highest rates of infant mortality in the United States, with infants born to non-Hispanic black women more than twice as likely to die before their first birthday compared to infants born to non-Hispanic white women.

Setting: Pregnant women living in Columbus, Ohio, the state's capital and most populous city, who reside in one of eight neighborhoods with the highest rates of infant mortality.

Project: Moms2B is an innovative academic community-based pregnancy support program designed to close the black-white disparity gap in pregnancy outcomes and infant mortality. The first site opened in 2010 in the high-risk neighborhood of Weinland Park. Pregnant women are invited to participate in the Moms2B program through pregnancy up until their child's first birthday. From 2012-2014 Moms2B expanded to three more high-risk Columbus neighborhoods. As of 2017, the program is now in eight high-risk neighborhoods. A typical two-hour weekly Moms2B session begins with a multidisciplinary staff in a setting that welcomes Moms, their other children, and their support person. The program follows a set curriculum with each interactive session focusing on a different topic. Before the session begins children in attendance are escorted to a nearby room where they are engaged with child development specialists and volunteers in structured play activities. Each session begins with moms and their support person participating in sister-brother circle where introductions are done along with an icebreaker activity. Groups then separate into pregnant women, new moms, and fathers (if in attendance) for relevant teaching sessions with colorful handouts that participants can take home for future reference. For example, topics cover breastfeeding, reproductive health and birth control, safe sleep environments, smoking reduction, healthy relationships, co-parenting, and setting smart goals for the future. After the lessons, everyone gathers for a healthy meal. Women do weekly one on one check-ins with case managers to help with the social determinants of health including but not limited to needs related to food, housing, income, and job training. Each week, sites provide "shopping" opportunities where women can select from among donated clothes and baby or child items. There are also monthly visits from the local food bank and the local children's hospital mobile unit.

Accomplishments / Results: Since its inception, Moms2B has improved pregnancy outcomes among the highest risk women in the city to the point that Weinland Park, the neighborhood in which the first

Moms2B site opened, is no longer considered a hot spot for infant mortality. Specifically, from 2011-2014 infant mortality in the areas that Moms2B served dropped from 14.2 to 2.9 per 1,000 live births.

Barriers: Despite the return on investment, maintaining stable funding for the program has been a challenge, as addressing the social determinants of health is currently undervalued in our healthcare system.

Lessons Learned: Innovative holistic care models that address the social determinants of health can be successful in lowering infant mortality and hopefully will help us to eliminate its associated racial disparities.

When Cultures Clash - Lessons Learned from CHW and Clinical Integration Attempts to Improve Birth Outcomes in Detroit

Authors: Jaye Clement
Courtney Latimer
Kimberlydawn Wisdom

Category first choice: Community collaboration

Category second choice: Leadership

Issue: Utilizing a Triple Aim approach (better health, better care, lower cost), Women-Inspired Neighborhood (WIN) Network: Detroit aims to reduce the infant mortality rate by leveraging the impact of community health workers (CHWs) in mitigating social determinants of health (SDOH) through an enhanced model of group prenatal care (GPC). This enhanced GPC model (using CenteringPregnancy® as core curriculum) is tailored to vulnerable African-American women. The CHWs serve as co-facilitators with Certified Nurse Midwives (CNMs) and are an integral part of the care team throughout pregnancy, providing additional home visiting support and coaching with the intended outcomes of fewer preterm/low birthweight deliveries, better adherence to prenatal care guidelines, and use of preventive practices. The integration of community-based services within the medical model created challenging dynamics for traditional staffing models and workflows. However, recognizing the importance of adequate prenatal care and that CNMs deliver improved birth outcomes, while also understanding the profound impact of SDOH and the positive influence of CHWs, led to a monumental partnership.

Setting: Detroit's healthcare and social services systems can lack communication and coordination, resulting in adverse health outcomes. Underserved, low-income pregnant women have challenges accessing and following prescribed healthcare regimens and are less likely to obtain the social support needed to navigate difficult situations.

Project: WIN Network believes in helping providers understand the impacts of socioeconomic factors on healthcare. Facilitating improved patient-provider relationships requires a foundation of trust and mutual respect between providers and the community. Integrating CHWs as extensions of the community and a new provider-type within traditional clinical care teams can build trust and yield improvements in equitable birth outcomes. CNMs lead discussions on clinically-based matters while CHWs are encouraged to lead or co-lead discussion on issues more aligned with social issues. Using Health Leads Reach software, community resources for referrals around essential social domains is inventoried and included in patient medical records and leveraged by CNMs to develop more comprehensive care plans.

Accomplishments / Results: Amongst our 117 participants and 86 births to date, the average gestational age is 39.3 weeks (3.5% born preterm) and average birth weight is 7.04lbs (7.69% born low birthweight). Detroit held 14.5% low birthweight and 14% preterm of the live births in 2016. An overwhelming 90% of our moms initiate breastfeeding. We have conducted 834 prenatal visits with 92.2% of patients reporting being highly satisfied.

Barriers: The integration of CHWs into clinical settings, while a novel concept, can be fraught with significant challenges if not recognized and managed well in actual practice. Challenges range from misunderstanding and undue tension to the potential of adversely impacting the dynamics in the clinic environment, clinical outcomes, patient satisfaction and effectiveness of CHWs.

Lessons Learned: This session will focus on 10 identified barriers and corresponding lessons learned in successfully integrating CHWs into clinical settings, which requires system-level change and support of senior leadership with an experiential understanding of the clinical and community cultures. A different type of cultural competence in navigating the oft parallel yet polarized differences in language, expectations, roles and key metrics between community and clinically-oriented team members is necessary.

State Partners – An Invaluable Resource to Positively Influence LARC Policy and Activities

Authors: Olivia Sappenfield
Julia Howland
Keriann Uesugi

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Issue: Long-acting reversible contraception (LARC) is an effective contraception option to reduce teen and unintended pregnancy. However, access to LARC remains a major barrier for all women who choose this method. To facilitate increased access to LARC, state health departments have partnered with other in-state organizations. These partnerships utilize different strategies to increase policy change and uptake of LARC.

Setting: States within Health Resources and Services Administration (HRSA) Regions 1 and 2 representing a range of implemented statewide LARC policies, activities impacted by partnerships, and political will of state leaders.

Project: To facilitate understanding of LARC initiatives, at the state level, we abstracted information on state-based policies and activities targeting LARC access from publicly available, web-based sources. Sources reviewed include Medicaid bulletins, state legislation and statutes, Title V Block Grant reports, organization briefing papers, and fact sheets. We determined that collaborations between a state's health department, Title V program, and Title X program with outside organizations were routinely highlighted as a tool to improve public understanding, increase political will, and change state policy to promote improved LARC access.

Accomplishments / Results: In HRSA Regions 1 and 2, Connecticut, Massachusetts, Rhode Island, Vermont, and New York reported partnering with various agencies to focus on LARC as a priority. Partner agencies included advocacy organizations, non-profit groups, community and clinical partners and state chapters of national organizations. Partnership types included work groups, task forces, steering committees, and state partnerships with a national initiative. LARC activities included congressional testimonies, ad campaigns, improved referrals from school-based health centers, postpartum LARC promotion among providers and women, and technical training for LARC, postpartum LARC, and medical facility changes. Activities facilitated important policy results including passing family planning bills and state plan amendments for postpartum LARC, changing reimbursement costs for LARC devices and procedures, and approving carve outs for federally qualified health centers. Though states for which partnerships were not found did report some of the same policy results, they reported meaningfully fewer results and activities.

Barriers: Publicly available sources were not consistent across states so identifying partnerships consistently was challenging. Further, the Title V Block Grant was the most helpful resource to describe LARC priorities, measures, strategies, and partners, but it was limited by the focus of the grant writers and may not have included all activities. Lastly, LARC-related activities were tailored to fit within the

state's political and social environment, which may have restricted policy language and reported activities.

Lessons Learned: Working with multiple partners from different organizations resulted in increased statewide LARC-related activities and likely impacted the scope of implemented policies. States interested in expanding LARC-related activities should focus on activities that recruit state partners in policy implementation. Such efforts could include an environmental scan during the policy approval process, forming task forces from Title V Block Grant partners, and leveraging relationships with community and clinical partners.

LARC Use for Patients with Substance Use Disorder During an Established Syringe Exchange Program

Author: Jessica McColley

Category first choice: Reproductive health/family planning

Other category first choice: Pair with submissions: 0994-000158 and 0994-000346

Category second choice: Women's/maternal health

Other category second choice: Pair with submissions: 0994-000158 and 0994-000346

Issue: To improve the poor access of effective contraception for women who suffer from substance use disorder and/or socioeconomic disparity who are already receiving clean needles services through an established harm reduction program.

Setting: An established syringe exchange program at Kanawha-Charleston Health Department in West Virginia partnered with a local Federally-Qualified Health Center to provide a co-located harm reduction clinic with primary care services, including access to long-acting reversible contraception (LARC) placement.

Project: An FQHC collaborated with a county Health Department to provide full spectrum acute and chronic disease management, STD testing/treatment, Hepatitis C referral program, Family Planning services, mental health services, and to streamline substance use treatment referrals.

Accomplishments / Results: Prior to combining resources in a co-located facility, only 2 LARCs had been placed for women at the Health Department in the 12 months before the FQHC assumed the role of family planning provider. Harm reduction services were initially offered Wednesdays from 10 am to 3 pm, with initiation of services in December, 2015. In January 2018, the clean needle exchange expanded to include Thursdays from 1 pm to 3 pm. As of February 2018, with only eight months of joint services two days a week, the FQHC staff have placed forty-four LARCs.

Barriers: Although several patients choose to utilize the services offered, routinely, it is difficult to provide effective follow up in a population that is considered transient. In regard to sensitive lab results, the FQHC team has concentrated their efforts to employ a multi-step patient centered lab notification policy.

Lessons Learned: Patients with substance use disorder have identified access to effective contraception as a primary concern for their health. Being able to provide effective contraception for this population in a timely and efficient manner has been extremely rewarding for both the Harm Reduction and primary care clinical teams.

Using a Learning Community Model to Address the Opioid Crisis

Author: Sanaa Akbarali

Category first choice: Reproductive health/family planning

Other category first choice: Please pair with submissions 0994-00346 and 0994-000348

Category second choice: Women's/maternal health

Other category second choice: Please pair with submissions 0994-00346 and 0994-000348

Issue: Substance misuse and addiction and co-occurring mental health issues are a growing public health challenge in the United States. The number of infants diagnosed with neonatal abstinence syndrome (NAS) has increased significantly, mirroring the rise in opioid use. States are taking several approaches to address this issue at different stages in the life cycle. Voluntary contraceptive counseling and services for inmate populations and for women with substance use disorders reduces unintended pregnancies and promotes positive birth outcomes. States are implementing strategies aimed at linking and co-locating family planning with substance use treatment programs and detention facilities. For infants born with NAS, baby-friendly practices, including breastfeeding, are an effective non-pharmacological form of treatment that simultaneously encourages mother and baby bonding.

Setting: Using a learning community model, ASTHO, with funding from the Centers for Disease Control and Prevention, implemented two multi-state projects focused on 1) Increasing Access to Contraception (IAC) and 2) Promoting and Supporting Breastfeeding-Friendly Environments. ASTHO engages states across the country in both initiatives, including those with a high incidence of opioid use and NAS. West Virginia will discuss their successes in co-locating family planning services with harm reduction clinics. Illinois will highlight their efforts in developing and disseminating educational materials on breastfeeding and NAS.

Project: The Learning Community model integrates several research-based implementation strategies including organized meetings, centralized technical assistance, ongoing consultation from topical experts, dissemination of educational materials and resources, and networking opportunities to promote information-sharing, and collaborative problem-solving. A learning community model supports states and territories with policy and program implementation by providing structure and accountability, and preparing for potential challenges and opportunities. The IAC learning community supports states increasing access to most-effective methods of contraception through policy change while the breastfeeding learning community supports states in increasing access to breastfeeding-friendly environments.

Accomplishments / Results: As part of the IAC learning community, states trained providers, created and disseminated provider toolkits, and changed LARC Medicaid billing and reimbursement procedures. Innovative practices include coordination or co-location of contraceptive services with substance use programs and detention settings, social media campaigns, and strategic partnerships with faith-based institutions and communities. As part of the breastfeeding learning community, states increased the

number of designated Baby-Friendly Hospitals, trained health care and hospital staff, supported community breastfeeding efforts, and enhanced worksite breastfeeding support.

Barriers: In contraception access, barriers include stocking and supply, reimbursement for insertion and removal of LARC devices, ethical considerations and consent, and disparities in specific service locations. States in the breastfeeding learning community cited issues with policies and practices that do not actively support breastfeeding in hospitals or at work, normalization of breastfeeding, and individual challenges.

Lessons Learned: Lessons learned are consistent throughout both learning communities. Identify and collaborate with key partners and stakeholders to amplify and enhance efforts. Leverage existing and ongoing efforts to align goals and objectives to implement program and policy change. Identify or create an advisory group or leader to coordinate and streamline efforts and potentially work together to explore funding opportunities. Finally, identify relevant champions in communities, health care systems, and other settings.

Lessons Learned: Milwaukee's One Key Question® Pilot Results

Authors: Allison Amphlett
Fiona Weeks
Ken Schellhase

Category first choice: Reproductive health/family planning

Category second choice: Preconception health

Issue: Milwaukee's rate of infant mortality (9.0) and prematurity (11.3) are higher than the national average, and include significant racial disparities. Unintended pregnancies and short intervals between pregnancies are prevalent, and have been identified as key drivers of adverse birth outcomes.

Setting: Milwaukee is a racially diverse Midwestern city of 600,000 residents. The One Key Question® (OKQ) intervention was piloted with non-pregnant women of reproductive age in 4 diverse health care settings including 2 Federally Qualified Health Care Centers, a family planning clinic, and city-run maternal home visiting programs, to test feasibility of implementation, in anticipation of broader implementation city-wide in Milwaukee.

Project: Milwaukee Lifecourse Initiative for Healthy Families (LIHF), an infant mortality prevention collaborative, selected preventing unintended pregnancy and preconception care as priority approaches to decreasing pre-term birth and infant mortality. OKQ, a strategy developed by the Oregon Foundation for Reproductive Health, asks women, "Would you like to become pregnant in the next year?" and provides care and counseling appropriate to their response. The goal of OKQ is to prevent unintended pregnancy, and promote healthy pregnancies and births. The Milwaukee pilot project was spearheaded by Milwaukee LIHF, which provided training, project management and evaluation. Quantitative process and output measures were collected using electronic health records (EHR) and home visit summaries. Qualitative data was collected with key informant interviews during the pilot to explore facilitators and barriers to implementation. Results from the pilot are being utilized to expand OKQ in Milwaukee and the expansion process will be shared.

Accomplishments / Results: During the pilot (from September 2016 to August 2017), 24,042 eligible women were seen at participating sites. Of those women, 9,857 (41%) women were asked OKQ. The percent of women answering "No" to OKQ was 83% and 13% answered "Yes." Sixty-two percent of the women asked OKQ received contraceptive services or related referrals. Of those asked, 5% initiated a Long Acting Reversible Contraceptive and 4% received preconception counseling.

Barriers: One barrier to implementation was competing priorities for already busy providers. Findings indicated that when Medical Assistants asked OKQ a higher percentage of eligible patients were reached, reducing the burden on providers to ask. There were also issues of documentation and data extraction from EHRs. Utilization of the EHR provided a good opportunity for prompting providers to ask the question and capture the responses. However, EHRs did present challenges in extracting the data for evaluation.

Lessons Learned: Based on the findings of the pilot, there is an opportunity to expand OKQ to more and varied providers, to track intermediate and long term outcomes related to OKQ, to raise public awareness of OKQ, and to ask a One Key Question-like query of men. Pilot data and collaborations established throughout the pilot are being leveraged to reach more providers in Wisconsin, expand evaluation to include patient outcomes, to market OKQ to the public, and to develop a pregnancy intendedness question to ask of men. These steps provide an opportunity to change the landscape for reproductive health care being offered and improve opportunities for women to have healthy pregnancies.

Information for Replication: Incorporating OKQ into care in diverse settings for women of reproductive age requires the active support of both participating providers and system leadership. Sponsorship by LIHF and working closely with the Milwaukee Health Care Partnership, a consortium of all area health care systems, provided strategic support for uptake. Collaboration across systems was key for implementation and opportunities for expansion.

Addressing African American Infant Mortality through a Health Equity Lens Using a Community Engagement Model

Authors: Mia Robillos
Helen Jackson Lockett-El

Category first choice: Child/adolescent health

Category second choice: Community collaboration

Issue: The infant mortality rate is one of the primary indicators of population health. It reflects how well society organizes and allocates resources to benefit the health of its people. Like many population health indicators, the data show that Minnesota is doing well when it comes to infant mortality; it has one of the lowest rates in the country. But disparities tell a different story. For decades now, the African American infant mortality rate has been two to three times the rate of whites. To improve birth outcomes among African Americans, it is necessary to ensure that they have equal opportunities to be healthy. To achieve this, social and economic factors causing the inequities must be identified, policies and systems must change, and approaches to health improvement must take into account the concerns of communities experiencing inequities.

Setting: The project focuses on U.S.-born African Americans in Hennepin County, which is the most populated and has the largest concentration of African Americans in the state. It accounts for more than 50 percent of births and infant deaths to U.S.-born African American women, among whom infant mortality rates are more than three times those for whites.

Project: The Minnesota Department of Health's African American Infant Mortality Project is using a community engagement model and a health equity approach to address infant mortality. It is engaging the population most impacted by the health inequity in the identification of the root causes of infant mortality and in organized efforts to change the key conditions for health. Project activities are: 1) Working with a project leadership team (Community Voices and Solutions) comprised largely of African American community members passionate about maternal and child health issues, and individuals from sectors representing the social determinants; 2) Conducting community co-learning sessions to increase understanding of the issue through a health equity lens, and to activate the community to create long-lasting policy and systems changes; 3) Working with four community-based health clinics to incorporate health equity considerations into their prenatal screening. Evaluation outcomes include increasing knowledge of the infant mortality issue and its causes, of how policies and systems create inequities, and of culturally appropriate health interventions to decrease infant mortality; utilization of community engagement and leadership skills to address infant mortality; formation and strengthening of cross-sector partnerships; and improvement in public health practice.

Accomplishments / Results: Accomplishments to date include: 25-member project leadership team representing 10 sectors, team charter, Social Determinants of Health Framework for addressing infant mortality, Health Equity Narrative for infant mortality, two rounds of community co-learning sessions

completed by four cohorts, list of strategies and interventions for addressing African American infant mortality, and action plans for implementing mini projects targeting system changes.

Barriers: Challenges lie in coordinating over 50 participants who are leading the work, and collecting data from the clinics when funding is limited. Building trust has been key to overcoming the challenges.

Lessons Learned: Lessons learned are the importance of historical trauma in understanding present conditions, and supporting the community's capacity to act so they can develop and implement their own solutions.

Using Fetal, Infant and Child Death Review to address disparities and improve health equity

Authors: Rosemary Fournier
Abby Collier

Category first choice: Racism, equity, and social justice

Category second choice: Other

Other category second choice: infant and child mortality reduction

Issue: While infant mortality in the United States has improved in the past few years, disparities persist between whites and persons of color, especially African Americans. Latinos and Native Americans also bear a disproportionate share of poor maternal and child outcomes. What often underlies these disparities is racism and inequity.

Setting: Child Death Review (CDR) and Fetal Infant Mortality Review (FIMR) operate under the same guiding principle: Local, multidisciplinary review aids in understanding how to prevent future deaths and improve lives of babies, children, and families. Common to both processes is the building of diverse coalition/community partnerships that lead to better understanding of the determinants of infant and child deaths. There are more than 1,300 state and local CDR teams in all 50 states, the DC, Guam and the Navajo Nation. 175 local FIMR programs exist in 29 states, DC, Puerto Rico, and CNMI. FIMRs include interviews to help teams understand mothers'/families' experiences of racism and how those experiences may have impacted maternal and child outcomes.

Project: In 2015, the FIMR and CDR resource centers were merged into one Center funded through HRSA. The Center has 3 key focus areas: 1) technical assistance, training and resources, 2) Reporting systems, data analysis, data quality and dissemination, and 3) National Partnerships to move data to action. The Center convened a disparities workgroup of CDR and FIMR experts from the field for the purpose of promoting the use of information from our review processes to inform communities on factors that contribute to disparities in infant and child outcomes, and, most importantly, to create tools and best practices to help communities translate those findings into action.

Accomplishments / Results: Examples of community actions driven by the review and prevention process to address disparities in infant and child outcome will be described. Actions will address team member training and education, engaging hard-to-reach African American women in family planning services, Sudden Unexpected Infant Death risk reduction, African American Children Matter, and the development of the Safe Sleep Video for African American Dads.

Barriers: In spite of proficiency in identifying disparities, teams struggle developing strategies to effectively address them. Teams not well connected to greater MCH partnerships may have greater challenges in identifying and responding to disparities. A solution has been the development of guidance to teams on education member on implicit bias and racism, gathering the right records to understand maternal experiences, and a tool kit to insure that once teams have findings they are making and implementing meaningful recommendations that address disparities.

Lessons Learned: Fetal, Infant and Child Death Review methodology can offer a unique strategy for analyses of individual and community factors that significantly affect health disparities not discoverable through analyses of vital statistics and population based data. Racism is a pervasive problem throughout our culture. Fatality Review and Prevention, with its in-depth exploration and identification of factors that contribute to poor maternal and child outcomes, is in a unique position to provide great insight into the problems families face in seeking and obtaining healthcare, and significant information about health equity and disparities.

Linking Foster Children to Medical and Dental Care

Authors: Rhonda Freeman
Jocelyn Waters
Claire Lynch-Dwight

Category first choice: Child/adolescent health

Category second choice: Community collaboration

Issue: Children entering foster care often have significant health care needs. All foster children (FC) should receive medical and dental exams on time, defined as within 30 days from the day of being removed from the home and following the American Academy of Pediatrics/Bright Futures periodicity schedule thereafter. In California, from July 1, 2014 to June 30, 2015, exam compliance rates were 82% for medical and 64% for dental. San Diego County rates were 90% and 74%, respectively, for the same time period.

Setting: Many, but not all, FC in San Diego County are receiving preventive medical and dental exams on time. The State has recommended compliance rate targets of 90%. However, it is the County of San Diego's goal that all FC receive timely and routine exams.

Project: A quality improvement (QI) project was implemented in 2015, forming an interdisciplinary team from Health and Human Services Agency (HHSA) Public Health Services (PHS), Child Welfare Services (CWS), HHSA Regions, and County Probation to address exam compliance. A comprehensive approach was implemented to assess processes from point-of-entry to ongoing care coordination. Process maps were created to identify discrepancies among the 7 County sites, caregivers interviews were conducted to identify barriers to care and submission of medical/dental documents, and Geographic Information System mapping determined locations of medical/dental providers compared to FC placements. In addition, compliance data were reviewed by type of placement (e.g., Group Home, Resource Families (RFs), Foster Family Home) to assess variation. Collectively, these efforts detected opportunities to enact efficiencies that could lead to improved compliance rates. From January 1, 2017 to January 30, 2018, two County Regions piloted revised and new processes to evaluate effectiveness.

Accomplishments / Results: Analysis by type of placement revealed disparities in compliance, with rates for RFs being among the lowest. The following strategies were implemented to address compliance rates: incorporated health-related instructions in caregivers' packets, sent reminder letters for upcoming medical/dental exams, obtained access to external electronic health records (EHR) for Public Health Nurses to increase timely receipt of medical information, improved internal communication between foster care team, and continuous monitoring of rates and processes. Over 37 consecutive months (July 2014-July 2017), medical exam compliance rates increased from 90% to 97%. During the same time period, dental compliance increased from 74% to 92%. **Barriers:** Internal/external barriers were identified: paper-based system; lack of standardized processes; delay in receiving insurance card; lack of dental providers accepting Denti-Cal; and RFs lack of knowledge of the system, resources, and exam requirements.

Lessons Learned: Key lessons included: Meeting the health care needs of FC requires multi-department cooperation, along with caregivers and providers, from the moment of placement to documentation of

exams; Engaging staff early and dedicating time to ensure buy-in and accountability; And having EHR access effectively improved timely access to medical information.

Information for Replication: Benefits of the QI project far extend beyond the foster care program, as this effort created a County system of collaboration to improve practices to better serve FC. The project can be replicated with combined efforts between stakeholders, QI expert professionals, and dedicated staff time.

Bridging the GAP*: providing comprehensive sexual health education to adjudicated youth in Oregon

Authors: Lashanda Friedrich
Lindsay Weaver

Category first choice: Reproductive health/family planning

Category second choice: Racism, equity, and social justice

Issue: •Adjudicated youth are more likely to: •Be a youth of color •Be pregnant or parenting •Identify as lesbian, gay, bisexual, transgender or questioning (LGBTQ) •Experience housing instability •Be a victim of past sexual abuse •Be dependent on alcohol or other drugs •Have learning delays and / or disabilities •Have a history of mental illness They also •Are at elevated risk for unintended pregnancy and / or acquiring a sexually transmitted infection (STI) •May lack access to sexual health education due to irregular school attendance •May lack access to crucial health care services such as dental care, reproductive care, vaccines, well-child visit. In Oregon, they are almost 3 times as likely to be pregnant or have gotten someone pregnant, and 2.8 times as likely to ever have had sex.

Setting: Adjudicated youth in Oregon

Project: PREP (Personal Responsibility Education Program) funding was given to the State of Oregon Youth Sexual Health Program, who in turn worked with sub-awardees to implement pregnancy and STI prevention and healthy relationship curricula. One of the populations served was Latino youth in Juvenile Justice Facilities (JJFs). Between 2012 and 2016, 500 youth were served in JJFs by PREP sub-awardees. In our presentation, we discuss the success we have had in implementing comprehensive sexual health programs in a positive youth development framework. The programs implemented with adjudicated youth employs a holistic approach to sexual health and unintended pregnancy prevention by addressing cultural norms, identifying social determinants of health, and building empowerment for youth to have positive sexual health outcomes and engage in healthy, meaningful relationships. We share other ways PREP sub-awardees have empowered adjudicated youth in Oregon, such as referring them to services to help them earn their diploma or GED, go to college or acquire a skill or trade and health care services, all of which has been shown to positively impact unintended pregnancy rates.

Accomplishments / Results: Qualitative data collected showed that youth were largely appreciative of the information shared, and responded well to the positive youth development framing of the materials. They highlighted differences between PREP programming and other risk reduction education they've received as being connections-focused. Staff and administrators also responded well to having PREP programming in their JJFs.

Barriers: - IRB protocol and approval for data collection and parental consent policies - Getting JJF youth to engage and participate (must respect privacy and rights of facility and participants) - Ensuring safety of participants and facilitators - Maintaining fidelity with flexibility - Hierarchy and self-ranking among youth in JJFs - Delivering trauma-informed education

Lessons Learned: Delivering youth sexual health programming in a JJF setting is possible and can have an impact on a very vulnerable population. This is an underserved population with respect to sexual health,

particularly coming from a positive youth development framework. Public health professionals can learn from this presentation about how to serve this population in an informed and compassionate manner.

Testing an innovative sex education program for teens in the foster care system

Authors: Kathryn Luchok
Linda Robinson

Category first choice: Reproductive health/family planning

Category second choice: Child/adolescent health

Issue: Girls in foster care are 2.5 times more likely to get pregnant than girls in general. Nearly half have been pregnant by age 19 and almost one-third have at least one child. This high risk population already is at a deficit due to the lack of medically accurate sex education in schools. South Carolina ranks 11th out of 51 in teen pregnancies among ages 15-19. While the rate is declining, there is still considerable work to be done, especially with the most at-risk youth. Traditional fear-based and boring sex education often fails these teens. Instructors frequently rely on technical information to reduce subject-matter discomfort; this diminishes connection, discourages mindfulness and undermines personal empowerment. In today's age of unlimited information, teens need help extracting fundamental concepts that encourage healthy sexual choices.

Setting: South Carolina; Teens and Group Home Staff

Project: Our role is to provide innovative workshops using sticky messages, normalization, and connection. Sticky messages use humor, everyday language, simple analogies, and concrete metaphors to make complicated reproductive facts easily understood. Normalization shifts the focus away from shame, taboos, and fear-based messages. Connection is promoted by replacing preachy "you" messages with empowering "we" messages that allow people to be seen and valued without judgment. We train staff to enlist their help in getting teens to services; provide lists of services and methods fact-sheets. Teens learn about how their bodies, contraception and condoms work. Model is that more relevant sex education and increases of communication between staff and teens will lead to increased condom and contraception use. We do follow-up rap sessions with teens. Evaluation: pre-post tests and narrative data; seek information on contraception uptake.

Accomplishments / Results: To date we have provided workshops to 58 teens and 75 staff in group homes; Preliminary post-tests indicate 95% of teens agree they understand more about how their bodies work, how to access contraception, and are more confident about choosing a method. Staff report increased comfort in discussing reproductive issues with teens and being a better advocate for helping teens access contraception. Narratives include: this is not sugar-coated, is more interesting, engaging, interactive, hands-on, clear and detailed.

Barriers: Finding time on group's schedules. Overcome this with persistence and flexibility. Teens sometimes move out of the group home before we can follow-up--we try to contact them.

Lessons Learned: Concerted effort is needed to continue follow-up. Expanded funding would allow expansion across the state. Train-the-trainer could also increase the reach. Evidence indicates this is an effective method of sex education that could have wide applicability.

Information for Replication: \$25,000 for one year insufficient to have a large reach with repeated visits. The actual materials such as the Reproductive Anatomy toolbox used in workshops are mostly everyday articles that are free or low cost to make--such as a liter bottle of sand to represent all the sperm in a teaspoon of cream representing a typical ejaculate. We stretched our budget with some free student assistance by giving course credit and providing research experience; the trainer and PI took minimal salary and donated most of their time. We are doing an internal evaluation and ideally would prefer an external one. Key partners included an agency that has Foster Home providers as members. The Group Home Directors have also been key in gaining access to staff and teens.

Fast-track for Fathers: Navigating barriers to engage dads

Authors: Jack Johnson
Jennifer Larramore

Category first choice: Fathers/male involvement

Issue: Fathers play a pivotal part in a child's development. Studies show that children with early father involvement are more likely to be and stay healthy. The Coalition's Fatherhood PRIDE program works to keep fathers in Northeast Florida engaged, present and accounted for so their children survive and thrive. The project addresses the comprehensive needs of fathers and improves their relationship with their children by increasing financial self-efficacy, fatherhood responsibility, compliance with child support cases, education attainment and reducing domestic violence and recidivism rates. While there are coordinated services for many specialty populations in the region – pregnant women, the homeless, teen girls in the juvenile justice system – there has not historically been coordinated efforts to support fathers, especially those that are incarcerated or re-entering the community. When Fatherhood PRIDE began serving this population, one major barrier was immediately identified: the length of the program was identified as a barrier for a court referral for men who owed child support and needed immediate employment to avoid jail time

Setting: Fatherhood PRIDE serves five counties in the Northeast Florida/greater Jacksonville area. Services are available for fathers with an open case of child support, incarcerated fathers or fathers transitioning through work release/reentry centers; and community fathers of families.

Project: The Fatherhood PRIDE program reassessed how services were delivered when it was identified that court-referred dads were not retained in the program at a high rate. Program staff worked with the family court system to identify barriers -- the main which was the length of time of the program (eight weeks). To address this issue and increase retention, an accelerated track was developed. Instead of eight weeks, this track takes place over 10 straight working days. The first two days are devoted to completing the intake process, and the last eight days completing workshops and scheduled services like; 24/7 Dad, Fatherhood & Domestic Violence(DV)/Intimate partner Violence (IPV) Training, Career Development/Job search, and Financial Literacy.

Accomplishments / Results: The accelerated track successfully graduated 45 fathers since starting in April 2017. In their evaluation of the program, these men emphasized the positive impact the program had on them during a difficult time in their lives. Quotes from the evaluation include: "So many fathers feel hopeless out there. This program has given me hope." "It's rare to encounter anyone that sees the father's perspective. Services most likely saved my life."

Barriers: Retention was a major barrier. The accelerated track addressed that, but the men participating in the program still faced issues that made completing the program difficult, like lack of reliable transportation, some had recently been released from jail and were rebuilding their lives, many experienced strained relationships with their family.

Lessons Learned: The biggest lesson taken from this experience is the importance of the program being flexible to the needs of the father, rather than expecting the fathers being flexible to the program.

Retention issues often arise not because of disinterest in the program, but because the participants cannot make the timeline work with their situations.

Information for Replication: The accelerated track is part of an existing program, which in total costs \$600,000 per year. Implementing the accelerated track within Fatherhood PRIDE did not incur any additional costs, but did require significant staff time during the two weeks of each track. A key partner in this was the family court system, which refers most of the men in the track.

Partnerships for Equitable Early Childhood Systems Transformation: ECCS CoIN Teams, Families, and Measurement

Authors: Zandra Levesque
Sherra Lawrence
Sabrina Selk

Category first choice: Community collaboration

Category second choice: Child/adolescent health

Issue: Many early childhood programs and services are available to children and their families at the local and state levels, which are often funded and operated separately. A coordinated early childhood system is needed that comprehensively and equitably addresses the developmental needs of children zero through three. A key driver to this work is establishing effective multi-sector, multi-level partnerships.

Setting: Recognizing this, the Health Resources and Services Administration, Maternal and Child Health Bureau (HRSA MCHB), funds the Early Childhood Comprehensive Systems Collaborative Improvement and Innovation Network (ECCS CoIN). The aim of the ECCS CoIN is to achieve a 25% increase in the developmental outcomes of three year olds by 2021. The National Institute for Children’s Health Quality (NICHQ) and HRSA MCHB lead the ECCS CoIN Coordinating Center in partnership with key organizations (e.g. ZERO TO THREE and Applied Engineering Management Corporation) and advisory teams (e.g. subject-matter experts, grantee teams, families).

Project: To achieve this aim, 12 state -level departments or organizations (grantees) along with 28 place-based communities (PBCs) participate in a learning collaborative that harnesses improvement methods, data, and collective impact in five areas: 1) Family Partnership; 2) Developmental Promotion, Surveillance, and Early identification; 3) Social Determinants of Health; 4) Linked and Integrated Systems for Developmental Promotion; and, 5) Policy.

Accomplishments / Results: Teams were surveyed to assess current activity around partnership building. Using a 0-6-point scale, 0: No Interaction; 1: Networking; 2: Cooperating; 3: Coordinating; 4: Collaborating; 5: Partnering; and 6: Member of organization, grantees reported levels interaction with partners at the state and local level within three sectors which included Early Care and Education Leadership; Health and Human Services and Supports; and Social Services and Family and Infrastructure Supports. The survey also assessed quality of partnerships using 6-point scales for ‘familiarity with partners’, ‘ease of linking work’, and ‘frequency of linking work’. Grantees mostly reported 0 (no interaction) or 1 (networking) with partners in all three sectors. Grantees reported they are “moderately” familiar with services supports offered by partners (range= 3.0-3.9) across the three sectors queried. They also reported “sometimes” (range= 2.5-3.6) linking their work with partners in these areas, and found it “moderately easy” (range= 2.4-3.4) to link their work with agencies in these sectors.

Barriers: The findings helped identify levels of interaction and linking work with partners as barriers to address.

Lessons Learned: This session highlights two grantees and describes their use of effective partnership tools and leveraging unexpected public/private partnerships. One team used The Partner Tool to assess multi-sector partnerships and identify additional partners. Another grantee used innovative system change actions and quality improvement methods to build an unexpected partnership for technology development to promote childhood development.

Information for Replication: Two years into a five-year cooperative agreement, it's clear that building effective multi-level, multi-sector partnerships are key to building systems of early childhood developmental promotion. Through innovative partnership tools and unexpected cross-sector collaborations teams are transforming their early childhood systems. Other states and communities can learn from ECCS CoLIN, about concrete steps to galvanize early childhood systems and comprehensively and equitably address the outcomes of children and families.

Collaborative & Multi-tiered Approach to Accelerate Improvement Outcomes and Measurement for Children 0-3

Authors: Avery DesRosiers
Colleen Murphy
Heidi Black
Quinn Miller

Category first choice: Child/adolescent health

Issue: Many communities lack a coordinated system to promote early childhood development. Parents and caregivers are left to navigate this space on their own. As a result, many young children do not receive needed support to reach optimal health and school readiness. We lack common, measurable population-level outcomes within and across communities. Current barriers to data collection and sharing hampers improvement efforts. StriveTogether and the National Institute for Children’s Health Quality (NICHQ) are leveraging our expertise in improvement science through a Birth to Age 3 Impact and Improvement Network (IIN). This network will apply key competencies of continuous improvement to increase school readiness and reduce disparities in developmental outcomes for children 0-3. This is done by building the capability of local providers to use data and quality improvement by setting quantifiable outcome goals and identifying specific strategies for increasing 0-3 outcomes.

Setting: We are partnering with 6 communities: Arizona – Cradle to Career Partnership; Connecticut – Norwalk ACTS; New Mexico – Mission Graduate; South Carolina - Spartanburg Academic Movement; Tennessee – Seeding Success Partnership; Utah – Promise Partnerships of the United Way Salt Lake

Project: The Pritzker Children’s Initiative (PCI) is funding and leveraging the missions and expertise of 8 national organizations around the common goal of improved outcomes for children 0-3. The PCI will define measures and metrics to examine early childhood development and levers of change. Through project activities, StriveTogether and NICHQ will build community data capacity for improvement purposes and provide dedicated coaching to overcome barriers in collecting, understanding, and working with measures for children 0-3. At the community level, the identified partner sites will run improvement projects, share seamlessly as they innovate tests of change, and work to scale and spread successful interventions. These partner sites are also responsible for partnering extensively within their local community to ensure that they have an appropriate network for tackling intersectional challenges (e.g. vital records, home visiting programs, and parent associations).

Accomplishments / Results: It was necessary for StriveTogether and NICHQ to first define terms, and roles in a way that highlighted the strengths from each organization. Although terminology varied between the organizations, the foundational theories and frameworks were easily integrated. We completed a chart to better align workflow, roles, and authorities across the organizations. Similar conversations occurred horizontally between the practice communities and vertically within the larger Pritzker Children’s Initiative to ensure shared goals, measures, language, and aims while maintaining distinct roles and areas of expertise from the varying organizations and the sectors they occupy.

Barriers: None

Lessons Learned: Already, distinct themes among partner sites emerged as common foci, challenges, and areas of strength and opportunity across each community despite variation in population, geography, and policies. At the organizational level, StriveTogether and NICHQ have redefined shared language and revisited expectations to ensure authentic collaboration and sustainability of the project. Cross-sector collaborations within the overarching PCI aligns individual institutions to accelerate system-level change for children's health outcomes and measurement. Through these diverse and multi-tiered partnerships, we anticipate a shift in how early childhood development is supported, tracked, and improved.

Cross-jurisdictional partnership for alignment and improved early childhood outcomes

Author: Heather Matthews

Category first choice: Life course perspective

Category second choice: Other

Other category second choice: Cross-cutting policy issue

Issue: The Metro Public Health Early Childhood Partnership (MPHEC Partnership) in Colorado develops and implements specific, actionable local and regional public health strategies that address the environments and circumstances in which children and families live and grow, with a focus on achieving equity. Its goals are 1) to support regional alignment and action for early childhood outcomes in public health and 2) to improve collaboration on early childhood across local public health agencies. The MPHEC Partnership has existed for three years and has increasingly narrowed its focus, with a current strategic priority of promoting family-friendly policies, with an emphasis on paid family leave. Family-friendly policies provide opportunities for all employees, regardless of position, to support the health of their family, ultimately leading to stronger and more equitable health outcomes for all. Despite the research demonstrating both health and business benefits of family-friendly policies, as well as the importance of work-life balance for employee well-being and reducing occupational health injury risk, current family-friendly policies are limited. Public health and other governmental entities must lead by example to support partners and communities. Family-friendly policies are proven effective in leading to better health outcomes for adults and children. Implementing family-friendly policies within your own organization encourages other businesses in your community to do the same.

Setting: The Metro Public Health Early Childhood Partnership (MPHEC Partnership) in Colorado includes early childhood experts from public health agencies serving the seven-county Denver metropolitan region. This presentation would benefit others working in local public health agencies with a desire to work across jurisdictions and/or impact early childhood outcomes.

Project: The strategic priority of the partnership is to improve equity, health and well-being by promoting family-friendly policies through shared communications, research and strategic influencing. The partnership initially focused on changing paid family leave policies within each partnering agency, yet also recognized a continuum of family-friendly policies. Additionally, the MPHEC Partnership has expanded its outreach to other local, regional, state, and national partners promoting family-friendly policies. This presentation will share how a collaborative process supports partners in creating or strengthening policy change efforts and amplifies efforts across agencies. The presenters will also share concrete tools for incorporating family-friendly policies as a part of a comprehensive workplace wellness approach.

Accomplishments / Results: Collaborative evaluation using the Wilder tool has shown improved relationships and collaborative functioning. Cross-jurisdictional efforts have heightened awareness of early childhood needs and strategies in upper-level management, as well as across public health in Colorado.

Barriers: There was significant variability in both internal and external political will for family-friendly policy, especially paid family leave, across jurisdictions. Also, funding to accomplish cross-jurisdictional efforts is a challenge.

Lessons Learned: Regional collaboration creates opportunities for greater impact and efficiencies and reduces duplication. Accountability among members provides motivation, encouragement and a sense of urgency for accomplishing efforts. Sharing best practices and experiences with local implementation improves the likelihood of success both locally and as a region.

Novel Partnership: Public Health & Law Enforcement Infant Mortality Response Initiative

Authors: Sylvia Ellison
Wendy Stiver
Sara Paton
Kyle Wallace
Ashley Seybold

Category first choice: Community collaboration

Category second choice: Home visiting

Issue: Dayton and Montgomery County, Ohio has a high infant mortality rate, and high racial disparity. A recent data project found that a majority of parents of infants who died had police interaction in the year prior to infant birth, mainly in the form of traffic violations. This was seen as an opportunity for partnership between public health and law enforcement to identify and support families at risk of infant death.

Setting: The area covered is the west side of Dayton, Ohio. This is where some of the poorest birth outcomes are seen, as well as racial disparity. The population intended to benefit from the planned activities includes pregnant women, and women with children under 3 years of age. The police also hope to see future benefits in terms of less juvenile delinquency and youth criminality.

Project: When encountering pregnant women or women with young children during official calls, Dayton Police will complete a brief referral to the partnership project's contact officer. That officer will forward referral information to Help Me Grow Brighter Futures (HMGBF). HMGBF is an evidence-based home visiting program that connects at-risk parents with professionals who provide information, advice, and support during pregnancy and the first years of the child's life. Evidence based home visiting programs have been shown to improve health and development of a child; prevent child injuries, child abuse, neglect, or maltreatment; reduce crime including domestic violence; and improve family economic self-sufficiency. Following referral, the Dayton Police project officer will coordinate with BFHMG on monthly in-person followup visits, advising the family of their eligibility for a home nurse, and/or other services and support as appropriate. This warm handoff and followup approach with public health and community police is innovative. The Dayton Police project officer in charge has been trained at HMGBF. A Dayton Police training was developed for all role call shifts on west side of Dayton. A brief referral form was developed for on-call officers to submit to Dayton Police project officer. This is then coordinated with HMGBF intake form when appropriate, and used for warm followup visit. Public Health and Dayton Police developed Standard Operating Procedures (SOP), a Logic Model, data tracking tool, and evaluation plan.

Accomplishments / Results: The public health and law enforcement partnership brief training was delivered to police roll call meetings on the west side of Dayton. Fifty officers have been trained, with some followup training communication taking place for those out on initial training days. Ten referrals have been received. One monthly in-person visit day has been completed with Dayton Police and HMGBF home visiting nurse, during which four homes were visited.

Barriers: Initial barriers related to planning a traffic court intervention. When this proved unworkable, the project subsequently moved on to the better idea of connecting at-risk families with social support services.

Lessons Learned: Initiative must be low burden to police officers on duty or won't be successfully implemented. The Dayton Police project officer is key contact for other duty officers, and key to connection between public health, law enforcement, and home visiting program.

Multi-System Collaborative to Increase Preventive Oral Health for Pregnant Women and Children

Author: Andrea Palmer

Category first choice: Other

Other category first choice: Cross-System Collaboration

Category second choice: Women's/maternal health

Issue: To achieve the Maternal and Child Health (MCH) National Performance Measures (NPMs) for preventive oral health for pregnant women and children, Illinois convened a cross-system collaborative effort between Title V/MCH, the Oral Health division of the state health agency, the Center of Excellence in MCH at UIC School of Public Health, oral health, physical health and social service providers throughout the state. The goal was to create a common vision/goal for preventive health for the target populations and to identify local and statewide system strategies for accomplishing the goal.

Setting: The MCH and Oral Health Divisions of the Illinois Department of Public Health (IDPH) hosted one statewide webinar and two in-person meetings to develop a strategic agenda to achieve the Title V oral health NPMs in the state.

Project: In addition to a literature review and analysis of state data, the two IDPH Divisions convened a cross-system group of stakeholders, including oral health, physical health, social service providers and academe to: learn about preventive oral health during pregnancy and childhood; develop a shared vision, goals and strategies for achieving the NPMs of increasing the percentage of pregnant women and children who receive preventive oral health care. To ensure that stakeholders started the work with the same information, the project team conducted a webinar on the MCH National Performance Measures for preventive oral health, the clinical importance of preventive oral health for children and during pregnancy, a summary of the literature and the results of the analysis of IL PRAMS and IL Medicaid claims data for children and pregnant women. The Team then gathered stakeholders in two areas of the state to create a shared vision and allow an opportunity for cross-system discussions focused on strategies to increase preventive health for pregnant women and children at the local and statewide systems levels. These groups' recommendations form the basis of Illinois' strategic plan for Oral Health and MCH.

Accomplishments / Results: 1. Oral Health Fact Sheet 2. Literature Review on Oral Health and Adverse Pregnancy Outcomes 3. Analysis of Illinois' PRAMS data for oral health during pregnancy 4. Sharing of Medicaid preventive services utilization data during pregnancy and early childhood Webinar and PowerPoint slides 5. An inventory of local and state-level strategies to increase preventive oral health in the target populations 6. Cross-System list of key stakeholders 7. To be developed: A strategic plan and toolkit for expanding preventive oral health during pregnancy and for children in Illinois.

Barriers: 1) Misconceptions about oral health treatment during pregnancy. 2) Insufficient infrastructure for oral health in many parts of the state. 3) Low priority placed on oral health by many consumers and providers. 4) Lack of understanding by non-oral health providers about covered services in IL Medicaid program

Lessons Learned: 1) Cross-system collaborations are effective when you help each system understand their role in accomplishing a common goal. 2) Multiple stakeholders have an interest in this issue but do not have an adequate forum for sharing ideas/strategies. 3) There are a dearth of timely data on disparities in oral health in IL.

Implementation of a Health Equity Impact Assessment with North Carolina Health Departments: Lessons Learned

Authors: Leslie deRosset
Dorothy Cilenti
Amy Mullenix
W. Oscar Fleming
Lindsey Yates
Christine Tucker
Diana Urlaub

Category first choice: Racism, equity, and social justice

Category second choice: Women's/maternal health

Issue: Few equity tools enable public health departments to implement a structured process to address health equity in their policies, programs, or interventions. Utilizing an adaption of the Health Equity Review Planning Tool created by the Washington State Department of Public Health and the City of Seattle, local health departments in 13 North Carolina counties participated in a pilot program of the Health Equity Impact Assessment (HEIA) tool. The goals of the project were to: 1). Evaluate the usefulness and effectiveness of the HEIA in examining equity of existing evidence-based practices implemented by local health departments; and 2). Identify necessary modifications to practices to advance equity.

Setting: Local health departments (LHD) from 13 counties collaborated with the North Carolina's Division of Public Health (NC DPH) to implement a HEIA with selected evidence-based practices (EBPs) designed to address infant mortality, poor birth outcomes, and child health among the 0-5 population.

Project: In June 2017, LHDs were trained to implement the HEIA. Prior to the implementation, LHDs recruited community-based organizations/agencies, public/private health and human services stakeholders, content experts, influential leaders, and community experts. The in-person HEIA sessions took place in Fall 2017. Implementing the same HEIA, LHDs varied the implementation protocols to meet the needs of their communities. Standardized observation forms, completed by NC DPH and the Implementation Coaches, were used to record the group dynamics and discussion during the HEIA process. A quantitative assessment, completed after the implementation of the HEIA, also completed by NC DPH and the Implementation Coaches, summarized the findings, suggested modifications, and action plans for each LHD.

Accomplishments / Results: Use of the HEIA in these local communities resulted in the following: 1) Users found the HEIA useful to engage stakeholders in discussions of health inequities; 2) The tool provided a platform to focus on inequities within policies, programs, or interventions; and 3) LHDs were able to describe modifications to the EBPs that would advance equity.

Barriers: The implementation of the HEIA revealed two primary barriers: 1) The tool did not sufficiently encourage in-depth conversations of systemic determinants of health inequities; and 2) LHDs faced considerable challenges engaging consumer experts to participate, which resulted in limited community input.

Lessons Learned: The HEIA provided a means to bring stakeholders invested in health equity together. LHDs can effectively convene and lead health equity discussions around EBPs in local communities to address systemic determinants, especially with adequate tools and preparation. LHDs adapted the implementation protocols to support the specific needs of each community.

Information for Replication: The NC DPH will monitor implementation of changes based on the HEIA outputs to evaluate its effectiveness in modifying EBPs and update the language of the tool to improve and streamline implementation. The HEIA will also be made available to other LHDs across the U.S.

Improving Postpartum Screening Rates among Women Impacted by Gestational Diabetes Mellitus (GDM)

Authors: Allison Lorenz
Reena Oza-Frank
Cynthia Shellhaas
Elizabeth Conrey
Hilary Rosebrook

Category first choice: Women's/maternal health

Category second choice: Chronic disease/smoking

Issue: GDM affects an estimated 3 to 9 percent of all pregnancies; in Ohio, this equates to an estimated 13,000 pregnancies each year.[1] About half of all women diagnosed with GDM will ultimately develop Type 2 Diabetes Mellitus (T2DM). Women diagnosed with GDM may not be fully informed of the risks of developing T2DM and therefore have little motivation to return for the recommended postpartum glucose screening. Providing education on health risk during pregnancy may increase the percentage of women who complete the recommended screening during the postpartum period. [1] Standards of medical care in diabetes—2013. Diabetes Care, 34(Suppl 1), S11–S66.

Setting: The Ohio Department of Health, in partnership with the Ohio Colleges of Medicine Government Resource Center, engaged 25 obstetrics clinical sites across Ohio from 2014-2016, representing 237 individual providers, to participate in a quality improvement (QI) learning collaborative.

Project: The collaborative aimed to increase the proportion of women with a history of GDM who attended postpartum appointments and screening for T2DM. through improving education for both providers and patients. Using a modified version of the Institute for Healthcare Improvement's (IHI) Breakthrough Series Model for Improvement, participating sites were actively engaged for at least 11 months in continuous QI activities supported by provider and patient toolkits. During the project implementation period, sites submitted monthly data on prenatal and postpartum education delivery from patient chart reviews. Patient questionnaires assessed effectiveness of the education and any perceived barriers to care.

Accomplishments / Results: Sites demonstrated improvement over the duration of the QI collaborative in providing prenatal education to women on both their risk for developing T2DM (61%-67% to 83%-100%) and the need for glucose screening between 6-12 weeks postpartum (55%-66% to 83%-100%). The QI data also indicated sites had success with clinical care improvements. Sites increased their postpartum visit rates (50% to 67%-83%) and improved postpartum screening rates (22%-26% to 39%-42%).

Barriers: Several factors contributed to low postpartum screening rates including loss of insurance if the patient was covered through Medicaid, lack of accessibility to providers, and lack of transportation and childcare.

Lessons Learned: To address these barriers to receipt of postpartum screening, a complementary project is underway with the focus on primary care settings. The intent of the current project is to

improve the identification of previous GDM among women who visit their primary care provider, and to assure that those women receive appropriate education, screenings, clinical interventions, and referrals regardless of the length of time since they had GDM.

Information for Replication: All of the resources used in the design and implementation of this project are publicly available for use at www.ohiogdm.com.

Measuring and Optimizing the Success of Cross-Sector Collaborations: Evidence from Five Maternal and Child Health Community Action Teams in NC

Authors: Dorothy Cilenti
Christine Tucker
Lindsey Yates
Amy Mullenix
Oscar Fleming

Category first choice: Community collaboration

Issue: In 2015, the North Carolina General Assembly allocated funding to be distributed to local health departments to implement evidence-based strategies (EBS) that are proven to lower infant mortality rates, improve birth outcomes and improve the overall health status of children ages birth to five. Five local health departments received grants to implement three EBS for two years. The funding required the creation of a community action team (CAT) in each site to provide leadership to the work.

Setting: CATs were created in five locations in NC and consisted of health department staff, consumers, and partners in 13 counties.

Project: The Wilders Collaboration Factors Inventory (Inventory) was used to assess each community action team on 20 factors that research has proven to be important for successful collaboration. The Inventory was completed early in the first year of the initiative by each CAT and repeated approximately one year later. The initial results were used to guide discussion and plan for improvements to address areas of concern flagged in the Inventory results. External implementation coaches then provided technical assistance throughout the year to strengthen CAT processes.

Accomplishments / Results: During the initial year of funding, factor #6 (Members see collaboration as in their self-interest), from the Inventory was a strength for all sites, but factors #5 (Appropriate cross section of members), #9 (Multiple layers of participation), and #11 (Development of clear roles and policy guidelines) were challenges for sites. Preliminary results from the second administration of the Inventory demonstrated overall improvements on Inventory factors, with factors #6 and #20 (Skilled Leadership) being strengths for all sites, and factors #19 (Sufficient funds, staff, materials, and time), #5, #9, and #11 needing improvement.

Barriers: CAT conveners reported that the primary challenges were related to gaining community buy-in and participation by consumers on the CAT. Strategies to address this included greater use of social media to reach the broader community and compensation to consumers in exchange for their attendance at meetings. Other barriers included finding balance between funding requirements and community needs, and appropriately supporting the work of the CAT with staff and administrative resources.

Lessons Learned: CATs sought to balance what their communities valued with what the funding required. Program leaders faced challenges based on their particular context and needed support to

adapt the way that they engaged consumers in the local context. Technical assistance should focus on maintaining engagement through different phases of collaborative work and sharing creative examples of consumer participation from other collaborative initiatives.

Information for Replication: Collaborative, cross-sector work is key to improving maternal and child health outcomes. Providing data-driven technical assistance and coaching to community action teams is an effective way to enhance strengths and address barriers. The Inventory provides a feasible and low-cost tool for gathering data and identifying opportunities for improvement in local, cross-sector collaborative efforts.

Prematurity Campaign Collaborative: Generating foundational guidance for organizations committed to birth equity

Authors: Kweli Rashied-Henry
Lisa Waddell
Fleda Mask Jackson

Category first choice: Other

Category second choice: Other

Other category second choice: collective impact in birth outcomes

Issue: Preterm birth is the leading cause of infant death in the United States. In 2015, the preterm birth rate increased from 9.57 to 9.63. Rates were 48% higher among blacks and over 15% higher among American Indian/Alaska Natives compared to whites. In 2016, March of Dimes convened the Prematurity Campaign Collaborative to address these challenges. Collaborative members embraced equity, specifically health equity in birth outcomes or birth equity, as its vision. The Collaborative proposed six workgroups to align its vision. In 2017, the Health Equity Workgroup set out to ensure that all workgroups had a foundational understanding of birth equity. A national report revealed a “group level flaws” narrative as contributing to disparities. The Health Equity Workgroup is committed to changing this narrative to achieve the Collaborative goal.

Setting: The Health Equity Workgroup leverages the expertise of national thought leaders. Herein geographical boundaries are removed and virtual engagement is upheld. The Collaborative has over 300 members representing diverse organizations including parents. March of Dimes serves as the back-bone organization and is heavily invested in adopting the birth equity principles developed by the workgroup. Nearly 1,000 employees and a million volunteers will be impacted by this effort.

Project: The Health Equity Workgroup held 4 meetings to seek input and consensus from participants about key terms and principles that should be upheld in programs and policy change related to birth equity. The group decided to utilize the Robert Wood Johnson health equity framework to systematically construct its guiding principles. A consensus statement was also conceptualized by the group that outlines research on the causes of disparities in preterm birth, debunking the myth that disparities are natural or inevitable. A small team of social scientists developed the document based on the guiding principles. March of Dimes’ process of convening workgroup members using a collective impact model will be helpful for others seeking to work across silos. An expressed benefit for March of Dimes itself is increasing its own capacity to work strategically, in partnership with others to achieve birth equity.

Accomplishments / Results: Both documents will be distributed in May 2018. Parallel efforts of informing March of Dimes staff has spurred two health equity trainings for all staff. Further examples of applying the foundational guidance across states will be captured by a staff survey questionnaire to

document knowledge transfer and practice changes across the organization. These intended outcomes represent important formative steps for the Collaborative.

Barriers: March of Dimes strives to anticipate challenges related the Collaborative to minimize their impact. Several challenges have been addressed including infrastructure support and scheduling conflicts among Collaborative leaders.

Lessons Learned: The National Prematurity Campaign Collaborative is building a movement to achieve birth equity. A collective impact model can help build capacity of partnering and sponsoring organizations. The Health Equity Workgroup consensus building process has contributed to a deeper understanding of equity in program, policy and research. This is one example of how the Collaborative is advancing the field's understanding of birth equity, and shifting the narrative towards the root causes of disparities in preterm birth.

Information for Replication: References: 1. A new way to talk about the social determinants of health. January 1, 2010. Elizabeth Carger, Drew Western, Robert Wood Johnson Foundation. <https://www.rwjf.org/en/library/research/2010/01/a-new-way-to-talk-about-the-social-determinants-of-health.html>; 2. What is health equity? And what difference does a definition make? Issue brief 1. 2017. Paula Braveman, Elaine Arkin, Tracy Orleans, Dwayne Proctor, and Alonzo Plough. Robert Wood Johnson Foundation. http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2017/rwjf436997.

Collective Impact through CoIN: The FIMR Process in the Commonwealth of the Northern Mariana Islands

Authors: Rosemary Fournier
Heather Pangelinan

Category first choice: Perinatal outcomes

Category second choice: Other

Other category second choice: Infant Mortality reduction

Issue: The U.S.-Affiliated Pacific Islands (USAPIs) are small island nations and territories with diverse populations and varied health resources. American Samoa, Commonwealth of the Northern Mariana Islands (CNMI), Guam, Federated States of Micronesia, Republic of the Marshall Islands, and Palau comprise the USAPIs. The island populations range from 17,501 to 159,805, with annual number of births from 241 to 3,395. The infant mortality rates range from 8.9 deaths per 1,000 live births to 29, significantly higher than the US infant mortality rate of 5.8.

Setting: A 12 month Fetal and Infant Mortality Review Collaborative Innovation Network (FIMR COIN) started 11/1/16. Joined by Puerto Rico and US Virgin Islands, these eight jurisdictions engaged both virtually and in person to learn from and share with each other, to achieve their common aim of establishing/ improving prevention systems in their jurisdictions. The ultimate goal was prevention of infant mortality and achieving more first birthdays.

Project: While the FIMR model is not new, the FIMR COIN supported establishment and implementation of FIMR practices in island jurisdictions where programs did not previously exist. The project's structured activities included technical assistance to complete FIMR self-assessments, 1:1 coaching/mentoring calls, group webinars every 6 weeks, and in person skills building workshops.

Accomplishments / Results: CNMIs Title V MCH Program has increased its efforts to understanding how larger social, economic, and environmental factors impact maternal and infant health. In line with the local MCH Program's priority of integrating a life course framework to address issues in maternal and child health, CNMI opted to utilize the FIMR approach to identify needed improvements within local service delivery systems and policies. CNMIs FIMR program began with an introductory meeting involving key partners and stakeholders in maternal and infant health. Its goals: 1. To provide orientation to FIMR process; 2. To educate attendees on the need to establish FIMR in the Northern Mariana Islands through the use of local data; and 3. To recruit members for the Case Review and Community Action Teams. To date, review team has met to twice. Initial successes include identification of areas for improvement within the local program in itself. Completing the maternal interviews for the case review proved a challenge. Cultural and/or local attitudes and beliefs in addition to the lack of phone service among the population made it difficult to reach mothers to schedule interviews. The team has identified multiple strategies to address this issue and has improvements in reaching mothers and completing interviews.

Barriers: Using technology to remove geographic barriers, the FIMR COIN provided a way for participants to self-organize, forge partnerships, and take coordinated action to address complex issues.

Lessons Learned: The FIMR methodology can offer a unique strategy for analyses of individual and community factors that significantly impact maternal, infant, and family health not discoverable through vital statistics and population based data. The FIMR CoIN demonstrated how this methodology can be adapted in island settings. FIMRs monitor community status to identify health problems, provide new insights and innovative solutions to inform, educate, and empower people about health issues, and mobilize community partnerships.

How PPOR Data Set the Stage for Collective Impact Action with the Baby's 1st Project

Authors: Gabrielle Grode
Katie Kenyon
Mara Aussendorf

Category first choice: Community collaboration

Category second choice: Perinatal outcomes

Issue: The PPOR subcommittee of Delaware County Baby's 1st Project completed a PPOR study and found that the fetio-infant mortality rate was 3 times higher among black women as compared to white women. The vast majority of this disparity was attributed to birthweight distribution among very low birthweight babies. Quantitative and qualitative analyses revealed several important risk factors associated with very low birthweight, including women's health issues, stress and mental health, pregnancy spacing, prior poor birth outcomes history, quality of and enrollment in prenatal care, and housing. The subcommittee collaborated with diverse stakeholders to translate these findings into action to improve birth outcomes; a process critical to providing Baby's 1st Project with a strategic plan and to ensuring members' continued commitment.

Setting: Though small in size, Delaware County is PA's 5th most populous county. Socioeconomically and racially segregated, it has one of the highest income equality disparities in PA. One in 10 children live below the poverty level, and while the area is resource-rich, it is coordination-poor. Baby's 1st Project works as a cross-sector group to reduce birth outcome disparities.

Project: Community strategic planning sessions were held to create an action plan. Working in small, facilitator-led groups, members derived strategies addressing key risk factors. The strategies were subsequently synthesized by theme and approach. Members then completed a survey prioritizing strategies. In a second session, members further refined objectives and crafted a mission, central principles, and outcomes. The resulting action plan was circulated for final feedback and unveiled at a Town Hall meeting.

Accomplishments / Results: Baby's 1st Project created a community action plan to reduce fetio-infant mortality disparity in their community. The plan revolves around 6 strategies: Strengthen Baby's 1st Project; Improve health care and social service delivery and access; Build provider capacity; Bolster community-based support; Develop programs for targeted populations; and Improve access to quality housing; and has key measures of success. The entire process, including the PPOR study, was conducted in conjunction with the members, who had developed considerable trust with each other. This trust allowed for profound discussion and for an action plan that was sensitive to the community's needs.

Barriers: Certain sectors have been difficult to engage. This challenge is addressed with continuous outreach and by having members appeal to their professional networks. While more than 50 organizations are represented in the Baby's 1st Project, involvement from organizational leadership is lacking. Nonetheless, by cultivating relationships with passionate advocates within systems, we have

seen movement towards larger-scale change and have received support from leadership at some anchor institutions and funders.

Lessons Learned: While the data-to-action process was led by the PPOR leaders, the action plan itself was created by and belongs to the Baby's 1st Project. This ownership is essential for sustaining long-term engagement. The PPOR study brought renewed interest in a larger scale conversation about health disparities in our community. Looking forward, Baby's 1st Project is seeking funding to implement its multi-prong approach to improving birth outcomes and is engaging stakeholders to assume leadership roles in advancing the identified strategies.

Information for Replication: Key partners/stakeholders include home visiting staff, a pediatrician who served as medical advisor, social workers, representatives from the Medical Assistance provider's pregnancy care program, a Nursing Professor, the Health Educator from Chester City's Bureau of Health, an L & D Nurse, a Certified Nurse Midwife, and other Maternal & Child Health service providers.

Tele-mental health and MCH: Federal and State approaches to expand access to care

Authors: Sara Miller
Stacy Collins

Category first choice: Mental/behavioral health

Category second choice: Women's/maternal health

Issue: Improving access to healthcare for MCH populations remains a challenge throughout the US. Reimbursement, geography and provider shortages play a role in this on-going dilemma. For certain services, such as behavioral health, insufficient access is particularly acute for Medicaid and rural populations. An estimated 87 million Americans live in mental health provider shortage areas. Tele-mental health (TMH) is a promising approach to expanding access to behavioral health services; research studies indicate that TMH is equivalent to face-to-face care in various settings. It is now being promoted by payer and provider groups, the public health community, state and federal policymakers.

Setting: AMCHP's project focuses on federal and state initiatives that encourage TMH implementation, and features case studies of states that have developed innovative and successful TMH programs.

Project: The presentation will: - Examine the role of TMH in expanding access to behavioral health services for MCH populations, particularly pregnant and parenting women, and CYSHCN. AMCHP will discuss federal policy action to promote TMH within the Medicaid program and examine insurance industry initiatives that support the growth of TMH. - Explore the barriers to TMH expansion, including provider reimbursement, state licensing and regulation, multistate systems and practices, state medical board regulations, and provider resistance. We will elaborate on state solutions to overcoming these barriers, including innovative financing approaches, comprehensive TMH provider and consumer education, expansion of reimbursement-eligible locations, and other strategies. - Examine the roles that local and state MCH professionals can play in advancing TMH. Providing data on the unmet behavioral health needs of MCH populations, and convening stakeholders such as Medicaid, insurance carriers, provider groups, public health leaders, universities and telehealth experts to explore TMH opportunities, are two important roles for MCH. - Highlight innovative state-level TMH projects that bridge the gap between MCH populations and behavioral health services.

Accomplishments / Results: The presentation will demonstrate that for vulnerable populations such as CYSHCN and pregnant and parenting women, TMH addresses a critical need for services that are often out of reach. With the heightened awareness of the importance of behavioral health care, the time is right for the advancement of this promising approach. Research to support the efficacy of TMH will be explored in the presentation.

Barriers: AMCHP's project highlights barriers to expansion of TMH for MCH populations - including inadequate Medicaid reimbursement, state licensing and regulation, multistate systems and practices, state medical board regulations, provider resistance and misinformation. The presentation will elaborate on solutions to overcome these barriers.

Lessons Learned: Federal policy support for TMH encourages state implementations and replication of successful models. At the state level, successful TMH implementation require the support of multiple stakeholders from different health care sectors. Although it may prove cost-effective in the long run, successful TMH implementation requires a commitment to appropriate provider reimbursement and investment in communications technology. MCH advocates can use the information provided at this presentation to promote TMH policies and programs that address unmet behavioral needs of MCH populations and decrease the barriers that hinder the spread of this promising model of care within states and communities.

Shaping Health eMoms in Colorado: Pioneering innovative methods to enhance maternal and child health surveillance

Authors: Sarah Blackwell
Rickey Tolliver
Ashley Juhl

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: Infant and early childhood health

Issue: The effectiveness of traditional modes of public health surveillance is in decline; response rates are falling, administrative costs are rising, yet federal funding is dwindling. Recognizing a need for innovation to collect high-quality maternal and child health (MCH) data at a sustainable cost, the Colorado Department of Public Health and Environment (CDPHE) has developed Health eMoms, a web-based surveillance system for the collection of timely, flexible, and longitudinal data on the perinatal and early childhood periods.

Setting: Health eMoms surveys mothers across Colorado (CO) from shortly after birth until their child's third birthday in order to collect novel data that will help CDPHE programs and partners to improve the health and wellbeing of all mothers, children, and families across CO.

Project: Health eMoms is a web-based longitudinal surveillance system that collects information on mothers' attitudes, behaviors, and health and social conditions from shortly after birth until their child's third birthday. In April 2018, CDPHE began drawing monthly simple random samples of 200 mothers from live birth certificate records and recruiting these mothers by mail at 2-4 months postpartum to enroll in the Health eMoms online platform. Enrolled mothers receive 6 web-based surveys every 6-8 months by email and Short Message Service during the three-year study period. As an incentive, mothers receive an electronic gift card for each survey they complete. The 10-minute surveys are being developed in collaboration with CDPHE programs and partners to fill data gaps and enhance existing MCH surveillance. Survey topics include: vaccine hesitancy, breastfeeding, mental health, parental leave, illicit and prescription drug use, child social and emotional development, social determinants of health, and more. Cross-sectional and longitudinal data will be weighted to represent the annual CO live birth population. During the first year of Health eMoms, the system will be evaluated on monthly recruitment rates, survey response rates, and data quality.

Accomplishments / Results: During 2017 and early 2018, CDPHE collaborated with multisector partners to develop the Health eMoms protocol, first year surveys, communications materials, and software. In April 2018, CDPHE began sampling, enrolling, and distributing the first Health eMoms survey to mothers who gave birth in CO in 2018. Sampling for 2018 births will continue through early 2019. The second survey will be distributed to the first Health eMoms monthly cohort at the end of 2018—around 12

months postpartum. Post-implementation operational metrics will be shared at the time of the 2018 CityMatCH Leadership and MCH Epidemiology Conference.

Barriers: CDPHE has faced challenges anticipating response rates and associated costs of promised incentives given the novelty of Health eMoms operations. Evaluation of Health eMoms operations during early implementation will provide information to help understand and address these barriers.

Lessons Learned: Pioneering a web-based, longitudinal MCH surveillance system is a considerable challenge given limited state resources, but CDPHE is committed to piloting novel methods and sharing findings with other states facing similar challenges with traditional surveillance systems. Health eMoms will serve as a test of the feasibility and sustainability of mobile-based, longitudinal surveillance for the collection of high-quality, novel data for applied public health surveillance.

Puerto Rico Maternal Child Adolescent Health Division: Leading Partners to Promote Compliance and Implementation of Breastfeeding Support Policies in Hospitals

Authors: Cindy Calderon
Manuel I. Vargas-Bernal

Category first choice: Leadership

Category second choice: Other

Other category second choice: Promoting Breastfeeding Policies

Issue: Breastfeeding initiation is promoted by hospitals implementing the baby friendly steps, proven to support successful breastfeeding initiation post-partum. Due to the lack of Baby Friendly Hospitals and the low Maternity Practices in Infant Nutrition and Care (mPINC) survey scores (61 in 2013) in Puerto Rico (PR), the PR Maternal Child Adolescent Health Program (PR-MCAH) took the lead to promote changes in the maternal-infant hospital practices in PR with the goal to increase breastfeeding initiation prevalence. For this purpose two main strategies which required collaborative partners, whom shared similar goals were developed. First was the development of an Administrative Order (AO) to require hospitals to establish a Breastfeeding Support Program and to adopt baby friendly steps to be able to continue their recertification to operate. Hospital certification is granted by the Department of Health Licensing Secretariat (SARAFS). The second was to develop educational strategies focused on promoting compliance with the requirements of the AO.

Setting: Advocates and experts in breastfeeding and Baby Friendly Hospitals, the PR Chapter of the American Academy of Pediatrics (PRAAP), and staff from SARAF collaborated in the development of the AO-336 under the lead of PR-MCAH. The AO-336 was approved by the PR Secretary of Health, becoming effective on May 2015. Multiple educational activities were developed in PR directed to hospital staff, directors and providers. The Pan-American Health Organization representative in PR and the PR Chapter of American College of Obstetrics and Gynecology also joined as partners in this effort promoting AO-336 to their contacts and members. These efforts were aimed to bring changes that benefit all newborns born in hospitals in PR.

Project: Workshops on multiple strategies to comply with each of the requirements of the AO-336 were coordinated and delivered to hospital directors and staff throughout the island promoting the modification of their maternal- infant practices. These workshops were coordinated by the PR MCAH staff whom facilitated the participation of partners as collaborators in the whole process. Training were delivered by PRAAP members, and other breastfeeding advocates and experts. Evidence of hospital staff training on topics relevant for breastfeeding support was included as a requirement in the AO-336 promoting participation of 100% of hospitals in training activities. The AO-336 also required hospitals to collect data relevant to post-partum breastfeeding support practices and prevalence prior to discharge.

Accomplishments / Results: The mPINC scores increased from 61 in 2013 to 69 in 2015 and the Puerto Rico 2016 Vital Statistics reported that 94.8% of mothers ever-breastfed prior to registering their babies, compared to 81.5% in 2015 and 79.6% in 2014.

Barriers: Due to changes in administration and limitation of staff in SARAFS, follow-up to confirm hospitals compliance was not accomplished. Other measures allowed evaluation of impact such as ever-breastfed reports in Vital Statistic and the modification in practices reflected in mPINC scores.

Lessons Learned: The efforts and cost to deliver these strategies was shared with collaborators who pursue the same goals under the leadership of PR-MCAH. The effectiveness of policies and regulations may increase by sharing specific strategies to help institutions implement changes and comply.

Information for Replication: Activities were scheduled for 3 hours of contact. Seven activities were delivered throughout the Island. The PR-MCAH Division provided the Pediatric Consultant as a resource for the educational activities and to help coordinate the activities. The Pediatric Consultant also coordinates and leads the PR Breastfeeding Promotion Collaborative Group (PR BFPCG). The PR BFPCG membership consist of representatives from other organizations and agencies (WIC, Women Ombudswoman, Patient Ombudsman, Department of Family Welfare, PR United Way, Panamerican Health Organization), professional societies (PR AAP Chapter, PR ACOG Chapter), lactation experts, community based breastfeeding support groups (Proyecto Lacta, La Leche League, Breastfeeding Coalition, Separe) and representatives of mothers from the community (Breastfeeding Mothers Movement) as collaborators. They are instrumental in developing strategies to support breastfeeding in the hospital and in the community. Members of this collaborative group who joined this effort include the PR AAP Chapter, breastfeeding advocates and experts in breastfeeding such as the Leche League, Breastfeeding Coalition, WIC, breastfeeding mothers organization Breastfeeding Mothers Movement, Proyecto Lacta support group, and SARAFS. Other organizations, members of the PR BFPCG, provided the venues for the educational activities free of charge, and helped develop de educational materials and presentations. Presentations with suggested strategies to comply were uploaded to the internet for free access. Panamerican Health Organization and Proyecto Lacta sponsored snacks and coffee for participants (aproximately \$1050.00 total cost/ \$150 per session/ 7 sessions). Presentors did not charge for their participation, presentations nor cost of travel.

Early Childhood Developmental Screening and Title V: Building Better Systems

Authors: Anna Corona
Paige Bussanich

Category first choice: Child/adolescent health

Category second choice: Children and youth with special health care needs

Issue: Because early childhood is a critical period that can set the stage for one's health trajectory, investments in early childhood programs and services can greatly improve a child's development. Although developmental screening is only a piece of the greater early childhood systems of care, it is a mechanism through which states can leverage Title V funding and partner with various sectors to achieve improved outcomes in early childhood development.

Setting: The activities described in this presentation occur across 41 states and jurisdictions that selected the Maternal and Child Health Bureau's National Performance Measure (NPM) 6: Percentage of children, ages 9 through 71 months, receiving a developmental screening using a parent-completed screening tool. Eleven of the 41 states and jurisdictions are involved in the Early Childhood Comprehensive Systems Collaborative Improvement and Innovation Network (ECCS CoIIN), and this presentation will highlight examples of ECCS CoIIN partnerships with Title V programs. Due to the broad systems approach of the proposed presentation, the intended audience is all stakeholders with an interest in partnering with Title V programs to improve early childhood outcomes.

Project: To document state and jurisdiction activity in NPM 6, The Association of Maternal and Child Health Programs (AMCHP) conducted an environmental scan of Title V program developmental screening activities. AMCHP obtained information through the Title V Information System by filtering programs that chose NPM 6 and reviewing state action plans to ascertain their NPM 6 strategies, their accompanying evidence-based/informed strategy measures, and related challenges. The range of strategies presented and the states and jurisdictions referenced provide a snapshot of program approaches, strategies, and techniques being used to increase developmental screening rates.

Accomplishments / Results: The environmental scan revealed a wide range of NPM 6 strategies and activities, under the following categories: 1) Policy Research, Development and Implementation; 2) Systems Coordination; 3) Data Collection, Measurement and Existing Landscape; 4) Technical Assistance and Training; 5) Education, Engagement and Resource Development; and 6) Other Title V Program Strategies.

Barriers: Title V programs face barriers to expediting the developmental screening, evaluation, diagnosis, referral, and treatment process. Addressing these challenges requires collaboration and partnership across early childhood programs and sectors, examples of which are demonstrated in this project's resulting issue brief.

Lessons Learned: The presentation will discuss the ways in which Title V programs have been successful in their efforts towards improving NPM 6 by implementing various activities that align with the six major strategies previously listed. Throughout their work, Title V programs have emphasized that creating

comprehensive early childhood systems of care cannot be achieved without the alignment and partnership of various sectors interested in improving early childhood outcomes. With developmental screening being leveraged as a first step in this endeavor, Title V state and jurisdictions are in an optimal position to partner with relevant stakeholders to improve early childhood outcomes in general. Two ECCS CoIIN grantees will present insights on building successful partnerships with Title V programs by aligning their activities with the six previously noted strategies.

Systems Coordination for the Early Identification of Autism Spectrum Disorder and other Developmental Disabilities: Seven Years of Lessons Learned

Authors: Paige Bussanich
Anna Corona
Kate Taft

Category first choice: Birth defects/developmental disabilities

Category second choice: Community collaboration

Issue: Early identification of autism spectrum disorder and other developmental disabilities (ASD/DD) allows communities to provide children with earlier treatment or interventions that are more effective in improving delays and disabilities and less costly than special education services in later childhood. The Centers for Disease Control and Prevention's (CDC) Learn the Signs. Act Early. (LTSAE) campaign was launched in 2004 to educate parents, health care professionals, and child care providers about developmental milestones, and the importance of early identification and intervention for children. As part of this initiative, Act Early State Systems grants are designed to strengthen state and community systems for early identification and coordination of services for children with ASD/DD.

Setting: LTSAE State System grantees have been dispersed among 34 states and jurisdictions across the country and include state health departments, early childhood development-related non-profit organizations and university centers. The intended audience includes stakeholders interested in creating and strengthening partnerships across different sectors to improve the coordination of state systems for the early identification for children with ASD/DD.

Project: The purpose of this project was to analyze the various strategies implemented by five cohorts of AMCHP's LTSAE State System grantees over a period of seven years. Specifically, this report showcases the innovative strategies implemented by grantees to achieve the project aim of strengthening state and community systems for the early identification and improving coordination of early intervention services for children with ASD/DD. Furthermore, products and tools created, outcomes, and lessons learned are highlighted for each grantee's activities.

Accomplishments / Results: The strategies implemented by grantees to improve systems coordination for early identification of ASD/DD fall in line with the CDC's 8 Act Early Promising Practices, which include: goal alignment, sound practice, audience reach, partnerships, goal achievement, evidence base, sustainability, and translation. More specifically, the application of these strategies resulted in increased awareness, knowledge, and expertise of developmental screening tools among key stakeholders in early childhood systems of care; increased cementing of regular screening activities within statewide systems of early identification; and improved sustainability of program activities to solidify the connectedness of relevant sectors. A survey of grantees assessing the above strategies is currently in progress, and results will be available for the conference presentation.

Barriers: Not surprisingly, the most common barriers for grantees were centered around sustainability issues, such as workforce capacity, lack of resources, and funding. However, as a result of this project, grantees have prioritized partnering with community stakeholders as one of their key strategies for addressing sustainability concerns.

Lessons Learned: Leveraging evidence-based screening tools such as the CDC's LTSAE materials has shown to be a promising strategy for strengthening existing partnerships and establishing connections for new collaborations. Specifically, grantees learned that providing trainings on the implementation of materials, translating materials for community partners, and providing venues for partners to network served as mechanisms for encouraging new partners to commit to the project's aim. Lessons learned also included strategies for sustainability, as states strive to make limited but impactful goals that can be achieved in the short- and long-term.

Providing Resources and Support to Families Affected by Birth Anomalies: collaborative model between state public health and established peer-support program

Authors: Suzanne Zane
Rhiannon Simon
Tamara Bakewell
Lesa Dixon-Gray

Category first choice: Birth defects/developmental disabilities

Category second choice: Children and youth with special health care needs

Issue: State birth defects programs can play a role in assisting families of affected children by providing information and supporting service referrals. However, some states, including Oregon, are legislatively restricted and/or financially constrained in providing direct referral and follow-up to services for families who might need support.

Setting: Peer support and resource navigation are available statewide throughout Oregon, and include peer navigators for English or Spanish-speaking families with a child, of any age, with a birth defect.

Project: The Oregon Birth Anomalies Surveillance System (BASS) is funded by the Centers for Disease Control and Prevention to conduct surveillance, promote prevention strategies, and utilize data to aid individuals and families in obtaining services. BASS cannot contact affected families directly due to legislative, confidentiality, and funding constraints. To fulfill grant requirements and the public health imperative of data-to-action, BASS contracted with Oregon's Family to Family Health Information Center (F2F HIC) of the Oregon Center for Children and Youth with Special Health Care Needs to provide outreach, education, and referral support for families affected by birth anomalies—a natural extension of their existing work around the state. F2F HIC, with BASS, developed a detailed webpage with resource sheets on all 50 tracked birth anomalies, launched in fall 2017. BASS and its community and public health partners link to this webpage. F2F HIC provides parent peer educators statewide and a call line for support and navigation assistance including referrals and toolkits. BASS staff provide training for parent peer educators on birth anomalies as well as on newborn screening programs (early hearing detection and intervention, heel stick/blood spot, and pulse oximetry).

Accomplishments / Results: BASS completed three statewide peer educator trainings; one included exceptional needs care coordinators from Oregon Coordinated Care Organizations. From February 2017-January 2018, F2F HIC completed 861 unique one-to-one family contacts, 101 unique one-to-one professional contacts, and provided BASS information at 46 events reaching 663 individuals. As families in contact with F2F HIC are not required to specify their child's diagnoses, these totals may not directly correspond to the number of contacts requesting information specific to birth anomalies.

Barriers: Obstacles included timing of the F2F HIC contract to ensure enough time for material development, branding and approval by the medical center, and BASS staff capacity for development of

trainings and public materials. A high level of collaboration and in-person meetings resulted in problem-solving inter-agency contract issues, as well as in allotting workloads among staff.

Lessons Learned: We leveraged a partnership with an existing statewide family peer support program to overcome legislative and infrastructure barriers to assisting Oregon families affected by birth anomalies. This enables provision of families with support and resources without compromising privacy and confidentiality of BASS data. This collaborative model can be used by other states with similar barriers to directly contacting families, including lack of legal authority, privacy and confidentiality issues, and funding and staffing needs. Establishment of similar partnerships could be used by other states to assist such families with health care and resource navigation, information, and peer support.

Improving Maternal and Child Health Outcomes by Addressing Structural Racism and Promoting Racial Equity: Lessons Learned from Massachusetts Title V

Authors: Katie Stetler
Hafsatou Diop

Category first choice: Racism, equity, and social justice

Issue: Findings from the 2015 Title V needs assessment indicated that while Massachusetts is a healthy state overall, there are persistent racial and ethnic inequities in many maternal and child health (MCH) outcomes. Structural racism is a key contributor to these inequities. Massachusetts has therefore named racial equity as one of its 10 Title V priorities.

Setting: The Title V program within the Massachusetts Department of Public Health.

Project: The Massachusetts Title V program is implementing strategies to eliminate structural racism in its programs, policies, and practices through its Racial Equity Initiative (REI). Established in 2016, the REI aims to equip staff with the knowledge and skills to promote racial equity in their work and create equity-focused organizational change. Short-term outcomes of the REI are evaluated through an annual survey that measures: 1) staff understanding of the connection between racism and health, 2) staff perception of the work culture as a supportive and empowering space to address racism, and 3) whether staff have the skills, tools, and resources to promote racial equity.

Accomplishments / Results: The baseline evaluation survey was conducted in April 2017. Results indicate that staff understand the connection between racism and health and feel an individual responsibility to promote racial equity. However, staff do not yet have a common language for discussing racism or the skills and resources to apply a racial equity lens to inform the design and delivery of services. Key efforts to address these challenges have included offering training for Title V staff to develop a shared understanding of and support for a public health framework centered on racial equity. To date, 48% of staff have attended a training and 23% have attended a companion skills-building session. Racial identity affinity groups were formed to offer staff of color and white staff the space to separately process their racial identities and unique roles in addressing racism. Staff have also been provided opportunities to practice re-framing their programs using a racial equity lens. The evaluation survey will be re-administered in spring 2018 to measure improvements in the short-term outcomes.

Barriers: A primary barrier is communicating to staff that the focus on racism is not at the exclusion of other forms of inequity. Rather, the framework and resources developed to address racism can be applied to other inequities, such as those faced by people with disabilities. It has also been important to communicate that the REI's focus is on structural, not interpersonal, racism. Furthermore, the REI is part of transformational organizational change. We strive to make short-term gains to maintain momentum and staff engagement, with the understanding that real, lasting change takes time.

Lessons Learned: Important first steps in this effort were to name structural racism as a contributor to health inequities, to ensure staff have a common understanding of and language to discuss racism, and to communicate our collective responsibility to address racism. Identifying and understanding how structural racism affects our work, workforce, and the populations we serve will help us develop and implement programs that result in more equitable MCH outcomes.

Addressing Access to Quality Housing to Advance Equity in Birth Outcomes in St. Louis

Authors: Jennifer Kret
Rose Anderson-Rice
Nhial Tutlam
Pamela Xaverius
Steve Estopare

Category first choice: Racism, equity, and social justice

Category second choice: Women's/maternal health

Issue: Black infants die at a rate 3 times higher than white infants in St. Louis. Maternal health and premature births account for the greatest excess in fetal-infant mortality rates (FIMR). Because of considerable residential segregation in St. Louis, many areas with high African American populations are also areas with concentrated poverty, a lack of affordable, safe housing, and poor birth outcomes. Some literature suggests that housing affects maternal and infant health through pathways of chronic stress. Poor quality and lack of affordable housing have been associated with preterm births and low birth weight.

Setting: Five zip codes across St. Louis City and County were chosen for targeted interventions due to high FIMR, low birth weight, and percent population below Federal Poverty Level.

Project: In 2016, St. Louis joined Cohort 3 of CityMatCH Institute for Equity in Birth Outcomes, which uses data-informed and community-driven approaches to identify upstream/downstream interventions to address inequities in birth outcomes. FLOURISH St. Louis, a collective impact initiative, supports this IEBO team. Perinatal Periods of Risk (PPOR) was used to analyze live births and fetal/infant deaths from 2010-2014 and plan strategic actions. Generate Health STL convened multiple partners, such as Saint Louis City and County health departments and Saint Louis University, and leaders from target communities. Monthly community meetings engaged community leaders—mothers and fathers—in reviewing PPOR analysis results. Facilitated discussions identified concerns about lack of awareness of racial disparities in infant mortality and culturally appropriate delivery of services to women of color, as well as housing insecurity/quality issues among pregnant women. Three strategies selected address housing issues: 1) identify/advocate for policy to give housing preference to pregnant moms, similar to Boston's model (upstream); 2) create/elevate a supportive housing model that includes MCH Life Course Theory; and 3) empower renters to know rights/educate landlords on associations of quality, affordable housing and health (downstream). An evaluation plan will be developed. Potential activities/outputs include preparing fact sheets, policy briefs, public service announcements, tenants' bill of rights; disseminate products through stakeholder engagement. Short- and mid-term outcomes: increase knowledge of policies that support pregnant women among housing agencies'; decrease negative perceptions of renters; decrease housing insecurity among pregnant women. Long-term outcome: no disparities in birth outcomes.

Accomplishments / Results: Major accomplishments: maintained high level of engagement from community residents and leveraged a strong team of epidemiologists for data analysis/intervention planning.

Barriers: Identifying how to align with FLOURISH St. Louis and not duplicate strategic actions was challenging. Previously, housing has not been addressed in the context of birth outcomes in this region.

Lessons Learned: Community power and consensus building ensured a community-driven decision making process. The flexibility of Generate Health STL to advocate for policy and community change is a great asset. Bringing partners from the housing sector earlier could improve understanding of historical and current housing policies earlier in process.

Information for Replication: Missouri Foundation for Health provides funding to FLOURISH St. Louis as well as St. Louis IEBO community meetings for transportation, meals, and child care.

Meeting Women Where They Are: Creating Sustainable, Innovative Strategies for Increasing Folic Acid Consumption in Arizona

Author: Susan Poag

Category first choice: Women's/maternal health

Category second choice: Preconception health

Issue: For over 5 years, PowerMeA2Z has worked to reduce neural tube birth defects in Arizona by distributing over 130,000 free multivitamins with folic acid through the campaign's educational website (with 107,000+ unique users), and through a network of over 150 outreach partners. PowerMeA2Z was developed by the Arizona Department of Health and SUMA Social Marketing. Using PowerMeA2Z as a case study, this presentation explores how SUMA developed innovative messaging and strategies for preconception and interconception audiences, and how we cultivated a powerful grassroots network to achieve sustainability and create behavior change.

Setting: By meeting women where they are in life – geographically and psychosocially – the award-winning PowerMeA2Z designated an AMCHP Promising Practice - has reached women in every county of Arizona, cultivated grassroots partnerships, and increased folic acid consumption statewide. PowerMeA2Z was developed through qualitative and quantitative research with preconception and interconception audiences, as well as health care providers, WIC, and home visiting programs.

Project: Our research informed culturally relevant and age-appropriate messaging for interconception and preconception audiences, and shaped the campaign website, collateral materials, and broadcast and digital advertisements. We also identified key partners, which interface with these audiences daily, including local health departments, nonprofits, faith-based organizations, universities, pharmacies, and WIC clinics. Through the campaign messaging, website, advertising, and grassroots partnerships, women receive free multivitamins with folic acid and relevant, motivational health information.

Accomplishments / Results: For over 5 years, PowerMeA2Z has worked to reduce neural tube birth defects in Arizona by distributing over 130,000 free multivitamins with folic acid through the campaign's educational website (with 107,000+ unique users), and through a network of over 150 outreach partners. In annual participant evaluation research, over 77% say it is "very important" for women to take a multivitamin with folic acid, and over 64% said they made a health behavior change due to this program – and these percentages increase each year.

Barriers: A barrier to reaching preconception women who were not planning on getting pregnant was crafting messaging that would appeal to them that was not centered on preventing birth defects. SUMA overcame this barrier by holding focus groups with preconception women to test messaging and ask the target audience what would motivate them to take a daily multivitamin with folic acid. This qualitative research led SUMA to focus campaign messaging on how folic acid can help improve women's hair, nails, and skins, rather than on preventing birth defects.

Lessons Learned: We will showcase the methodologies that have made PowerMeA2Z so effective with messages that are researched and relevant. We will demonstrate how attendees can use the strategies behind PowerMeA2Z to craft innovative messaging and sustainable partnerships in their programs and communities. This session provides strategies on developing motivating social marketing campaigns and messaging to meet women where they are in life—geographically and psychosocially. Participants will follow the development of PowerMeA2Z’s campaign messaging and how this messaging helped create and foster a network of outreach partners. The strategies are dynamic and applicable to other social marketing campaigns related to grassroots network development and women’s health.

Safe Housing as a Precursor to Healthy Birth Outcomes (birth weight) and Safe Sleep

Authors: Lynn Kennedy
Julie Barrow
Dixie Morgese

Category second choice: Community collaboration

Issue: Poverty and insufficient affordable housing creates a resource vacuum for pregnant women in the 34114 ZIP code. A series of severe weather events identified a dangerous gap in services for pregnant women and families with young children; they simply had no place to go. How can providers focus on “safe sleep” when moms had no safe place to sleep? There is also a disparity in low birth weight (LBW) births. This generated a common agenda to secure safe housing to improve birth outcomes and safe sleep environments for infants. The thrive by five Collaborative (tb5) was the backbone organization for ongoing communication and beginning mutually reinforcing activities.

Setting: The ZIP code has the highest infant mortality (IM) rate, significant homelessness, the highest percentage (15.1% vs. 8.7% countywide) of LBW births and disproportionate rates of social determinants of health. Poverty rates are high while educational achievement and employment is low. Black population 26.5% versus 10.0% countywide. Greatest percentage of LBW births in county is among Non-Hispanic Blacks (13.7%). Ratio of Black IM to that of Whites is more than 2:1.

Project: Building on existing community collaboration to broaden participation from community members to seek solutions, raise funds, secure in-kind support, provide case management and a community nurse. Join evidence-based coalition work from all partners. Innovation: targeting this population to reduce homelessness toward better birth outcomes and IM reduction. The evaluation plan provides for baseline, incremental (when available) and annual data. Existing data: IM counts/rates and causes, PPOR preconception health indicators, FIMR and CADR data, housing status, and employment rates/wages. New data: number of women/infants safely housed, pack n plays delivered, stakeholders mobilized, public and private sector financial support, Attention will also be given to process measures toward quality improvement over the life of the project.

Accomplishments / Results: Volusia Flagler County Coalition for the Homeless (VFCCH) expanded “family” priority to include pregnant women. HSCFV: 1) applying for housing grants 2) identified a private donor for matching funds and a property owner for transitional housing for pregnant women, 3) received grant from local private foundation for a community nurse. Partnerships with Department of Children and Families for a press conference and town hall scheduled to unite community members and leaders toward reducing child and infant deaths and injuries.

Barriers: 1. Low community awareness. 2. Lack of communication across systems. 3. Moratorium on new social services within the ZIP code. Supportive organizations were unaware pregnant women were not considered “family” for homeless priority status. The homeless and MCH systems were not communicating adequately on this issue. When awareness was raised, quick commitment to resolutions followed. The moratorium on social services remains.

Lessons Learned: 1. Communication is key: for early issue identification and a common agenda. 2. Data limitations: not available for homeless pregnant women or young children. Point-in-time data does not identify families with young children too young to be identified by schools. IM is a sentinel community health indicator. Ensuring healthy birth outcomes and reducing IM impacts years of potential life lost as well as preconception and Interconception health.

Building Community Capacity for Research Partnerships for CYSHCN with Intersectional Disparities

Authors: Clarissa Hoover
Jennifer Bolden Pitre
Julie Lucero

Category first choice: Racism, equity, and social justice

Category second choice: Children and youth with special health care needs

Issue: Diverse and underserved communities are often justifiably wary of taking part in research activities, contributing to a vicious cycle where disparities increase in the relevance and quality of research as community trust declines. The growing popularity of including family partners in research for children and youth with special healthcare needs (CYSHCN) presents the opportunity to develop research that is multicultural and transformational, and build trust with communities who experience disparities in research relevance and quality.

Setting: The nationwide Family Wisdom learning collaborative included community-based family-to-family organizations from 16 states, who met twice monthly via videoconference, hosted by Family Voices of Albuquerque, NM and the University of Nevada, Reno. About half of participants were in cultural broker roles for their organizations, and half were directors for their organizations, who were supervising cultural brokers or planning to staff cultural broker positions in the future. Many of the participants were also family caregivers of CYSHCN.

Project: Family Voices adapted the Project ECHO model, developed for continuing education for healthcare providers, in an innovative application supporting program development in family-to-family organizations. The learning collaborative met for 24 sessions from November 2017 to November 2018. Each session included a project presentation by a member of the learning collaborative, and a topic presentation covering key topics of interest for research partnerships with diverse and underserved communities.

Accomplishments / Results: Participants showed increasing confidence and sustained commitment through the year of the learning collaborative. The Project ECHO model shows promise as a capacity-building model for family-to-family organizations.

Barriers: Building meaningful and diverse research partnerships takes resources and sustained effort. Since the results of these efforts are often intangible in the early stages, it may be difficult to allocate resources or gain funding for them. Members of the learning collaborative helped each other visualize their projects and set goals for the early stages, and identify opportunities to advance and build their capacity.

Lessons Learned: Project-based learning (more generally known as case-based learning in the Project ECHO model) builds confidence and practical knowledge, and helps community-based family-to-family organizations operationalize their aspirations for building partnerships with researchers and diverse and underserved communities.

Increasing FMNP participation and the purchase of fruits and vegetables at farmers' markets

Authors: Presenting Author Jennifer
Carrie Zavala
Tasha Williams

Category first choice: Nutrition and physical activity

Category second choice: Community collaboration

Issue: "Maricopa County (MC) WIC is in the third year of the Farmers' Market Nutrition Program (FMNP) pilot, which collaborates with local farmers' markets in an effort to increase redemption rates of FMNP checks for fresh fruits and vegetables. Maricopa County Department of Public Health (MCDPH) WIC works to actively promote the program but historically suffers from low participation and redemption rates. Additionally, many families miss the opportunity to participate because the maximum number of checks are issued on a "first-come

Setting: first-serve" basis and exhausted earlier in the season."

Project: WIC participants in Phoenix, Arizona are able to redeem these checks at local farmers' markets and receive a variety of fresh and locally grown produce.

Accomplishments / Results: WIC participants visit the market to pick up FMNP vouchers and are able to use them immediately, receiving assistance from WIC and market staff on how to locate vendors and redeem vouchers. The first year of the pilot (2016), participants were able to visit the market every other Saturday to pick up vouchers. Results indicated that reducing the amount of time between checks issued and redeemed helped increase participation and redemption rates. During the second year (2017), a second, centrally located market was added on Wednesdays and issuance increased to every Saturday. Additionally, the program is adding Senior FMNP vouchers to improve access and redemption rates within this population.

Barriers: MC WIC issued and redeemed 67% of FMNP vouchers in 2017 and 51% in 2016, in comparison to 37% in 2015 and 38% in 2014. Both years of the pilot, MC WIC exceeded the average issued and redeemed rate for Arizona State.

Lessons Learned: Although significant improvements, the self-reported number of vouchers redeemed by WIC participants does not reflect the actual number of vouchers cashed by vendors. MC WIC is currently investigating and conducting focus groups with WIC participants, market managers, and market vendors to identify areas for improvement prior to the start of the 2018 season.

Information for Replication: Issuing FMNP checks at the Farmers' Market increases the likelihood of participants redeeming the checks for fresh fruit and vegetables. It also helps support local farmers and increase the need for local product. However, additionally training and education for vendors may be needed to ensure that redemption rates are accurately reported.



Program & Policy Track

Poster Abstracts



Adoption of Innovation: Spinning Babies®, an Interdisciplinary Labor Support Program to Mobilize Pregnant Women and Improve Birth Experiences

Authors: Leslie Fung
Michele Helgeson
Lorenza Holt
Sylva Yeghiayan
Jennifer Conti
Karla Damus

Category first choice: Women's/maternal health

Category second choice: Perinatal outcomes

Issue: Despite progress to reverse escalating rates of cesarean sections, in 2015 about 26% of all deliveries in the US were low risk cesarean births, with highest rates for black women. Rates exceed HP2020 objectives and these major abdominal surgeries have significant risks for mothers and their newborns.

Setting: At a community hospital in Greater Boston, we implemented the Spinning Babies Quality Improvement project, which included a training program for antenatal and labor and delivery (L&D) nurses to improve patient care and satisfaction. The targeted audiences are multidisciplinary obstetric providers and pregnant women in labor.

Project: Spinning Babies® is an innovative approach created by midwife Gail Tully that encourages and guides mothers in pregnancy and labor to lengthen and release the tension or torsion in their soft pelvic tissues. By matching specific birth positions, the diameter of the pelvis opens where the baby rotates and descends. Spinning Babies involves collaborative, interdisciplinary efforts between the mother and her obstetrical team to improve birth outcomes. Because early feedback from Spinning Babies from positive anecdotal birth outcomes and satisfaction from the mothers demonstrated a high potential from this approach, a community hospital initiated the adoption of this innovation into a hospital setting. Activities included 8-hour Spinning Babies trainings for antenatal and labor and delivery nurses, where 80 providers (primarily L&D nurses) were trained, a grand rounds presentation at the hospital to introduce Spinning Babies to physician providers, and the development of a nurse-mentorship program. Pre/post and 3-month follow-up survey results from will be presented. Focus group and key informant interviews with providers, nurses, and patients as well as preliminary results on implementation and perinatal outcomes will be discussed. A logic model will also be included.

Accomplishments / Results: The effective Spinning Babies trainings (increase in knowledge $p < 0.001$) on the immediate post-test assessment support that it can be integrated into existing perinatal services, could increase the overall quality of maternal care, and ultimately a reduction in racial disparities. The 3-month follow-up assessment results will be included.

Barriers: The acceptance for Spinning Babies from all obstetrical providers is challenging due to skepticism from traditional providers. The nurse-mentorship program and the high patient satisfaction over the course of this implementation period have helped create positive energy and experiences to mitigate this barrier. To gain the potential benefits, we need evidence based, rigorous research to engage stakeholders and to support future program impact.

Lessons Learned: One lesson learned was the importance of the strengthened partnerships among interdisciplinary providers of the obstetrical team. This was underscored by interview and focus groups data. Another lesson learned was the gained opportunity for providers to empower pregnant women through increasing mobility and shared decision making during labor with Spinning Babies. This could suggest the possibility of shifting the traditional paradigms surrounding obstetrical care. Additional lessons learned will be discussed.

Information for Replication: Leadership buy-in was essential to launch the project, including institutional funding for all the nurses' training.

Patient-Centered Connect Care Helps Connect Working Families with the Medical Home

Authors: Nathan Fleming
Amy Romashko

Category first choice: Medical home

Category second choice: Community collaboration

Issue: Patient preferences of low cost, convenient, after-hours care close home as spurred expansion of urgent care clinics across the US. Urgent care clinics typically offer walk-in care (no appointment is necessary) with weekend and evening hours, and the capabilities to perform simple procedures like suturing, casting and foreign body removal. However, urgent care often fails to connect families with their medical home. Children's Medical Group Urgent Care in Milwaukee implemented a Patient-Centered Connected Care framework to link asset-limited income-constrained employed parents with a medical home.

Setting: Children's Medical Group (CMG) in Milwaukee, WI was the nation's first pediatric urgent care system recognized by the National Committee for Quality Assurance (NCQA) for Patient-Centered Connected Care (PCCC). CMG operates six urgent care clinics staffed by 49 providers to care for 36,000 patients in 2017. Our clinics are open after-hours – evening and weekends – and serve asset-limited income-constrained employed households with school-age children.

Project: PCCC provided the framework for CMG to measure and to improve patient experience, measure health outcomes and drive quality improvement. PCCC sites meet minimum standards for connecting with primary care, identifying patient needs, culturally appropriate services, systems capabilities, and performance improvement. CMG leveraged the PCCC framework to divert ED visits for asthma, laceration and fractures. In addition, CMG improved antibiotic stewardship by standardizing treatment guidelines for urinary tract infections, pharyngitis, pneumonia and ear infections across sites for all providers. CMG targeted medical waste through guidelines for imaging utilization. The goal is to improve trust between community providers, build a medical neighborhood to support families, help reduce waste in the health care systems, such as duplication of procedures and unnecessary ED visits or hospitalizations, and, most importantly, to communicate clearly with the family's medical home.

Accomplishments / Results: CMG Urgent Care can provide a model for how sites delivering intermittent, outpatient treatment leverage national recognition to promote local quality improvement. CMG Urgent Care sites transfer less than one percent of patients to emergency departments. The average Urgent Care appointment saves families and the healthcare system as much as a thousand dollars compared to treatment in an emergency department. The combination of evidence-based care, low-cost interventions, and waste reduction make Urgent Care attractive to health systems interested in population health management. Most importantly, PCCC integrates outpatient, after-hours care into a medical neighborhood that fosters better pediatric care.

Barriers: Historically, urgent care is not considered as a part of the medical home. The healthcare system has not provided clear communication between providers. Episodic care, especially in urgent

care, is often not coordinated with patient-centered medical home guidelines, workflows or committees. PCCC prioritizes communication with primary care providers. They have built workflows within the EMR to route encounter summaries to patient's primary care team. Urgent Care providers participate in Patient-Centered Medical Home workgroups, quality committees, and contribute to Clinical Practice Guidelines.

Lessons Learned: When urgent care is integrated into the medical home, the result is improved patient experience, better health outcomes, reduced variations in quality of care, and consistent communication that fosters trust between families and the healthcare system.

Information for Replication: PCCC recognition costs \$1,500 per site. The NCQA requires all sites to complete a recognition survey every 3 years. CMG Urgent Care employs a Physician Lead for Quality and Health Equity as a 0.5 FTE position to facilitate quality improvement and ensure continuing PCCC recognition.

Academic-Practice Fellowships: An Apprentice Model for the Next Generation of Public Health Leaders

Authors: Patricia Elliott
Zandra Levesque
Katie Keating
Hitome Abe
Karin Downs
Jennifer Childs-Roshak
Lois McCloskey

Category first choice: Leadership

Category second choice: Community collaboration

Issue: The demographics of students entering into master of public health programs has shifted over the years yielding classrooms full of students with little professional workplace experience. Accredited schools and programs of public health are required to provide applied practice experiences to enrich student learning and develop competencies necessary for successful transition into the workforce.

Setting: The Boston University Center of Excellence in Maternal and Child Health (CoEMCH) has developed a practice-based fellowship program to augment the required student practicum. Working closely with community partners, including the Boston Healthy Start Initiative, the Massachusetts Department of Public Health, Planned Parenthood League of Massachusetts, and the National Institute for Children's Health Quality (NICHQ), specific opportunities are defined and marketed to students interested in maternal and child health.

Project: Selected students are matched with an organization and work on a project team for about 12 hours a week for 10-12 months. Fellows and site supervisors develop clear learning objectives that support areas of student interest and fill gaps for the organization, with time-bound deliverables to support autonomy and growth. Students are integrated into existing teams and receive weekly check-ins from their site mentor. Fellows meet regularly with faculty to discuss challenges and make connections between fellowship experiences, academic coursework, and professional ambitions. Each fellow receives a stipend of \$2000 and presents their work in a School-wide Forum. To evaluate the effectiveness of the fellowship, students and site mentors complete mid-term and exit interviews; and faculty assess job placement six months after students graduate. Results here highlight the success of the fellows working in one site, NICHQ.

Accomplishments / Results: Three students were matched to NICHQ between 2015 and 2017 to work primarily on the Infant Mortality Collaborative Improvement and Innovation Network project. Student deliverables included: extensive bibliographies, report and web content, and national conference abstracts and presentations. Results of exit interviews with mentors and fellows showed that students developed their project management skills, reached their desired competencies, and were meaningful contributors. Two fellows were hired at NICHQ and a partnering organization, and the third received support in attaining other employment.

Barriers: Fellows have expressed the quick pace of the professional environment was challenging and even a struggle at the beginning. Flexibility and effective communication strategies were essential to keeping up with work-flow. Ultimately, students reported that the fellowship was influential to their professional development.

Lessons Learned: In order for this type of program to be truly successful it is necessary to recruit and select students who are ready to climb steep learning curves in fast paced organizations, mentors willing to invest time in students, and faculty able to provide consistent support and feedback throughout.

Information for Replication: For the University, financial resources for student stipends and faculty time bolstered the program's legitimacy and supported oversight. For public health partners, existing relationships with the CoEMCH was essential to establish buy-in and cultivate willingness to foster in-depth mentored practice experiences for the fellows. Continuous communication and effective use of reflective supervision to support students made this program a success.

Health programs excel with student internships

Authors: Jennifer Dykhuizen
Carrie Zavala

Category first choice: Other

Other category first choice: Workforce

Category second choice: Leadership

Issue: Students actively seek opportunities to volunteer their time with local health departments to gain real world and hands-on experience. As professionals, it is our responsibility to ensure the incoming workforce is skilled, motivated and up to the challenges of working in the field. Additionally, health programs identify a need for additional help to meet program goals and objectives as funding streams run dry and budget cuts continue to rise. The implementation of the pilot was in response to the burden imposed on staff to meet program goals and participate in activities and projects outside of day-to-day clinic business. The internship program has since evolved to include other projects that benefit the WIC program, in addition to collaborating health programs at the department and community stakeholders.

Setting: The internship pilot program is part of the Maricopa County Department of Public Health WIC Program, Phoenix, Arizona. Students have contributed to improving the overall wellbeing of pregnant, postpartum and breastfeeding mothers, infants, and children 0-5 years living within Phoenix and the surrounding cities.

Project: Maricopa County Department of Public Health WIC Program is in the third year of the Internship Pilot. Students have helped meet program objectives by assisting in summer programs, designing nutrition education and outreach materials, surveying WIC clientele, developing manuals, working on quality improvement projects and presenting research at local and national conferences. Each project is supported by a thorough literature and best practice review, development of a strategic and implementation plan including logic models and evaluation tools. Several students have completed the intern program and secured work in the public health field and/or continued on to graduate studies.

Accomplishments / Results: Major accomplishments of the intern program include: Provided real world experience to 53 students with nine local conference and four national conference presentations. Increased the number of meals served to children <18 years through the SFSP from 3000 meals (5 clinics for 1 month) in 2014 to 13095 meals (7 clinics for 2 months) in 2015, 18210 meals (11 clinics for 2 months) and 17333 (12 clinics for 2 months). Improved breastfeeding services including development of new breastfeeding curriculum and education to WIC participants during World Breastfeeding Week. Increased the number of contacts with WIC participants through the Breastfeeding Peer Counselor Program. Identified barriers to staff retention and created and implemented quality improvements projects to improve morale amongst staff.

Barriers: Barriers include lack of centralized system for student applications, securing students for projects, and lack of interest or maintaining student interest throughout program. The health department created a student intern portal where students are matched to appropriate projects and programs can collectively review student applications and assign a project within the portal. Allowing students a certain level of autonomy of their work keeps them interested and engaged.

Lessons Learned: Working with students can be beneficial and rewarding for all involved. It allows programs to participate in activities and projects that would normally be infeasible due to lack of staff or funding. However, it requires thorough planning to ensure a well-rounded and meaningful experience is provided.

From Competition to Collaboration - How to Lead Community Engagement

Author: Nathan Fleming

Category first choice: Leadership

Category second choice: Community collaboration

Issue: In rural Wisconsin communities, local chapters of the United Way, County Health Department, critical access hospitals and chambers of commerce frequently have independent community development plans. Health planners struggle with competition between community stakeholders, uncoordinated initiatives, fragmentation, differing expectations, and aspirational rhetoric disconnected from practical results. Local leaders struggle towards Healthy Wisconsin 2020 while simultaneously moving from competition towards community collaborations.

Setting: sustainable financing strategies to support sustained improvement in population health outcomes. In 2016, America's Health Rankings placed Wisconsin 48th in public health funding. In 2016, Wisconsin hospitals provided \$498 million in charity care, \$470 million in bad debt as well as \$16 billion in health services uncompensated Medicare. In contrast, the total spent to keep families healthy – via public health funding – was only \$12.8 billion. The combination of state and federal dollars directed by public health agencies was less than \$61 dollars per person. In comparison, Wisconsin was paid almost \$8412 in price-adjust Medicare reimbursements per person.

Project: Pathways to Population Health (P2PHealth) helps communities connect social needs to medical outcomes and reform population health financing. P2PHealth encourages communities to embrace a culture of health through cross-sector collaborations, emerging financial vehicles that gather local resources, and alignment of existing programs towards health equity. In 2018, P2PHealth published and distributed a book, Pathways to Population Health, to 58 Wisconsin cities. The focus was on communities with a critical-access hospital, a chamber of commerce, and a local health department. P2PHealth followed up the book distribution with public presentations, webinars and coaching sessions to foster cross-sector collaboration.

Accomplishments / Results: P2PHealth created local health equity reports for 58 Wisconsin communities summarizing hospital community benefit dollars, preventable community health expenses, costs of health inequities, and financial strategies to sustainably fund population health programs. Data was collected from County Health Rankings and Roadmaps, local Community Health Improvement Plans, Hospital 990 reports, and Guidestar charity reports. P2PHealth helped local leaders design business plans, vet risk models, and create community presentations that make a local financial argument for health equity.

Barriers: Collaboration takes time, effort and a committed local champion. There is a significant first-mover barrier: everyone once to join a success, no one wants to risk a failure. Successfully funding population health infrastructure often requires blending multiple sources and types of funding, including public grants, hospital community benefit funds, low-interest loan programs as well as private sources,

such as foundations and local donors. This requires a paradigm shift in mindset from a competition over scarce resources to new way of envisioning collaborations on health.

Lessons Learned: It is difficult to find grant-based support for community capacity building. P2PHealth helps communities develop braided stream local funding to support healthy communities. Other public health advocacy groups may consider revenue-generating models to fund local priorities through collaborative efforts that do not have public or philanthropic funders readily available. The creative approach to startup capital made it easier to attract in-kind support from other key stakeholders including a freestanding children's hospital and a local tech startup.

Information for Replication: Health Equity Reports for Wisconsin Communities was self-financed by Pathways to Population Health through book sales. All book-related revenue was then leveraged expert in-kind support from Children's Hospital of Wisconsin and Broadstreet Health. In 2018, P2PHealth spent \$11,500 on marketing and distributing books to Wisconsin communities. There was in-kind contribution of \$23,000 from Children's Hospital of Wisconsin as well as in-kind contribution of \$27,000 from Broadstreet Health, a Milwaukee tech startup that assemble health information and make it collaborative, accessible and useful for those working to improve community health.

Learning Community In Action: Illinois' Statewide Initiative on Neonatal Abstinence Syndrome and Breastfeeding

Author: Kelly Vrablic

Category first choice: Reproductive health/family planning

Other category first choice: Please pair with submission: 0994-000158

Category second choice: Women's/maternal health

Other category second choice: Please pair with submission: 0994-000158

Issue: Neonatal Abstinence Syndrome (NAS) is a drug withdrawal syndrome that occurs in infants that have been exposed to opioids while in utero. NAS typically appears within 48-72 hours of birth and includes clinical signs such as: tremors, gastrointestinal dysfunction, temperature instability, high pitched, and continuous crying. In Illinois, between 2011 and 2015, there was a 42% increase in the NAS rate. In 2015, the rate of NAS in Illinois was about 2.5 NAS cases per 1,000 live births, affecting 373 newborn infants born in the state that year.

Setting: Between 2011-2015, NAS rates increased by: 62% in the Collar counties, 69% in urban counties outside the Chicago area, and 212% in rural counties. In comparison, there was a 23% decline in NAS rates in Chicago, and 8% increase in NAS rates in suburban Cook County. The NAS rate is highest among: Non-Hispanic White infants than other racial/ethnic groups, infants on public insurance (Medicaid), and infants residing in urban counties outside the Chicago metropolitan area, and rural counties.

Project: With the knowledge that all mothers need opioid education provided to them prenatally and beyond, the purpose of this project is to develop and disseminate educational materials statewide regarding Neonatal Abstinence Syndrome and breastfeeding. These materials will be made available to women prenatally and for those mothers with opioid use disorder. One set of educational materials will aim to provide information on prevention and opioid prescription to pregnant women. The second set of materials will aim to provide education to mothers that have opioid use disorder regarding the importance of breastfeeding, providing skin to skin contact, and rooming in with their baby. A collaboration between the Illinois Department of Health (IDPH) and the Illinois Perinatal Quality Collaborative (ILPQC), education materials will affirm messaging on reducing the adverse outcomes of opioid use for mothers and babies by implementing best practices for identification and treatment.

Accomplishments / Results: As part of this project, anticipated results included reduced rates of NAS secondary to increased statewide awareness on the impact of opioid use during pregnancy. Coupled with a focus on the benefits of breastfeeding, this project also anticipates an increase in rates of duration of breastfeeding.

Barriers: Barriers include short timelines and buy in from perinatal administrators, including communication issues. The relationship developed with the ILPQC has helped to circumvent this issue by

driving the process of engagement and focus group coordination. Additional pressures to complete project deliverables by the established deadline has proved challenging.

Lessons Learned: Identifying and collaborating with key partners and stakeholders is key to amplify and enhance efforts, this is evident in the partnership between IDPH and ILPQC. Aligning project goals with existing efforts in the state has been critical to program and policy change. Learning from other states has also supporting Illinois as the navigate through collaboration efforts.

State strategies to increase access to long-acting reversible contraceptives among adolescents

Authors: Julia Howland
Olivia Sappenfield
Keriann Uesugi

Category first choice: Reproductive health/family planning

Category second choice: Child/adolescent health

Issue: Teenage pregnancy remains an important priority for many state health departments and Title V programs. Three quarters of teenage pregnancies are unintended and can result in adverse consequences for teens and their children. Despite their safety and effectiveness, long-acting reversible contraception (LARC) is relatively uncommon among teens; approximately 5% of sexually active teens used LARC in 2011-2015. Barriers to LARC use in teens include expense, poor access, patient unfamiliarity with the devices and methods, confidentiality concerns, and provider concerns about safety in teens. States can employ a variety of strategies, educational, financial and regulatory, to increase LARC access and demand among adolescents.

Setting: Health Resources and Services Administration (HRSA) Regions 1 and 2 of Maine, New Hampshire, Vermont, Connecticut, Rhode Island, New York, and New Jersey, encompassing more than 1.8 million adolescents ages 15-19.

Project: We analyzed LARC-related publicly available, web-based documents including state legislation, statutes, Title V reports, Medicaid bulletins, memos, and state briefs and program summaries. We identified policies and programs specific to adolescents.

Accomplishments / Results: States in the selected region developed innovative approaches to patient and provider education, and program funding. Working with pediatricians and adolescent medicine specialists, Vermont developed trainings and technical assistance to increase access to LARC. Massachusetts partnered with teen advocacy organizations to conduct qualitative research on LARC barriers and preference among adolescents and then applied findings in a coalition to promote access. Rhode Island designated Title V support for developing youth-friendly LARC messaging. New York targeted teens in the Medicaid program to provide LARC access and wrap-around services. States promoting access through funding and legal autonomy policies may support LARC utilization. New Hampshire, Connecticut, Maine, Rhode Island and New York included adolescents in their Section 1115 waivers, and Vermont provides services through a similar state-funded program. State laws in Massachusetts and New York explicitly allow teens to individually consent for all contraceptive services. Title V and X block grants in Vermont, New Hampshire, Maine, Massachusetts, and New York have prioritized LARC access, ensuring a sustainable structure for ongoing statewide initiatives and collaboration.

Barriers: Legal and financial barriers may be restricting wider LARC access. In Maine, Connecticut, New Hampshire, Vermont, and New Jersey, adolescents' ability to consent for contraceptive services is limited to certain groups, such as married or parenting teens. New Jersey does not have a Section 1115

waiver, potentially limiting LARC access for lower income teens. Additionally, New Jersey addresses teen pregnancy prevention through abstinence-only education, a potential barrier to providing the comprehensive patient and provider education seen in other states.

Lessons Learned: Environmental policy scans help states better understand current access and barriers to LARC among adolescents. The policies identified here, including research projects, educational initiatives, consent laws, and funding streams, have the potential to increase LARC access among adolescents and reduce unintended teen pregnancy. Partnerships between teen service providers and state agencies, such as Medicaid and Title V, can ensure broad access for teens and allow for innovation in addressing adolescents' unique contraception needs and preferences.

Use of Complementary Surveillance Systems for Collecting Pregnancy, Infant, and Birth Defects Data during the Zika Epidemic in Puerto Rico

Authors: Nicole Roth
 Miguel Valencia Prado
 Carrie Shapiro-Mendoza
 Camille Delgado-López
 Leishla Nieves-Ferrer
 Ashley Smoots
 John Nahabedian
 Janet Cragan Stephany Pérez-González

Category first choice: Birth defects/developmental disabilities

Category second choice: Children and youth with special health care needs

Issue: Zika virus infection during pregnancy can cause adverse fetal and infant outcomes including microcephaly and severe brain abnormalities. The Puerto Rico Department of Health (PRDH) reported the territory's first case of Zika virus infection in December 2015, and the subsequent outbreak peaked in August 2016.

Setting: We describe complementary pregnancy and infant and birth defects surveillance systems established in Puerto Rico to monitor adverse outcomes potentially associated with Zika virus infection during pregnancy.

Project: In March 2016, the PRDH in collaboration with the Centers for Disease Control and Prevention established the Zika Active Pregnancy Surveillance System (ZAPSS). ZAPSS monitors pregnancies with laboratory evidence of recent possible Zika virus infection and their fetal/infant outcomes. To complement this surveillance system, in August 2016, the PRDH population-based birth defects surveillance system was adapted to capture all birth defects potentially related to Zika virus infection during pregnancy regardless of maternal/infant Zika laboratory testing. This system is known as Zika Birth Defects Surveillance (ZBDS). Data on prenatal ultrasounds, pregnancy outcome, birth information, congenital infections, and Zika laboratory testing are abstracted from medical records for both surveillance systems. Clinicians review abstracted data using the ZAPSS and the ZBDS case definitions to identify birth defects potentially related to Zika virus infection. The ZAPSS and ZBDS case definitions are similar, but differ in their microcephaly definitions. Both ZAPSS and ZBDS require a head circumference measurement <3rd percentile for gestational age and sex, but ZBDS also requires a clinical diagnosis of microcephaly.

Accomplishments / Results: From March 1, 2016 – June 30, 2017, ZAPSS identified 2,907 completed pregnancies with laboratory evidence of recent possible Zika virus infection. Of these pregnancies, 139 fetuses/infants had birth defects potentially associated with Zika virus infection. From January 1, 2016 – June 30, 2017, preliminary analyses of ZBDS data identified 137 completed pregnancies with birth defects potentially related to Zika virus infection. Of these ZBDS cases, 43 had laboratory evidence of

possible Zika virus infection in a maternal, placental, infant, or fetal sample, 61 had negative Zika virus test results, and 33 had no testing or results available. Forty-three infants with birth defects potentially related to Zika virus infection were identified by both systems.

Barriers: Challenges with Zika virus laboratory testing may have limited our ability to examine the full impact of Zika virus infection on fetuses and infants using ZAPSS only.

Lessons Learned: Complementary pregnancy and birth defects surveillance systems in Puerto Rico allow for more accurate calculation of the prevalence of birth defects potentially related to Zika virus infection. Using complementary, integrated surveillance systems (ZAPSS and ZBDS) in Puerto Rico improved case ascertainment, ensuring a greater proportion of affected infants are referred to appropriate medical follow-up and early intervention services.

Reducing Maternal Mortality and Morbidity in Ohio: Using Obstetric Simulation to Train Providers for Emergencies

Authors: Cynthia Shellhaas
Elizabeth Conrey
Sheryl Pfeil

Category first choice: Women's/maternal health

Issue: Pregnancy-related deaths in Ohio, as in the United States, are at an unacceptably high rate. Additionally, severe maternal morbidity occurs 100 times more frequently than maternal death. We aimed to reduce maternal morbidity and mortality by using simulation training to prepare maternity departments to manage obstetric emergencies. Simulation is an experiential educational strategy for improving patient safety that mimics the reality of a clinical environment. In 2014-2015, the Ohio Pregnancy Associated Mortality Review (PAMR) at the Ohio Department of Health (ODH) partnered with the Clinical Skills Education and Assessment Center within the Ohio State University to conduct three direct and two Train-the-Trainer sessions. To reach more facilities, particularly in southeastern Ohio which had been under-represented, we expanded the training.

Setting: Staff attending deliveries and caring for postpartum women in Ohio's birthing facilities, particularly in rural, low-resource areas.

Project: Building on prior trainings, multiple sessions that included didactic and skills-building components were offered in 2017. Two direct trainings were held in southeastern Ohio for labor and delivery nurses and obstetric providers. Next, two Train-the-Trainer Part I sessions were held for obstetric nurse educators and managers who learned to independently deliver simulation training to staff at their own facility. The simulated scenarios were obstetric hemorrhage, hypertensive emergency, and opiate overdose. Participants ran the training scenarios once each as a learner, debriefer, and facilitator. Finally, we held two sessions of a newly developed Train-the-Trainer Part II session which added a component where small groups developed simulation scenarios. Questionnaires were administered at registration, immediately pre- and post-training, and at 3-8 months follow-up.

Accomplishments / Results: The direct trainings had 64 participants; 80% represented Level I facilities, most participant's facilities were in southeast Ohio, and 48% had prior simulation training. Among follow-up respondents (67% response rate), 83% agreed they had utilized at least one new skill since the training and 43% had shared resources with other staff. Confidence levels for 11 skills (e.g., placing a Bakri balloon) significantly increased pre- to post-training and remained higher at follow-up. Train-the-Trainer Part I had 44 participants; 52.3% represented Level I facilities, 79.5% reported their facility staff participate in simulation, and 63.6% had previously facilitated simulation. Confidence levels for 11 skills (e.g., implementing communication strategies) significantly increased pre- to post-training. Post-training, participants indicated the following intentions: develop a more formal and scheduled simulation program, increase simulation participation within and across departments, increase the frequency of simulation exercises, integrate simulators into exercises, and improve communication skills. Train-the-Trainer Part II had 23 participants; 52% represented Level 1 facilities. Confidence levels for 9 of 10 skills (e.g., conducting a simulation training) significantly increased pre- to post-training.

Barriers: Training participants were predominantly nurses and most facilities lacked a physician champion for simulation exercises. Providers such as obstetricians, midwives, and anesthesiology should be incorporated for team training.

Lessons Learned: Both direct and train-the-trainer simulation for obstetric emergencies are feasible and well-received. Holding sessions in under-represented regions facilitates participation.

Information for Replication: Project details of are posted on Ohio's PAMR website:

<https://www.odh.ohio.gov/odhprograms/cfhs/pamr/Pregnancy-Associated%20Mortality%20Review.aspx>. The cost totaled \$44,500.

Mental Health Consultation in Early Care and Education: A Capacity-Building Approach to Supporting Young Children's Social-Emotional Development in NYC

Authors: Janice Okeke
Fatima Kadik
Shirley Berger

Category first choice: Mental/behavioral health

Category second choice: Child/adolescent health

Issue: Concern about high rates of suspension and expulsion of preschool-aged children from early care and education settings has led to a growing acknowledgement of the value of mental health consultation (MHC). MHC is an evidence-based approach to build the capacity of the adult workforce in early care to support children's social-emotional development, shown to reduce suspension and expulsion rates. Consultants are professionals trained to collaborate with early care staff to: enhance program and classroom climate, promote healthy caregiver-child interactions, and improve caregivers' ability to address children's challenging behaviors.

Setting: Consultants provided services onsite to staff in 75 of the 360 -center-based early care programs that serve 25,000 low-income children across New York City (NYC).

Project: Six mental health provider agencies were funded by the NYC Department of Health and Mental Hygiene to provide on-site consultation at early care programs. Services began January 2017 and are ongoing, as part of a larger initiative to build caregiver capacity to support the social-emotional needs of young children. Sites were selected based on a survey of their need and readiness for MHC, and formal partnership agreements were created between sites and consultants, with agreed-upon consultation goals.

Accomplishments / Results: During the early implementation phase, services were provided to over 1,500 early care staff and parents/caregivers in 221 classrooms at 75 sites, reaching 3,273 young children. Consultants visited each program one day per week with 50% of consultation provided on the programmatic/classroom level, and 50% focused on specific children and families. Preliminary survey data indicated that 79% of teachers reported gaining new knowledge about behavior management strategies through MHC services. With regard to managing children's challenging behaviors, 58% of teachers reported having changed some aspects of their practice and 20% reported doing things much differently. Ninety-five percent (95%) of teachers surveyed would recommend MHC to their colleagues in other schools.

Barriers: Barriers to implementation and expansion of MHC include: early care staff turnover in sites, staff's understanding of mental health consultants' role, need for ongoing training and TA for consultants, and need for sustainable funding.

Lessons Learned: MHC is well-received by early care staff and can build their knowledge and skills to support the social-emotional needs of their students. These gains will be tracked over time to determine population-level impact on young children.

Information for Replication: Replication requires a dedicated source of funds for MHC, readiness of early care programs to receive MHC, a trained workforce of consultants, and data systems to track progress and inform planning and decision making.

Using the Epic Electronic Health Record to Integrate the federal Healthy Start program into a regional health care system

Author: Alma Idehen

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Issue: In NYC, the maternal mortality ratio for black, non-Hispanic women ranged from 8.3 times to 6.7 times more than non-Hispanic women. Black women are less likely to begin prenatal care in the first trimester and to receive adequate care. Black women were seven times as likely to die in pregnancy as white women. Hispanic and Asian women were twice as likely to die as white women...."¹

Setting: The Borough of the Bronx, with one of the poorest census tracts in the U.S, has excess morbidity and mortality and has fewer health resources, a high rate of poverty and majority residents of color. While not unique to the Bronx alone, this demographic profile correlates with racial and ethnic disparities in health outcomes on a range of conditions, and has significant barriers to healthcare access. While socio-economic and cultural barriers to health care is pervasive, specific aspects of the local health care landscape, such as the MICH services, has the potential for improvement.

Project: In 1991 HRSA, a federal agency, initiated the Healthy Start program to reduce infant mortality, IMR racial disparities, and improve early childhood development, focused in communities with excessively high IMRs. The Healthy Start program has grown from nine to 100 sites across the country, largely in parallel to the primary care, obstetrical, and women's and children's health care delivery systems. The Bronx Healthy Start Partnership began in 2014 with the Albert Einstein College of Medicine serving as the federal grantee and two federally-qualified health center (FQHC) networks and a community-based organization as service subcontractors. Bronx Healthy Start sought to integrate Healthy Start and clinical systems for bi-directional timely communication between clinicians and our CHW's. In 2015, Montefiore Medical Center, our major FQHC's contractor and adopted the Epic Electronic Health Record (EHR) system providing an opportunity to build an informatics Partnership. We investigated Epic's Community Library for collaborations with Healthy Start and found none.

Accomplishments / Results: Healthy Start and the Montefiore Epic EHR team built electronic mechanisms for our Community Health Workers (CHWs) to communicate through EHR notes with primary care clinicians; for the EHR to identify eligible women for clinicians to refer to the CHWs through its Best Practice Alert system; and to flag women and children to age 2 years already enrolled in Healthy Start. To our knowledge, this is the first such integrated EHR system that facilitates referrals and communication between the community-based CHWs and FQHC-based clinicians.

Barriers: Access to the EHR system, technical skills and limitations of intellectual property and proprietary rights presented as limits to the integration of the Healthy Start data systems and the Epic system, and back end set up of the electronic systems. These are surmountable with the right time, resources and patience.

Lessons Learned: Access to the EHR system, technical skills and limitations of intellectual property and proprietary rights presented as limits to the integration of the Healthy Start data systems and the Epic system, and back end set up of the electronic systems. These are surmountable with the right time, resources and patience.

Improving Florida's Birth Certificate Accuracy (BCI): A Pilot Initiative

Authors: Chinyere Reid
Paige Alitz
Estefania Rubio Rubio
Linda Detman
William Sappenfield

Category first choice: Other

Other category first choice: Quality Improvement Initiatives

Category second choice: Other

Other category second choice: Birth Certificates/Data Collection

Issue: Birth certificates (BC) are an invaluable information source used to assess maternal and infant mortality, morbidity, disparities, risk factors, and health care services and quality. Inaccurate or incomplete BC data impacts public health surveillance, evaluation, research, prevention, and quality improvement strategies.

Setting: This study took place in 9 delivery hospitals across Florida, where a quality improvement approach was used to assess the feasibility and effectiveness of improving BC data accuracy to 95% on 22 key BC variables.

Project: BCI provided webinars, BC reporting guide, quality improvement training, and hospital consultation using quality improvement sciences to support hospital quality efforts and train staff. To monitor progress, the Florida Department of Health provided a sample of 10 BC records for each participating hospital based on month of delivery, including up to 3 BC records for births less than 34 weeks gestational age. BC data quality was assessed monthly by clinical staff auditing 10 corresponding medical records for the reported 22 BC items and reporting agreement on these variables. BCI began with baseline data for February and March 2017, and will conclude in March 2018. Analysis was performed using SAS.

Accomplishments / Results: Starting at 89%, the overall initiative-wide accuracy for all 22 BC variables has presently improved to 94%. Based on projections, it is expected that the 95% accuracy goal will be achieved by initiative end. Moreover, hospital variability in accuracy as measured by the coefficient of variation has decreased from 5.12 at baseline to 3.98. Eight of 9 pilot hospitals have showed improved accuracy, with one exception that has consistently maintained an accuracy level above the goal. Continuous variables had a lower initial accuracy than dichotomous variables, but showed the greatest improvement. The BC variables with the highest absolute improvement were birthweight (23.5%), delivery weight (15.7%), number of prenatal visits (11.7%), and antibiotics received during labor (9.6%). Hospitals starting with $\leq 90\%$ accuracy had the greatest overall absolute improvement.

Barriers: BCI limitations include a small monthly hospital sample size, assessing data agreement rather than accuracy, use of a less effective data method to assess the accuracy of rare clinical events (variables), and sustaining hospital team motivation through the full initiative duration.

Lessons Learned: BCI is on track for achieving the 95% accuracy goal by initiative end. Improvements in accuracy were likely the result of changes in hospital reporting practices, training materials and tools, monthly webinars, and focused training on the least accurate variables. Of note, data agreement in chart audits initially decreased on BC items focused on during the webinars. This was likely due to improved audit accuracy as a result of training clinical staff in verifying accuracy. This suggests that BCI's improved accuracy may be greater than actually measured, as the baseline accuracy level may have been overestimated. The 2nd BCI phase will include a larger number of participating hospitals in addition to revised important key BC variables. The primary implication is that frequently the BC incorrectly reports variables related to pregnancy and the perinatal period. Improved BC data reporting will better guide hospital quality initiatives.

Public Health Nurses' (PHNs) Role in Reducing the Risk of Sudden Infant Death Syndrome (SIDS) and Other Sleep-Related Infant Deaths.

Authors: Cindy Tso
Shelley Parker
Sutida Jariangprasert

Category first choice: Perinatal outcomes

Issue: Approximately 3,500 sleep-related deaths among infants are reported each year in the United States, including those from sudden infant death syndrome (SIDS), accidental suffocation and strangulation in bed, and unknown cause. These causes, together, comprise sudden unexpected infant death (SUID). In the three-year period from 1990-1992, the SUID mortality rate in San Diego County was 119 deaths per 100,000 live births. By 2013-2015, it had dropped by more than 60%, to 43 per 100,000. Still, 19 infants die each year due to SUID; 15 of these are due to SIDS.

Setting: County Public Health Nurses (PHNs) conducted trainings based on American Academy of Pediatrics recommendations and the federal Safe to Sleep Campaign. Audiences were college health students, nurses, parents, and community-based organizations serving pregnant women and infants.

Project: SIDS is the leading cause of death among infants 1-11 months of age. Unsafe sleep environments are one of the few known and modifiable risk factors. Studies have shown that education can be effective in changing both parent and professional practices around safe sleep. Using existing partnerships, County PHNs conducted trainings incorporating: fatality classifications, legislation, research, risk factors and reduction strategies, and modeling of safe sleep using a SIDS kit (including mini mattress, doll, pillow, and sleep sack). Evaluations consisted of 10 open-ended and multiple-choice questions and determined knowledge gained, intent to apply it, and appraisal of the training.

Accomplishments / Results: From July 1, 2015 to June 30, 2017, 37 trainings were conducted for 507 individuals from 14 organizations. Nearly all (97%) of the 506 respondents reported learning new information. Nearly half the examples of new information cited (48%) were related to risk reduction strategies and of these, 88% dealt with safe sleep, such as supine placement, exclusion of blankets and pillows from sleep area, and avoidance of overheating with hats. Another 13% mentioned what is known and not known about the cause and mechanism of SIDS. One in ten (10%) remarked on how SUID deaths are distinguished and classified. Nearly as many (9%) discussed innate risks such as age, race/ethnicity, and gender. Most respondents, 87%, would apply the knowledge gained to their work: educating clients (63%), providing direct care to babies (52%), and educating staff (32%). Among respondents who would apply the information learned to their personal lives (97%), the major applications indicated were: educate family (75%), educate friends (69%), and provide direct care to babies (54%).

Barriers: Individuals often have differing family traditions around babies' sleep. Even health professionals do not all adhere to recommended practices. Although pre/post-tests were considered,

for convenience, only one evaluation was completed by participants after the training. Therefore, knowledge gained was self-reported.

Lessons Learned: PHNs are trusted health professionals and their ability to respond to questions using anatomical- and research-based evidence was vital to increasing knowledge and changing beliefs and intention. Use of pre/post-tests will be reconsidered so that knowledge gain can be quantified.

Information for Replication: This intervention can be easily replicated using reputable online resources, inexpensive teaching tools, and existing local partnerships.

Maintaining Focus and Aligning Partners: A Demonstration Project for Reducing Peripartum Racial and Ethnic Disparities

Author: Andria Cornell

Category first choice: Women's/maternal health

Category second choice: Racism, equity, and social justice

Issue: Racial and ethnic minority women suffer a disproportionate number of maternal deaths, pregnancy complications, comorbid illnesses, and adverse obstetric outcomes and have been shown to receive obstetric care that differs by race and ethnicity.

Setting: To make strides toward achieving health equity in maternal health, the Alliance for Innovation on Maternal Health, an initiative of the American College of Obstetricians and Gynecologists (ACOG), through the Council on Patient Safety in Women's Health Care, and funded by MCHB/HRSA/HHS, developed the patient safety bundle: Reduction of Peripartum Racial/Ethnic Disparities. This bundle is a sister to other bundles developed by the initiative - such as Obstetric Hemorrhage- and it equips hospitals and health professionals with evidence-based strategies to address inequities that systematically and negatively affect less advantaged groups. Unlike its sister bundles, strategies included in the Disparities Bundle are not specifically from obstetrics, focus on the full continuum of maternal care, and require authentic partnership between the communities served by the hospitals and the hospital and health professionals. It is for these reasons that the Association of Maternal & Child Health Programs (AMCHP) was contracted by ACOG to administer a demonstration project of the bundle to highlight strengths and opportunities and inform the development of a toolkit to assist with implementation of the bundle across a health system, jurisdiction, or state. AMCHP has partnered with two hospitals within the Northwell Health organization – Long Island Jewish Medical Center and Southside Hospital, both located on Long Island in New York – to implement the bundle. An array of initiatives in maternal health and reproductive justice are burgeoning in New York City, making it a location with the political and social will for change.

Project: Bundle implementation includes identification of a multidisciplinary hospital team, engaging data and quality measurement staff at each hospital, assessing hospital status on the components of the bundle, and prioritization of strategies. We are also partnering with the communities served by the hospitals to describe patient or community-centered outcomes as qualitative measures of success for bundle implementation. Our community partnership framework includes connecting with local health departments, identifying community assets and champions, and collaborating with champions to convene residents to identify patient-centered outcomes.

Accomplishments / Results: The pilot launched on January 24, 2018 with nearly 100 health professionals, staff members, and administrators at an in-person meeting at Long Island Jewish Medical Center.

Barriers: A barrier experienced by the project team is with respect to scope: participants are passionate about these issues; avoiding mission creep and maintaining focus on the bundle strategies has been essential. Additionally, identification of short, medium, and long-term outcomes for the evaluation strategy that are both quantitative (e.g. HCAHPS, HEDIS measures for postpartum care) and qualitative (e.g. patient internalization of disrespect) has been a time-consuming but vital exercise.

Lessons Learned: The most prominent lesson learned thus far has been the importance of bringing together agencies, organizations, and advocates working on maternal health in New York City to document assets and align resources to maximize our potential for success and the sustainability of this work.

Mental Health and Nurse Family Partnership: Comprehensively Addressing the Needs of New Moms

Author: Nichelle Bailey

Category first choice: Women's/maternal health

Category second choice: Community collaboration

Issue: Nurse Family Partnership (NFP) is an evidenced based two-and-a-half-year home-visitation program in which first-time pregnant mothers are provided case management services by bachelor's prepared nurses, Nurse Home Visitors (NHV). There is an increase in positive screenings for depression and anxiety during/after pregnancy, barriers to accessing mental health services, and lack of awareness of mental health by NHVs. HHD has addressed these issues by assigning a Licensed Clinical Social Worker (LCSW) solely for NFP program. This mental health component is an addition to the NFP model and contributes to the functioning of participants and NHVs.

Setting: The target population is African-American mothers who have a higher risk for pre-term delivery and infant mortality. NFP mental health services are primarily home-based.

Project: A LCSW is a part of the NFP team to directly address the needs of participants and NHVs. HHD recognized the need for mental health supports for participants and NHV staff. The LCSW mitigates the barriers of limited access to quality mental health services and the stigma with mental health services. NHVs administer the Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder 7 (GAD7) at regular intervals, and based on scoring the participant is referred to the LCSW. The LCSW accompanies NHVs on home visits and provides consultation on behaviors, strategies for intervention and training. The LCSW meets with NHVs to conference on needs of participants and completes home visits with NHVs to observe functioning and determine the intervention required. Progress is evaluated through service planning, satisfaction surveys, and qualitative feedback provided by NHVs.

Accomplishments / Results: The NHV and LCSW work collaboratively to meet the needs of program participants. Approximately 25% of program participants are referred for mental health services. An additional 15% of participants have been observed and screened by LCSW at the request of the NHV. NHVs report an increase in knowledge and skills around MCH mental health because of case conferences and technical assistance provided by the LCSW. Combining the medical and mental health services, comprehensively addresses the unique needs of first-time mothers. The mental health services is preventative in nature as mental health concerns are addressed early on reducing the risk of further decline of mental health functioning and related MCH outcomes.

Barriers: There is hesitancy by participants to engage in mental health services. This barrier is addressed by the LCSW working with NHVs on education around supportive counseling and de-stigmatization of mental health services. NHVs have labor and delivery experience, but are not always abreast on identification of mental illness. The LCSW provides education to improve NHVs knowledge and skills around mental health and to ensure referrals for mental health services. NHVs are at high risk for burnout. The LCSW provides debriefing and other supports with NHVs to decrease the prevalence of burnout.

Lessons Learned: Individualized services are important to address the unique circumstances of each program participant and attention needs to be given to the well-being of NHVs. The complexity of need and shortage of resources for urban, high risk MCH populations contributes to staff burnout; self-care activities support NHV well-being.

Information for Replication: HHD has two NFP sites; one site is state funded and external funding supports the second site and covers the costs associated with the LCSW. Partnerships with other mental health providers expands the continuum of mental health services to include psychiatry, in-patient and longer-term supports.

Wellness Strategies for Health: Policy, Systems, and Environmental Changes Related to Tobacco-Use to Improve Alaska Native Maternal Health Disparities

Authors: Taija Revels
Carla Britton
Erin Peterson

Category first choice: Chronic disease/smoking

Category second choice: Women's/maternal health

Issue: During 2000-2011, pregnancy-related (death within 1 year of pregnancy termination due to complications or medical management) and pregnancy-associated (within one year of pregnancy termination due to any cause) mortality rates for Alaska Native (AN) women were 3 times those of non-Native women in Alaska. Thirty-eight percent of pregnancy-related deaths and 68% of pregnancy-associated deaths were considered preventable. AN mothers and children also experience disparities in prenatal tobacco use, pre- and post-natal secondhand smoke (SHS) exposure, and other risk factors that contribute to poor health outcomes such as preterm birth and heart disease. In Alaska, prenatal smoking among AN women varied by tribal health region, ranging from 15.4% to 50.9%. Statewide, 36.4% of AN adults reported current smoking (2010-2014). High smoking rates and household overcrowding in rural Alaska increase the likelihood of SHS exposure among pregnant AN women. Exposure to SHS during pregnancy is not recommended by the CDC. Policy, systems, and environmental (PSE) changes related to tobacco use and other risk factors for poor maternal and child health outcomes support the health and wellness of AN mothers and their families to reduce health disparities.

Setting: Eight Tribal Health Organizations (THOs) located throughout Alaska that provide healthcare and prevention services to over 55,000 AN individuals and their families.

Project: The Wellness Strategies for Health (WSH) program housed in the Alaska Native Epidemiology Center (ANEC) is funded by the CDC Good Health and Wellness in Indian Country (GHWIC) grant. The GHWIC Program is a national program focused on making sustainable reductions in heart disease, diabetes, stroke, and related risk factors among Alaska Native and American Indian people. To achieve the program goals, ANEC works with THOs and other partners throughout the state to implement culturally-appropriate PSE changes that increase access to traditional and healthy foods, increase physical activity, reduce tobacco use, improve health literacy, promote breastfeeding, and enhance chronic disease management. The 5-year project began in 2014

Accomplishments / Results: In years 2 and 3 of the project, WSH partner sites serving 5 tribal health regions in Alaska made 35 PSE changes including tobacco-free healthcare campus policies, improved healthcare systems for tobacco screening and referral to cessation programs, and community tobacco control resolutions. Other PSE changes include improvements to electronic health records, patient-provider communication practices, and community-clinical linkages

Barriers: Project barriers included partner unfamiliarity with policy work and transitioning from direct service programming to PSE activities. Additional barriers included differences in screening and referral processes across partner site clinical services, lack of shared EHRs across all sites, working with all levels of providers (i.e., community health workers, nurses, physicians), and need for consensus across shared jurisdictions in tobacco control programs and cessation services.

Lessons Learned: THO partners have compiled lessons learned from every year of the project. Lessons identified across sites included the need for increased capacity building around policy creation and implementation, stakeholder engagement, and creating public support earlier in the grant cycle

Community Action Leadership: A Community Based Approach to Reducing Disparities in Birth Outcomes Among African American Women and Families

Author: Ronnie Meyers

Category first choice: Racism, equity, and social justice

Category second choice: Perinatal outcomes

Issue: African American babies in Multnomah County are 2 times as likely to die before their first birthdays and are more than twice as likely to be low- or very low-birth weight as white babies born in the county. National research points to toxic stress resulting from daily experiences of racial bias as a key contributor to these disparities. Culturally specific individual level interventions improve birth outcomes for those women directly supported but do not change the pervasive societal and institutional racism that continue to cause toxic stress and the resulting poor birth outcomes.

Setting: Activities are taking place in Multnomah County, Oregon and work to benefit African American pregnant women and their families.

Project: Healthy Birth Initiatives (HBI) is a program of the Multnomah County Health Department that uses an African American culturally-specific home visiting model to provide education and support to participating women throughout their pregnancy and until their child reaches their second birthday. HBI is funded through the HRSA Maternal and Child Healthy Start program. A second program component supports the work of the HBI Community Action Network (CAN), a community collaborative focusing on community-and policy-level strategies to reduce the unfair disparities in birth outcomes and family health among African American women and their families in Multnomah County. With direction and support from national Healthy Start and the CAN, HBI initiated a consumer and community led collective impact strategy to identify key social determinants of health contributing to these disparities. Planning committees comprised of HBI consumers, community members and organizational representatives developed and implemented a community input process. The results of the 2-year community engagement process identified 3 focus areas: Housing, Economic Opportunity, and Family Unity. Initial work plans to make structural changes to reduce the effects of institutional racism on African American birth outcomes were developed. HBI is in the process of forming 3 action committees to move the plan forward. The consumer/community led committees continue to facilitate this process.

Accomplishments / Results: A major accomplishment is the development of the 3 focus areas and methods for moving to action. Based on this work, HBI has received two additional funding streams to increase access to housing, become a partner in an unconditional cash transfer pilot project, and received additional funding for Economic Opportunity and Family Unity action items. In addition, a number of the HBI consumers have formed a consumer led leadership group and has been the recipients of two community and research grants.

Barriers: One of the barriers we have worked to overcome is maintaining an environment where consumer and community members are able to participate at the same level as individuals who

participate as a part of their jobs. Actions to overcome this barrier include offering free childcare, meals, transportation and incentives for consumers/community members.

Lessons Learned: Consumer and community led collective impact processes can be successful in identifying core social determinants of health and result in increased resources to reduce disparities.

Development of the Community Health Workforce in Delaware: Implementation of a Sustainable CHW Training and Certification Program

Authors: Carla Aponte
Nicole Harrington
Christopher Moore
Kathy Cannatelli

Category first choice: Other

Other category first choice: Community Health Workers

Category second choice: Community collaboration

Issue: Recent evidence has emerged showing the effectiveness of Community Health Worker (CHW) programs in improving health outcomes. The State of Delaware is committed to moving forward an agenda for CHW training, certification, workforce development and sustainability by way of the ongoing transformative work. As a committed partner in healthcare transformation, Christiana Care Health System (CCHS) is leading efforts to demonstrate and validate the community health worker type work many employees have been engaged in over the years.

Setting: CCHS is the largest health care provider in the tri state area - Delaware, Maryland and Pennsylvania. This work is focusing on the New Castle County, Delaware area. Providers and stakeholders are engaged through annual meetings and discussions about the value CHWs bring to the medical, public health, and social service systems. All players (community members, CHWs, and providers/stakeholders) in this program serve a vital role in an engagement plan that will ultimately accomplish improved community health outcomes.

Project: CCHS has worked in collaboration with key stakeholders and content experts throughout the health system to develop a standardized curriculum with the aim of better integrating siloed, program-specific roles into a well-coordinated and strategically oriented CHW model to empower staff in the communities they serve and bolster their value as CHWs in the health delivery system. Objectives for the CHW project include developing and implementing a CHW curriculum in alignment with the state recommendations; evaluating the curriculum's impact through improved self-efficacy, knowledge and confidence of participants; and, illustration of the impact of CHWs in systems across Delaware. We have created and conducted a core competency training with practical application components. To evaluate the impact of the curriculum and change in knowledge/confidence levels of the participants, a pre/post assessment has been conducted which will align with each course objective. Post assessments have been given to participants to gather feedback about the course content and instructor methods. Following the training, add on modules on more focused, community topics will be offered to enhance CHW community interactions. Focus groups will be conducted to generate open discussion about the CHW's experiences. These sessions will be recorded to collect qualitative data around self-efficacy of the CHWs. CHWs will quantitatively document every community and patient interaction which will be completed through an online database. Finally, we will conduct annual meetings and/or conferences

with policymakers, community members, healthcare professionals, system leaders to get their feedback on the impact of the CHWs. Strengthened by the training they receive, the empowerment the CHWs experience will translate to their engaged interactions with the community.

Accomplishments / Results: A seven-session curriculum was developed and implemented February 2018. Results of the impact of this curriculum is pending analysis.

Barriers: Health system leaders understanding value of CHW intervention, buy-in from medical providers and standardization of CHW training statewide.

Lessons Learned: Implementation of this program will demonstrate the value of meaningful partnerships and collaborations between community members, CHWs, and health delivery systems and empower CHWs to fulfill their responsibilities towards improving population health. Preliminary work and lessons learned will be presented as is relevant to the process.

Labor Support at The Dimock Center: Program Development and Implementation to improve birth outcomes among low income women of color

Authors: Jennifer Conti
Rachel Preiss

Category first choice: Women's/maternal health

Category second choice: Racism, equity, and social justice

Issue: Research shows that low income women and women of color experience disproportionately high rates of poor birth outcomes. Research also shows that an unsupported birth experience can have a long-lasting negative impact on one's physical and emotional health.

Setting: Dimock Community Health Center in Roxbury, MA is a Boston Health Start Initiative (BHSI) site that uses case management and CenteringPregnancy to reduce birth outcome disparities among low income women and women of color. However, these initiatives do not provide patients with support during their actual labors.

Project: This project explores the development, implementation, and evaluation of Dimock's Pregnancy and Labor Support (PALS) Program, which works within existing clinic structures to provide labor support to this vulnerable patient population. Literature reviews and key informant interviews with existing doula program coordinators and participants were performed to identify best practices. A mission statement, goals, and enrollment criteria were developed to highlight the program's commitment to improving patient satisfaction and birth outcomes. Meetings with prenatal care staff, hospital nurses, and labor providers were arranged to ensure support among key stakeholders. Finally, quantitative and qualitative evaluation materials were created to ensure the continuous improvement and sustainability of the PALS program over time. Volunteer doulas from the local community are recruited and provided with an orientation and training manual incorporating logistics, program goals, patient support strategies, and trauma-informed care practices. Patients interested in labor support are recruited during CenteringPregnancy sessions and/or during one-on-one visits with care providers. Patients and doulas are matched based on Estimated Date of Delivery (EDD), language proficiency, and general care preferences. Patient and doula pairs meet prenatally to discuss needs, preferences, and concerns about pregnancy and labor. Doulas then provide direct support to patients during labor. Finally, doulas meet with patients postnatally to reflect on their birth experience and facilitate any ongoing connections to social support services that may be needed.

Accomplishments / Results: To date, eight volunteer doulas and two patients have been successfully recruited into the PALS program. Patient and doula enrollment will continue on a rolling basis throughout the pilot period. Using a combination of qualitative patient, provider, and doula evaluations and quantitative birth outcome data, we hope to demonstrate that the PALS program (1) helps patients feel physically and emotionally supported through labor, and (2) helps to improve birth outcome disparities and equity within the target population.

Barriers: Challenges that arose during PALS' development and implementation include, (1) successfully coordinating a program that provides care across both community health center and hospital settings, (2) recruiting doulas with language skills that match those of the patient population, (3) securing individuals willing and able to work indefinitely on a volunteer basis, (4) requiring the completion of additional tasks by an already-overworked clinic staff, and (5) increasing patient understanding of labor support and its potential benefits.

Lessons Learned: The development and implementation of a pilot labor support program within a community health center is desirable and feasible. More research is needed to assess the program's impact on birth outcomes and experiences.

Oregon's Birth Anomalies Surveillance System-- Surveillance method expansion and improvement

Authors: Suzanne Zane
Vivian Siu
Mary Ann Evans

Category first choice: Birth defects/developmental disabilities

Issue: Birth anomalies are a leading cause of infant mortality in the U.S. and contribute substantially to health care costs and life-long disabilities. There are approximately one million birth anomaly-related hospitalizations each year at a cost of \$22.9 billion. Understanding state prevalence and distribution of birth anomalies is necessary for prevention activities, identifying health disparities, planning public health interventions and need for services, and developing educational materials. Multiple methods for expansion and improvement of a passive birth anomaly surveillance system are needed to ensure robust, accurate state-level data.

Setting: Population-based ascertainment of birth anomalies occurring in children born in Oregon to state-resident mothers.

Project: Oregon Health Authority Maternal and Child Health staff developed the Oregon Birth Anomalies Surveillance System (BASS) in 2011 to collect information on birth anomalies in Oregon. BASS is a passive system linking existing administrative data such as birth certificates, Medicaid inpatient and outpatient claims, and hospital discharge data for case identification. BASS initially tracked 12 “core” birth anomalies for children from birth to age six. Data for birth cohort years 2008-2012 were first reported to CDC Environmental Public Health Tracking and the National Birth Defects Prevention Network (NBDPN) in 2013.

Accomplishments / Results: In 2016, Oregon BASS was one of two new states to receive CDC’s four-year birth defects surveillance funding, which continues through early 2020. This funding has enabled us to make further methodological and program improvements. The program has expanded since 2016 to include death certificates as an additional data source for case identification and now tracks 50 birth anomalies recommended for surveillance by NBDPN. The 2010–2014 birth cohort is the first cohort reported with these expansions. BASS is now: incorporating Early Hearing Detection and Intervention program data in the linkage system; analyzing data across sources to evaluate validity and reliability for methodological refinement; collaborating with Oregon Health and Science University (OHSU) pediatric cardiologists to validate BASS data on critical congenital heart defects (CCHD); and partnering with an established statewide peer support program providing resources to parents of children with birth anomalies.

Barriers: Staff changes plus delays in contract finalization with our university partner impacted timeliness of some surveillance improvement and expansion activities. The key component for resolving barriers was consistent and sustained communications internally and with external partners. Changing analysts challenged our program’s timelines and goals, particularly in regard to linkages, Medicaid data queries, and objectives for data validation.

Lessons Learned: Cohesive teamwork and frequent timeline-driven meetings were the key to implementing a large expansion of surveillance methods and program activities. With loss of our initial analyst, we negotiated with that analyst's new employer for weekly consultation time to assist with the transition. Regarding contracts, a closer relationship with contract office personnel at OHSU would have facilitated understanding of the processes and timelines for contracts within their system. Setting up at least one in-person meeting with the OHSU contract officials would have been greatly beneficial and assisted in more timely onboarding of the pediatric cardiologist and initiation of CCHD case validation activities.

MIECHV COORDINATED INTAKE AND REFERRAL ACTION LEARNING COLLABORATIVE: THE HEALTHY START COALITION OF FLAGLER & VOLUSIA COUNTIES TEAM POSTER

Authors: Rosha Loach
Thalia Smith

Category first choice: Other

Other category first choice: Coordinated Intake & Referral (CI&R)

Category second choice: Community collaboration

Issue: Our coalition has built a centralized infrastructure for sustaining the CI& R process with our primary provider Stewart Marchman Act Behavioral. The Healthy Start Coalition has developed a format in which the data, assessment, priorities, strategies and outcomes are aligned in a logical framework and are reported on regularly. This provides for an easy illustration to funders, constituents, and other community partners. We are trusted in our community as demonstrated by the partners who have committed to the project and have growing support from our local funders to expand capacity and sustain efforts that can demonstrate effectiveness, reduction in duplication of effort, and quality services and outcomes to the target population.

Setting: The geographic location where the activities took place was in our Service Area of Flagler & Volusia Counties, located in the Florida. The target population that benefited from this activity was substance involved pregnant and post-partum women, infant 0-3 years and their families.

Project: The Healthy Start Coalition of Flagler & Volusia Counties (HSCFV) participated in the CI&R ALC Project, an initiative of Florida MIECHV Initiative and a national priority of Human Resources and Services Administration (HRSA). Financial and technical assistance resources were provided to support the development and testing of CI&R systems in the Coalition's community and make progress toward making home visiting a "hub" for development of local, place-based early childhood systems. The Action Learning Collaborative Project may provide important information needed to develop recommendations for state decision-makers about moving CI&R forward as a standard practice in Florida.

Accomplishments / Results: The most useful activities that helped our team were the ALC Activities included meetings, monthly technical assistance calls, and webinars. They were useful as the contributed to the following to: Foundational activities: CI&R Travel Team and Local Group, participant/consumer involvement, inventory of providers, decision-tree, tracking log, MOUs, Business Associate Agreements, and training of program staff. Testing & Refining: Quality Improvement Approach for CI&R for ongoing actions to improve products and services; Focus is on outcomes to make our system more efficient and effective for the people we serve; Focus is on process not individuals; It is data driven, where everyone is engaged and we learn from failure and success. Driver Diagram: Model

for improvement is driven by a circular Plan, Do, Study and Act diagram to determine what we are trying to accomplish and determining how and when a change results in improvement.

Barriers: The biggest partnership challenges that created barriers was to keep agencies involved throughout the planning partnerships and not work in silos. We also identified a lack of long term resources for substance involved pregnant and postpartum women and their infants born with neonatal abstinence syndrome (NAS).

Lessons Learned: Although the challenges still exist, we overcame them by holding regular meetings about our CI& R planning process and inviting partners to participate on local meetings, webinars and quarterly Service Delivery Planning meetings.

Information for Replication: Key actions: Design Tree, Well Family System Local Tab& Intensive Care Team

Increasing Impact of Healthy CPS Through Parent Engagement

Authors: Elizabeth Hansen
Jamie Tully
Kayla Moore

Category first choice: Community collaboration

Category second choice: Child/adolescent health

Issue: The Office of Student Health and Wellness (OSHW) within Chicago Public Schools (CPS) aims to eliminate health-related barriers to learning. The office works to achieve this mission by providing health services, ensuring a safe and supportive environment for students with chronic diseases, promoting increased access to physical activity and healthy foods in schools, and ensuring instructors are providing medically accurate and age-appropriate health-related instruction to students. The Healthy CPS initiative currently focuses on improving student health through policy implementation in schools. This project aims to expand OSHW's health promotion reach by directly engaging with parents, key stakeholders in students' health access and behavior.

Setting: The project is taking place in Chicago, IL with the intended audience being parents of students in Chicago Public Schools. The population expected to benefit is the students, due to more extensive community collaboration.

Project: Three discussion groups will be held in different areas of the city with parents of Chicago Public Schools students. The primary goal of the discussion groups is to (a) understand parent/guardian current attitudes, opinions and knowledge of OSHW/Healthy CPS, (b) discover whether existing health and wellness communication strategies are effective and identify additional opportunities for communication to extend health and wellness behaviors to CPS students' homes, and (c) discover what topics and type of event structure would motivate parents to attend a health and wellness conference held by OSHW in the future. Prior to the discussion groups, an analysis of OSHW's current communications practices with parents will be assessed and key informant interviews with departments of CPS already working on parent engagement will be conducted to inform the model for the discussion groups. Post discussion groups, the qualitative data will be analyzed and written into a report.

Accomplishments / Results: Specific intended outcomes of parent investment in Healthy CPS include: Parents encouraging their students to participate in the meal program for increased access to healthy foods; Parents returning completed consent forms for dental, hearing and vision services provided by OSHW; Parents enrolling in public benefits (Medicaid, SNAP) in which they and their children are eligible; Parents being educated on chronic disease management practices in schools and completing the proper paperwork for their children; Parents understanding the benefits of physical activity of their children and encouraging participation in activities during and after school; Parents understanding CPS's comprehensive, progressive Sexual Health Education Policy as being age-appropriate, medically accurate, and evidence-based and therefore supporting its full implementation in grades K-12 in schools.

Barriers: Barriers anticipated include focusing the discussion groups on Healthy CPS instead of the district as a whole, and OSHW having the capacity to provide the resources/programs potentially requested by parent participants.

Lessons Learned: This project will inform OSHW's strategy to broaden the impact of Healthy CPS by approaching student health promotion beyond solely district-to-school, top-down policy implementation. It is an attempt at community building through the schools with a focus on health, in particular chronic disease prevention.

Information for Replication: This project was sponsored by a mini-grant received from the Illinois Prevention Research Center, whose aim is to improve health behaviors and reduce health disparities.

Women Connect: Providing Heathy Living Education to At-Risk Women & Children in New Jersey

Authors: Summer Nestorowicz
Sophia Wang
Marina Sharobeam
Katherine Schertz
Linda Gao
Hetal Ray
Anoushka Dua
Shilpa Pai

Category first choice: Women's/maternal health

Category second choice: Mental/behavioral health

Issue: Homelessness and addiction disproportionately affect millions of single women within the United States, especially upon mothers and their dependent children. Children who experience homelessness or are born into homelessness are at higher risk for mental health issues, exposure to violence, developmental delay and frequent illnesses. Single females represent 84% of the homeless family population and are the advocates for their children within the healthcare system. Women Connect's goal is to provide education on health and navigating healthcare as well as skills to prevent future homelessness and success beyond a shelter.

Setting: The Center of Great Expectations (CGE) is a women's shelter in Somerset, New Jersey, which supports homeless pregnant or parenting women in substance use recovery and their respective children. CGE provides individualized treatment and support within a home environment to help families escape from generational cycles of trauma, abuse, drug addiction, and homelessness. This female population averages an Adverse Childhood Experience Study (ACES) score of 5.

Project: "Women Connect small group sessions are designed by medical students to empower disadvantaged mothers to build a supportive environment for their family. One-hour sessions are conducted monthly with identical problem-solving pre and post-tests to evaluate success. Needs-based assessments were regularly conducted to identify specific educational needs, generating a curriculum comprised of eight teaching sessions: "Mock Interviews

Accomplishments / Results: Data from the years 2015 - 2018 demonstrate a 100% success rate for improving knowledge on the session topic. The average pre-test score from 2015 - 2018 is 67%, and average post-test score is 90%. The sample size for each session varied from 3-7 women, depending on attendance and the number of times the session has been conducted. Women Connect's success demonstrates that individual sessions focused on connecting adults to available resources increase their capability to provide a better, safer, healthier childhood for at-risk children.

Barriers: With great efforts and many failures, Women Connect was able to form a sustainable community relationship with CGE. Realizing that the clients of CGE come into and leave the center at

various points in the year, we began to conduct needs-based assessments after each session to reset our understanding of what information would be most useful to the current mothers.

Lessons Learned: Women Connect recognizes that creating a brighter future for these families involves not only access to care but also recognizing the health, economic and social neglect that has faced their families for generations. Mothers should be empowered by a research skill set to strengthen their ability to advocate for their child's needs in order to create resilience in the face of systemic social barriers. We will continue to work to provide interactive sessions to identify community and medical resources, maximize employment prospects, and promote healthy behaviors for the overall health of these families.

Filling the Gap: Building Stronger Families with the Men's Health Toolkit

Authors: Cindy Tso
Izzybeth Rodriquez
Christine Bride

Category first choice: Fathers/male involvement

Issue: Active father engagement and involvement yield positive outcomes for children and strengthen families. Children with involved fathers are less likely to have behavioral issues or engage in risky behaviors. Yet, many programs and materials designed to improve health outcomes in newborns and young children target mothers, not fathers.

Setting: If equipped with appropriate tools, organizations serving men and public health nurse (PHN) home visitors can be instrumental in reaching fathers, providing health-related education, and encouraging paternal engagement in the family.

Project: Noticing a lack of programs and resources tailored to men and fathers in San Diego County, an electronic survey was conducted with PHN home visitors in Nurse-Family Partnership (NFP) and Maternal and Child Health (MCH) programs to assess interest in addressing this gap. Key informant interviews were also conducted with community-based organizations and programs with expertise serving men from diverse backgrounds. A men's health toolkit (MHT), an electronic compilation of fatherhood and men's health resources, was created for programs to share with the men they serve.

Accomplishments / Results: Of the 56 PHNs completing the survey, 90% expressed an interest in receiving men's health and fatherhood training. Most, 70%, desired a face-to-face facilitated training indicating a willingness to commit time to learning how best to include men during the home visit (HV). The 6 key informant interviews conducted revealed a similar interest and commitment. PHNs, 85%, felt fathers should be included and 80% ask fathers to participate during the HV. Encouragingly, over 90% of men participate in the HV when asked. Those surveyed/interviewed reported barriers to engaging fathers and preferred educational methods. The top 5 topics recommended by PHNs and stakeholders for the MHT were: resources specific to transitioning to fatherhood and parenting classes, infant growth and development, bonding with your child/child engagement, relationships with the child's mother, and men's health, including mental health and self-care. Currently, the MHT is being piloted with PHN home visitors and organizations serving men. Utilization feedback, specifically, use and value of the MHT in their work and perceived changes in knowledge, parenting attitudes, and behavior of the men will be measured.

Barriers: San Diego County is diverse, has a large Hispanic population, and includes many cultures and languages. Resources in the MHT are available in English, with a few in Spanish. Partnerships are being explored to translate MHT into other languages. Furthermore, the MHT lacks general health education and promotion materials. Expanding this section of the MHT is a priority.

Lessons Learned: The MHT is a valuable and needed resource in the community that can be maximized to provide health, educational, and supportive resources for men. Identifying and targeting specific needs in the community increases the likelihood of the MHT being utilized.

Information for Replication: Programs need culturally and linguistically appropriate resources for men. Reaching men by partnering with existing programs that serve men is key to the successful utilization of the MHT. Developing an electronic toolkit eliminates costs to print and store materials. Costs will vary depending upon resources for translation services.

National Center for Fatality Review and Prevention Data Quality Initiative

Authors: Patricia Schnitzer
Heather Dykstra
Esther Shaw
Erik Buczkowski
Abby Collier

Category first choice: Trauma, violence, and injury

Category second choice: Child/adolescent health

Issue: The Child Death Review Case Reporting System (CDR-CRS) is a web-based application available through the National Center for Fatality Review and Prevention (NCFRP); it is currently used by 44 states. Users enter data on each child death reviewed in their jurisdiction. Data can be aggregated nationally for programmatic and research purposes. Over 2100 registered users enter data into the CDR-CRS that contains more than 2600 data elements. The large number of users, high user turnover, and large number of data elements make ensuring data quality and consistency across jurisdictions a challenge.

Setting: This project is led by the NCFRP. It has the potential to benefit every state that uses the CDR-CRS as well as scientists conducting research with these data.

Project: The NCFRP began a Data Quality Initiative in September 2015. The goal is to improve the quality and consistency of the data entered in the CDR-CRS. The Data Quality Initiative has 6 components. Identification of priority variables. Development of expanded definitions of priority variables. Development of a Data Quality Summary that shows the percent of missing and unknown responses for the priority variables in their state and aggregate national data. Compilation of best practices for monitoring/improving data quality at the state program level. Provision of technical assistance (TA).

Accomplishments / Results: Representatives from 7 states identified 97 priority variables for monitoring data quality. NCFRP also developed extensive definitions for the priority variables and incorporated this information into the CDR-CRS data dictionary and online CDR-CRS Help resource to improve accurate and consistent recording. In 2016, a Data Quality Summary that documents the percent of missing and unknown responses for the priority variables was developed for each state with at least 30 deaths using 2014 data; it shows the state's data along-side the national data. This Summary was sent to the state child death review (CDR) coordinator along with information on how to read, interpret, and use it. The second annual Summary (2015 data) was sent in 2017. A "Guidance for Improving Child Death Review Data Quality" was published in October 2017 as a resource to state CDR programs for monitoring and improving their data quality. TA related to improving data quality has been provided to over 20 states via telephone or in person. A Data Quality Initiative webpage was created with links to all documents and archived webinars.

Barriers: The workgroup identified many priority variables, which makes monitoring all of them difficult for states. NCFRP will refine this list in 2018. Turnover in state/local users makes training and TA a constant need.

Lessons Learned: Evaluations from webinars and TA document the value of this Initiative. But, evaluation of actual data quality will take years. NCFRP needs to continue training and TA but also incorporate additional features in the CDR-CRS (e.g., range and consistency checks) to facilitate data quality improvements. The CDR-CRS contains a level of detail on risk factors for child death that is unparalleled; however, high quality data are critical if the data are to be useful for prevention.

Reducing the Incidence of Sleep Related Infant Death by Half in Cincinnati, Ohio

Author: Ryan Adcock

Category first choice: Trauma, violence, and injury

Category second choice: Community collaboration

Issue: From 2010-2013 in Hamilton County, Ohio a baby died once every 22 days from a sleep-related death. This was a rate of death that was more than twice the national average and was part of a larger infant mortality crisis in Hamilton County. Nearly 50% of these deaths included co-bedding as a factor.

Setting: Our initiative took place in Hamilton County, Ohio. Our intended audience was new parents with a specific focus on 1) African American families, 2) families in census tracks with high rates of sleep-related deaths and 3) influencers of these families.

Project: The Cincinnati community came together to implement more than two dozen aligned initiatives that promoted safe sleep from 2014-2017. Examples include the development of a free crib program, the creation of a Safe Sleep video with tens of thousands of views, systematic changes to the way hospitals deliver this message, partnerships with groceries stores and churches to promote the message in a community setting, advocacy for new statewide legislation, using waterworks and vital statistics to mail safe sleep flyers to every family in the city, partnering with the library to pass out safe sleep book marks, and co-creating billboard campaigns with local families and radio campaigns with prominent African American leaders.

Accomplishments / Results: Sleep-related deaths dropped dramatically during the intervention. Our baseline was 17 deaths a year. During the intervention, it fell to 9 deaths per year. Even more interestingly, we had periods of "high" and "low" intervention. During the "high" intervention periods, we saw an incidence of death that was once every 45 days compared to the baseline of once every 22 days. "Low" intervention period saw no meaningful change, demonstrating the importance of dose and intensity. We used a days-between chart to track impact with relatively small numbers. At one point during high intervention, we went 169 days between sleep related deaths - a more than 5 fold improvement over baseline. We additionally used phone surveying to track behavior changes during this period.

Barriers: Sleep habits can be a difficult behavior to change. You are fighting cultural norms and exhausted parents. Our central theory was that a comprehensive approach that delivered the message from a variety of trusted sources would make a difference. Families cannot simply hear this message once. They need to hear it from different venues multiple times before and shortly after the birth of their child. Measurement is another challenge. We worked with the coroner's office to achieve real time access to death data and partnered with quality improvement experts to develop a novel days-between chart that allowed us to recognize statistically significant change.

Lessons Learned: Safe sleep and, importantly most public health messages, need to be carried by a wide variety of trusted sources. This takes a tremendous level of collaboration with a focused agenda. With this widespread focus, outcomes can be quickly and meaningfully changed.

Information for Replication: Cradle Cincinnati has developed a Safe Sleep report outlining our interventions in order for other communities to replicate this work.

Development of an infant vitality toolkit for men and fathers

Author: Amanda Zabala

Category first choice: Fathers/male involvement

Issue: In recent years, there has been a growing focus on fathers as integral components to Maternal and Child Health (MCH) promotion, particularly when it comes to family planning practices, prenatal wellness, and infant vitality. In fact, in 2015 the World Health Organization declared male involvement a priority in maternal and newborn health promotion, expressing associated enhancements in women's self-care, use and attendance of available services, and improved home care practices. At a local level, however, men and fathers often report feeling excluded from MCH conversations and practices.

Setting: The project was initiated as a partnership between the Columbus Ohio Equity Institute (OEI), CelebrateOne, the Ohio Commission on Fatherhood (OCF), Franklin County's New Beginnings for New Fathers (NBNF) program, and the Columbus Urban League's Father 2 Father (F2F) program. Those impacted by this project include men and fathers in the Columbus, Ohio area.

Project: From October 2016 to September 2017, Columbus OEI implemented a project to educate fathers about infant mortality and their role in infant mortality risk reduction, including the promotion and practice of infant safe sleep behaviors, smoking cessation, and reproductive life planning. Trainings were provided to participants of the NBNF and F2F programs, reaching a total of 66 young (aged 15-25), expecting, new, or established fathers, each of which demonstrated an increase in knowledge for all presented topics. To assure the sustainability of this project from October 2017 onward, Columbus OEI and CelebrateOne partnered with OCF, NBNF, and F2F to explore a means of educating and enhancing the self-efficacy of fatherhood program leaders to teach infant mortality reduction strategies on their own.

Accomplishments / Results: Together, Columbus OEI, partners, and the men participating in partnering fatherhood programs developed a toolkit with male-focused messages and resources to support infant vitality. Such topics include men's role in prenatal care and delivery, paternity and parenting time establishment, financial education and independence, substance use cessation, and ways to support other fathers. Also recognizing that a healthy baby transcends the period of pregnancy, healthy relationships, life planning, and goal setting are included as topics to educate men about the importance of preconception health.

Barriers: While local fatherhood programs' acceptability of the toolkit has been determined, to date, the toolkit has not yet been fully implemented and its usability remains unknown. Fatherhood programs have committed to using the toolkit throughout 2018 and providing both qualitative and quantitative feedback. Columbus OEI has committed to providing virtual and in-person trainings and technical assistance to programs aiming to use the toolkit to ensure an uncomplicated implementation and feedback process.

Lessons Learned: Fathers and leaders of fatherhood programs fully recognize the importance of male involvement in the promotion of infant vitality. Developing a toolkit that supports fatherhood programs'

ability to teach their own constituents, with relevant male-focused resources, has not only been deemed necessary for the education of fathers, but crucial to the overall advancement of infant health in Columbus. By fully incorporating men and fathers into MCH practice, there exists great potential for advancements in maternal, infant, and child health.

Virtual Lactation Visits to Improve Breastfeeding Success

Authors: Sarah Rhoads
Hari Eswaran
Hannah McCoy
Jessica Donahue

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Issue: Assistance with breastfeeding after birth can be a challenge for new mothers. Many facilities provide lactation support through telephone help lines. At times during a phone conversation it is difficult to determine whether a new mother needs to come for an in person visit for assistance. Integration of a secure audio and video connection to new mothers in their home allows mother to receive lactation support without traveling to the clinic or hospital.

Setting: In home support of breastfeeding mothers using technology to improve breastfeeding success.

Project: Virtual lactation consultant visits were launched in two hospital systems with varying technologies in 2017. Consultation with hospital administration on varying levels occurred prior to launch. Once policies and procedures were approved, training occurred with the lactation consultants and practice virtual visits were conducted prior to virtual visits with new mothers.

Accomplishments / Results: Evaluation of the program includes satisfaction surveys from both the lactation consultants and the mothers seen by a virtual visit, each mother's breastfeeding status at 4 weeks and 3 months after discharge, and a technology survey to assess the ease or difficulty of use for the hospital staff and new mothers.

Barriers: Training of lactation consultants and the breastfeeding women related to the secure video portal was a challenge that was addressed. Each hospital received information technology support specific to their system's health portal. Implementation staff assisted with the training and set up which improved uptake of the technology.

Lessons Learned: Integration of a secure audio and video connection to new mothers in their home allows mother to receive lactation support without traveling to the clinic or hospital.

Information for Replication: Many hospital and health systems are implementing patient portals with a video component. Lactation consultant visits can be integrated to assist mothers without additional costs for health systems and in some states the visits are reimbursable by insurers.

Prenatal Care - What are we missing?

Authors: Sarah Rhoads
Zenobia Harris
Hari Eswaran
Nalin Pyakachat
LaToya Blanks

Category first choice: Women's/maternal health

Category second choice: Racism, equity, and social justice

Issue: Despite the best efforts of the health care community, many women during pregnancy do not have basic needs met which leads to poor pregnancy outcomes. Innovative way to provide social support may be the key for assisting at risk mothers to have a healthier pregnancy as well as care for her baby during its first year of life.

Setting: Nationally, racial disparities exist where rates of maternal and infant mortality are higher for African Americans than Whites. Oftentimes providers only explore medical or nursing interventions to reduce the disparity. Community-based models are additional strategies to educate on prevention, improve access to resources, and ultimately reduce disparities. Social support programs led by community leaders provide individual care, support, and resources to assist high-risk pregnant women. Many women during pregnancy do not have someone to provide one-on-one mentoring during their pregnancy and the first year of their child's life, guidance on local resources related to housing and food, and provide positive feedback on prenatal care, breastfeeding and parenting.

Project: Describe effective community-based models, which provide support for women in low socioeconomic communities in an effort to improve their social support, increase their access to health services and ideally improve their pregnancy, birth, and parenting experience. The Birthing Project pairs these pregnant women with a mentor called a Sister Friend. The sister friend provides one-on-one support throughout the pregnancy and the year afterbirth. The Sister Friend volunteers her time to attend prenatal visits, attend the birth, and meet with the woman (Little Sister) on a monthly basis.

Accomplishments / Results: To assess the effectiveness of the Birthing Project, focus groups were conducted with Sister Friends and Little Sisters. The focus groups were transcribed and data from the focus groups were analyze using thematic analysis to identify major themes. Little Sisters valued the relationships that was developed with Sister Friends and appreciated the Sister Friend's time and the ability to connect them with local resources. Sister Friends were motivated to volunteer based on a personal experience or a personal connection and they wanted to provide support and encouragement. The Sister Friends discussed the personal rewards they received such as developing a relationship with the Little Sister and feeling appreciated.

Barriers: Since this program is primarily consists of volunteers, expanding to program can be a challenge. The use of technology may be a way to expand access to more mothers and their babies.

Lessons Learned: Connecting women early during their pregnancy to local community support programs assist women in having a healthy support network. A community based model allows for women to

develop relationships and community ties which last a lifetime therefore building a support system for not only the mother but her newborn.

Information for Replication: The Birthing Project model has been replicated throughout the United States and in other countries. The program can be customized to any community. Since the program consists of volunteers, the resources and monetary costs are small.

Spatial and Temporal Trends of Cesarean Section Deliveries in Uganda: 2012-2016

Authors: Emily Barigye
 Denis Nixon Opio
 Daniel Kadobera
 Alex Rioplexus Ario
 Joseph KB Matovu
 Lilian Bulage
 Blandinah Nakiganda
 Frank Kaharuza Zhu Bao - Ping

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Issue: Cesarean section (CS) is a lifesaving procedure often recommended during complicated pregnancy, labour, or delivery. Despite worldwide concerns about the overutilization of CS in recent years, many women in sub-Saharan Africa still die because they have limited or no access to CS services.

Setting: We ascertained temporal and spatial trends of CS births to inform programming in Uganda.

Project: We performed secondary analysis of total births using data from the Uganda National Health Management Information System (HMIS) reports during 2012-2016. We reviewed data from 3,461 health facilities providing basic essential obstetric care and emergency obstetric care services from 112 districts. We defined facility-based CS rate as the proportion of CS deliveries among total live births in facilities. We estimated the population-based CS rate using the total number of CS deliveries as a proportion of annual expected births (including facility-based and non-facility-based) for each district. We obtained the absolute change in CS rates by subtracting the 2016 rates from the 2012 rates. Taking CS as the dependent and calendar year as the independent variables, we used improved Poisson regression with generalized linear models to examine whether CS increased over the study period using STATA 14.

Accomplishments / Results: Cesarean deliveries increased both at facility and population levels in Uganda. Overall, the CS rate at facilities was 9.9%, increasing from 8.5% in 2012 to 11% in 2016. The overall population-based CS rate was 4.7%, and increased from 3.2% to 5.9% in the same period. Health center IV level facilities had the largest annual rate of increase in CS rate between 2012 and 2016. Fort Portal referral region saw the largest increase in population-based CS rates, while Moroto referral region had the fewest CS. Among 112 districts, 80 (72%) had a CS rate below 5%, the minimum recommended by World Health Organization for life-saving benefits; 38 (34%) had a CS rate below 1%.

Barriers: We used aggregated birth data, thus were unable to adjust for factors such as indications for CS (e.g. Robson criteria) and multiple pregnancies.

Lessons Learned: Cesarean deliveries are increasing in Uganda. HC IVs saw the largest increases in CS; there was regional heterogeneity in changes in CS rates. Most districts provide inadequate CS. We recommend expansion of CS services to districts without the service to improve availability.

Focus on Fathers to improve Child Outcomes

Author: Kay Doughty

Category first choice: Fathers/male involvement

Category second choice: Mental/behavioral health

Issue: The focus of pre and post natal and parenting programs, in general, is Mothers. Although fathers may be invited, materials presented are directed at mothers. Fathers feel marginalized and afterthoughts. In addition, it is difficult to get accurate (or any) data from programs about the number of fathers involved with the lives of their children- interestingly, especially from Child Welfare.

Setting: This program took place at community service providers, community organizations, hospitals, community centers in Pinellas County, FL. The intended audience includes providers of services to parents and the system of care involved in child welfare, including foster parents.

Project: Fathers are targeted through personal outreach to traditional and non-traditional sites. Programming includes provision of the evidence based curriculum, Nurturing Fathers, which is a gender specific program, developed with Dr. Bavolek, the developer of Nurturing Parenting, and Fatherhood Summits- day long events for fathers AND their child/ren that includes education for Dads of available community resources, activities for children and fathers, and targeted give-aways. Nurturing Fathers is offered in groups that meet father needs. Nurturing Fathers participants learn how to support their children, the mothers of their children and each other. Periodic Nurturing Fathers reunions are held. Operation PAR, Parenting Prevention staff, are involved in all aspects of programming from outreach, group facilitation and location, prep for and day long Summit. The logic model follows the logic model developed for Nurturing Parenting, with the target being 'the father' This program had a double evaluation focus: 1) to begin the systematic baseline collection of data regarding father involvement and to improve father involvement with the lives of their children.

Accomplishments / Results: The major accomplishments of the program: 1) data on every man who entered agency, his identification as a father, his involvement in the life of his child/ren at admission and discharge 2) establishment of regular, on-going Nurturing Fathers groups in north and south Pinellas County, 3) successful outreach to community service providers and organizations for father referrals, 4) planning and implementation of Fatherhood Summit with attendance of fathers and children, 5) change in child welfare forms to include father information and 6) beginning outreach toward addition of a Boot Camp for New Dads program.

Barriers: Specific barriers included 1) difficulty in getting any accurate baseline data from Operation PAR, Inc. and other providers, especially child welfare.; 2) need for amending the Electronic Health Record to add questions regarding fathers and 3) training staff on rationale and importance of capturing information on fathers; 4) time for community outreach; 5) locating an appropriate site for Summit and getting donations of materials and 6) involving youth to encourage father involvement at Summit.

Lessons Learned: The major take home message is that this focus should have started many years ago. Seeing the faces/ actions of fathers; hearing their stories let us know how much men want to be involved with their child/ren, and want to know how to not be an afterthought. Implications for public health indicates that more father involvement means healthier children with better outcomes.

Information for Replication: \$150,000, personnel and costs, including training; Prevention funding through Block Grant and Juvenile Welfare Board, (local taxing authority), Juvenile Welfare Board, Community Service Centers, faith community, Community Service Organizations, Community Service Provider Agencies

Outcomes and Policy Implications of an Early Brain Development-Focused Collective Impact Convening

Authors: Doug Kershner
Ellen Pliska

Category first choice: Child/adolescent health

Category second choice: Mental/behavioral health

Issue: Science has shown that children of lower socioeconomic status hear a 30-million “word gap” by the age of three compared to more affluent counterparts, with significant health status and outcome correlations with this sub-optimal brain development. The Association of State and Territorial Health Officials (ASTHO) is committed to addressing the “word gap” in early childhood as a public health priority, with implications for literacy and education, human services, and workforce demographics and the economy.

Setting: On February 27th, 2018, ASTHO held an Early Brain Development Collective Impact Meeting in Arlington, VA. This roundtable discussion convened subject matter experts and leading state implementers of initiatives to improve child development, with the aim of developing actionable recommendations for state health departments to develop and implement initiatives to improve early brain development (EBD).

Project: ASTHO is engaged in a project to build the capacity of its constituent state and territorial health departments to develop and implement programs and policies in the area of EBD. The project is gathering and informing key public health stakeholders, including state health officials, through a collective impact meeting and written materials including a Technical Assistance Framework, Strategic Guide, and Self-Assessment Tool.

Accomplishments / Results: The convening highlighted important policy and programmatic issues related to EBD and child health, including data sharing between healthcare, public health, WIC, and education; evaluation metrics and target outcomes; and how to support healthy infant/caregiver relationships. The meeting improved alignment between state public health departments, federal agencies, national nonprofit organizations, and academic experts and researchers. This convening produced detailed information about key strategies and how state health departments can implement them, including concrete recommendations on funding, evaluation, and partnerships.

Barriers: Barriers and outstanding issues include funding, questions around the optimal timing of interventions, and data interoperability. The convening also showed a lack of consensus in the field, including among experts, about the scope of interventions and partnerships, for example if early literacy could or should be a goal of a public health intervention.

Lessons Learned: The convening also surfaced several concrete lessons learned, including opportunities for public health to engage with healthcare providers such as pediatricians, and the importance of tailored interventions to specific populations and subpopulations of children and infants, with rigorous evaluation components. ASTHO is in the process of categorizing and analyzing the approaches and evidence discussed, and using the findings and considerations raised, to create a Technical Assistance

Framework for health departments, focused on: EBD science, and how to convey its policy and programmatic implications; promising programs and policies; and public health infrastructure to support EBD work. These recommendations are being used to inform a strategic guide for states, as well as a self-assessment tool for states to inform policy and programmatic decisions based on existing resources and gaps. The meeting surfaced specific implementation and program infrastructure considerations that will be included in all tools as “how-to” knowledge to help states implement programs and policies effectively and efficiently. ASTHO will present on the outcomes of this convening as well as the resulting technical assistance resources and tools.

Strong Babies in Knox County, Tennessee: The Birth and Infancy of a Public Health Movement

Authors: Katherine Larsen
Sarah Zimmerman

Category first choice: Other

Other category first choice: Maternal and infant health

Issue: This public health campaign was implemented to improve pregnancy outcomes and reduce infant mortality in Knox County, Tennessee. In recent years, the infant mortality rate has risen to 8 per thousand, which, for the first time now exceeds the state infant mortality rate.

Setting: The Strong Baby campaign took place in Knox County, Tennessee. The intended audience included women of child-bearing age and/or any caregiver of an infant. Key campaign messages promote the importance of early prenatal care, full-term pregnancies, breastfeeding, prenatal nutrition, annual check-ups and tobacco cessation for women, safe sleep for infants, and infant vaccinations.

Project: The campaign began in 2015 with using licensed Strong Baby materials from Milwaukee, WI, which we localized to the Knox County market. This first year of the campaign built brand awareness and gained community buy-in for the initiative. In 2016, we began the process of implementing the campaign featuring Knox County babies. We held a casting call in October 2016, with more than 80 families attending. We had donated time from local photographers to take a variety of photos in improvised photo booths, of each baby. The images were judged and 8 winning babies were selected. The winners were professionally photographed, and images were edited to create campaign posters, billboards and digital ads of the babies performing varying feats of strength, coupled with the campaign messages. In addition to considerable traditional media attention, we also leveraged the voices of the parents of the winning babies. We produced short videos spotlighting each baby. Parents shared their decisions and practices around safe sleep, breastfeeding, and vaccinating. One family shared their infertility journey, and another their adoption journey with their baby, who was born drug-exposed.

Accomplishments / Results: The campaign generated millions of impressions. We measured campaign effectiveness through impressions, click, shares, and views, as well as engagement at community events and media spots. We also saw engagement with community partners and were able to adapt the campaign in unforeseen ways--for example, utilizing campaign images on vaccination reminder postcards and breastfeeding promotion at birthing hospitals.

Barriers: Barriers were primarily financial: we were able to begin this campaign with grant funding, but to make it truly effective and sustainable, we knew it needed to be long-lasting, and that it would require support from our Administration. We were strategic and intentional in our program design and goal from the start, and we engaged key stakeholders in our organization early in the process to overcome this barrier.

Lessons Learned: The take home message is the importance and effectiveness of using real people with real stories to bring forward messages around healthy behaviors, the power of images (in this case, adorable babies) to capture an audience and start a conversation, and the ability of positive messages to

reach an intended audience and key community and organizational stakeholders. As we look to the future of this campaign, we plan to continue to build on its strengths and look for ways to use the Strong Baby campaign to directly promote health department programs and services for young families.

Information for Replication: \$15K-\$25K for initial campaign material development and marketing, photo shoot, editing, website, etc. Continued campaign marketing can be scaled in accordance with resources available. Key partners included County Mayor and Health Department leadership, schools, law enforcement, Children's Hospital, WIC, Home Visiting programs, and others.

Improving Adherence to Recommended Standards for the Provision of Confidential Care to Adolescent Patients through Structured Quality Improvement Project

Authors: Lauren Ranalli
Ellen Wagner

Category first choice: Child/adolescent health

Issue: According to the National Institutes of Health, adolescent patients do not regularly receive recommended confidential care in primary care settings, resulting in missed opportunities for addressing health concerns specific to this age group. Research published in the Journal of Pediatric and Adolescent Gynecology (Riley et al, 2015) shows that physicians support confidential care for adolescent patients but have knowledge gaps around minor consent and parental notification laws. Confidential care may also be difficult to provide in a busy ambulatory care setting with parents present. The American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), and the Society for Adolescent Health and Medicine (SAHM) recommend that physicians spend confidential time with adolescent patients, and perform confidential comprehensive risk screening for high risk behaviors.

Setting: Physicians from Pediatrics, Family Medicine, and Medicine Pediatrics across 12 ambulatory care sites in Michigan enrolled in a Maintenance of Certification (MOC) Part IV project to improve adherence to the recommended standards for the provision of confidential care to adolescent patients.

Project: Participants completed a self-assessment measuring knowledge and clinic practices around the provision of confidential services for minor adolescents, and completed chart reviews of well visits in the previous quarter assessing if they: (1) spent confidential time with the patient (2) explained confidentiality laws/limits, and (3) had the patient confidentially complete a standardized risk screening assessment. Using two Plan/Do/Check/Act improvement cycles, physicians worked to improve the quality and consistency of confidential care provided at their site.

Accomplishments / Results: Forty eight physicians participated in the MOC Part IV. At baseline, physicians on average spent confidential time with 51% of their adolescent patients during well visits, explained the laws of minor consent to 46% of them, and had 60% of their adolescent patients complete a standardized risk assessment form. At year end, 90% of patients had confidential time with a provider, 90% had the laws of minor consent explained to them, and 89% completed a standardized risk assessment form.

Barriers: MOC Part IV is specific to physician involvement. Health centers with Nurse Practitioners of other providers can replicate the same quality improvement structure without receiving MOC credit.

Lessons Learned: An MOC Part IV targeted intervention is an effective way to improve physician adherence to the recommended standards for the provision of confidential care for minor adolescent patients.

Information for Replication: MOC Part IV is a required for physician certification and can be offered for limited or no cost to participating health centers. Proposed MOC Part IV interventions must be approved by an accrediting body in order to qualify for credit.

Oregon Women's Experiences of Preventive Care

Authors: Fredrick King
Anna Stiefvater

Category first choice: Preconception health

Category second choice: Women's/maternal health

Issue: Access to high-quality well-woman care is a key driver for optimizing the health of women before, between and beyond potential pregnancies and a national priority area for the Title V Maternal and Child Health (MCH) Block Grant.

Setting: Six key informant interviews and five listening sessions were conducted in Oregon, including Jefferson, Marion, and Multnomah County and the Warm Springs Tribe. This research is intended for health care providers and public health professionals in the area of maternal and child health and may be of particular interest to those implementing the Title V Title V Maternal and Child Health (MCH) Block Grant.

Project: To inform the development of Oregon's well-woman care strategies and activities, the Oregon Health Authority's Maternal and Child Health (MCH) section partnered with Local Public Health Authorities and tribes to implement five listening sessions and six key informant interviews. The purpose of the listening sessions and interviews was to better understand: women's experiences and barriers to accessing preventive health services (well woman care, preconception care); challenges faced in accessing culturally responsive care; and women's perspective regarding care improvement. Audio recordings of the interviews and listening sessions were analyzed to discover the themes that emerged from these discussions. They included: Reasons women go to a doctor/health care provider Reasons women don't go to see a doctor/health care provider Understanding of what a well woman visit is and whether or not it's important Experience of care Ways experience of care could be improved.

Accomplishments / Results: This research provides a valuable baseline for our understanding of the way health care providers, researchers and women understand preventive care visits and barriers to receiving preventive care. While more women in Oregon are now covered by insurance, changing recommendations for preventive screenings like Pap smears and improved access to long-term methods of contraception have led to confusion about the need for annual medical examinations. Listening session participants described many barriers to well woman care. These barriers generally fell into one of three categories: barriers related to the care provider or other staff; barriers related to the patient; and barriers related to the health care system.

Barriers: The challenge of this project was identifying appropriate key informants and listening session participants to represent the wide range of women's experiences in health care in Oregon.

Lessons Learned: We identified a number of barriers to women in Oregon receiving preventive care, including distrust of doctors, the time it takes to make and go to appointments, the lack of culturally appropriate care and a low value placed on receiving preventive care.

Information for Replication: Listening sessions, interviews and the analysis were conducted by staff of Oregon's Title V Block Grant in collaboration with Local Public Health Authorities and tribes. A light meal was provided as each listening session and participants were given \$25 gift cards to a local grocer.

Wisconsin Child Psychiatric Consultation Program: Situation-Response-Activities-Outcomes

Author: Leah Ludlum

Category first choice: Child/adolescent health

Category second choice: Mental/behavioral health

Issue: Glaring shortages in Child and Adolescent Psychiatrists in Wisconsin and nation exist. In 2015, Wisconsin had 151 child psychiatrist and most practice in populated counties. In 2012, 48 out of Wisconsin's 72 counties, 70%, did not have a practicing outpatient child psychiatrist. A lack of access from the shortage resulted in diagnosis and treatment delays, which have implications for both short- and long-term health outcomes for children, adolescents, and the community.

Setting: To address shortage, the Wisconsin Child Psychiatric Consultation Program was launched to support to Primary Care Providers in caring for children with behavioral health needs. The Medical College applied through a Request for Application process and received state funds from the Department of Health Services to develop and implement the program. A pilot was launched in the Northern DHS Region and Milwaukee County in December, 2014 as a first step to improve access for children.

Project: Inspired stakeholders and legislators developed a bill creating Wisconsin Child Psychiatry Consultation Program. Bill was authored to appropriate State funds for program. In April 2014, Governor signed Act 127 allocating \$500,000 per year. Program's mission is to improve access by establishing consultative support from a child psychiatrists to primary care providers. Providers receive timely, quality mental health consult for children with behavioral health concerns. Program aim is to enhance provider' capacity regarding diagnosis and management options, provide education and training in mental health issues and provide referral supports.

Accomplishments / Results: Providers and clinics are enrolling and calling, data is being collected. Many consults are "medication-related questions" for children already taking medications, calls were responded to within 15-30 minutes. Training for providers includes: pharmacologic management of attention deficient, depression, anxiety, general screening tools, rating scales, suicide, trauma-informed care. Satisfaction surveys indicated program assisted in managing care, postponed and forested hospitalization, helped providers incorporate new information.

Barriers: Leadership believed having a contrasting rural and urban could prepare for future statewide expansion. The allocated funds of \$500,000 were split to cover the Northern Region and Milwaukee County which was not enough. Starting a new program and recruiting busy providers was difficult. Targeted outreach to providers was helpful as program staff could provide immediate answers to questions. Recruitment of staff took time and general start up in the northern region was slow. Differences in provider practice in each select regions lead to different approaches to recruitment. Changes in encounter data has resulted in more details for reporting.

Lessons Learned: Providers need persistent, ongoing, and targeted outreach to ensure knowledge and understanding of program, enrollment process, reminders for education and training, referral resource

support, and to establish trust with program team of experts. Data is based on the short period of time in which the program has been in existence. Data will continue to be collected and analyzed to guide the current model and process, but also used to guide potential changes that may be needed. A process evaluation is being conducted to offer guidance on program implementation.

Promoting CYSHCN Workforce Leadership through Strategic LEND – Title V Collaboration

Author: Ben Kaufman

Category first choice: Leadership

Category second choice: Children and youth with special health care needs

Issue: When it comes to meeting the complex needs of children with special health care needs and their families, workforce development must be an intentional process. It is a priority for training programs to be in sync with state, regional, and local Title V agencies; doing so can ensure that their curricula are relevant and responsive to trends identified by practicing professionals and public health leaders. Similarly, Title V agencies can benefit from training programs' expertise with respect to disability-specific content, interdisciplinary teaming, clinical care, and community based research.

Setting: Leadership Education in Neurodevelopmental and Related Disabilities (LEND) programs, located at 52 universities and children's hospitals nationwide, are funded by HRSA and charged with training the next generation of interdisciplinary professionals to provide exemplary person- and family-centered care for children with autism and other developmental disabilities. Addressing the diverse needs of their respective states, programs vary in areas of emphasis, structure, and processes; this includes how they engage with their state and local Title V agencies.

Project: This poster will provide an overview of how LEND programs are driving health workforce development, informed by and in partnership with Title V agencies. It will highlight innovative approaches from across the country, such as: California (Children's Hospital Los Angeles) LEND trainees complete leadership projects that are tailored to meet Title V needs; the program also provides in-service trainings and data analysis. Arkansas LEND does an annual survey of Title V training needs; Title V staff attend all LEND didactic sessions (synchronously) using distance technology, and both entities engage in collaborative projects and strategic planning. Hawai'i LEND faculty regularly provide technical assistance and ongoing professional development training (e.g. presenting on project management to assist with the development of work plans to assure progress on various National Performance Measures) to Title V staff; trainees assist with the implementation of priority projects (e.g. holding stakeholder focus groups). Colorado LEND faculty serve as developmental screeners through contracts with Title V, and trainees regularly attend Title V educational sessions.

Accomplishments / Results: LEND programs reported a total of 5,462 activities conducted in collaboration with Title V and other MCH partners between 2014 and 2017. The poster will include first-person testimony from LEND faculty and Title V staff about the positive outcomes resulting from these efforts.

Barriers: The poster will also include first-person testimony from LEND faculty and Title V staff about the challenges they've navigated together. LEND programs report barriers with respect to relationship building, particularly during times of high Title V staff turnover or when there is lack of clarity about the most appropriate point(s) of contact. Close relationships (e.g. LEND faculty serving as strategic

consultants) can also lead to conflicts of interest when programs consider opportunities to pursue grants and subcontracts.

Lessons Learned: The primary purpose of sharing these examples is to promote more robust partnerships between training programs and Title V agencies. Their strengths are complimentary and the result is a more competent, prepared, and resourceful workforce – both now and in the future.

Adoption of Innovation: Spinning Babies®, an Interdisciplinary Labor Support Program to Mobilize Pregnant Women and Improve Birth Experiences

Authors: Leslie Fung
Michele Helgeson
Lorenza Holt
Sylva Yeghiayan
Jennifer Conti
Karla Damus

Category first choice: Women's/maternal health

Category second choice: Perinatal outcomes

Issue: Despite progress to reverse escalating rates of cesarean sections, in 2015 about 26% of all deliveries in the US were low risk cesarean births, with highest rates for black women. Rates exceed HP2020 objectives and these major abdominal surgeries have significant risks for mothers and their newborns.

Setting: At a community hospital in Greater Boston, we implemented the Spinning Babies Quality Improvement project, which included a training program for antenatal and labor and delivery (L&D) nurses to improve patient care and satisfaction. The targeted audiences are multidisciplinary obstetric providers and pregnant women in labor.

Project: Spinning Babies® is an innovative approach created by midwife Gail Tully that encourages and guides mothers in pregnancy and labor to lengthen and release the tension or torsion in their soft pelvic tissues. By matching specific birth positions, the diameter of the pelvis opens where the baby rotates and descends. Spinning Babies involves collaborative, interdisciplinary efforts between the mother and her obstetrical team to improve birth outcomes. Because early feedback from Spinning Babies from positive anecdotal birth outcomes and satisfaction from the mothers demonstrated a high potential from this approach, a community hospital initiated the adoption of this innovation into a hospital setting. Activities included 8-hour Spinning Babies trainings for antenatal and labor and delivery nurses, where 80 providers (primarily L&D nurses) were trained, a grand rounds presentation at the hospital to introduce Spinning Babies to physician providers, and the development of a nurse-mentorship program. Pre/post and 3-month follow-up survey results from will be presented. Focus group and key informant interviews with providers, nurses, and patients as well as preliminary results on implementation and perinatal outcomes will be discussed. A logic model will also be included.

Accomplishments / Results: The effective Spinning Babies trainings (increase in knowledge $p < 0.001$) on the immediate post-test assessment support that it can be integrated into existing perinatal services, could increase the overall quality of maternal care, and ultimately a reduction in racial disparities. The 3-month follow-up assessment results will be included.

Barriers: The acceptance for Spinning Babies from all obstetrical providers is challenging due to skepticism from traditional providers. The nurse-mentorship program and the high patient satisfaction over the course of this implementation period have helped create positive energy and experiences to mitigate this barrier. To gain the potential benefits, we need evidence based, rigorous research to engage stakeholders and to support future program impact.

Lessons Learned: One lesson learned was the importance of the strengthened partnerships among interdisciplinary providers of the obstetrical team. This was underscored by interview and focus groups data. Another lesson learned was the gained opportunity for providers to empower pregnant women through increasing mobility and shared decision making during labor with Spinning Babies. This could suggest the possibility of shifting the traditional paradigms surrounding obstetrical care. Additional lessons learned will be discussed.

Information for Replication: Leadership buy-in was essential to launch the project, including institutional funding for all the nurses' training.

Patient-Centered Connect Care Helps Connect Working Families with the Medical Home

Authors: Nathan Fleming
Amy Romashko

Category first choice: Medical home

Category second choice: Community collaboration

Issue: Patient preferences of low cost, convenient, after-hours care close home as spurred expansion of urgent care clinics across the US. Urgent care clinics typically offer walk-in care (no appointment is necessary) with weekend and evening hours, and the capabilities to perform simple procedures like suturing, casting and foreign body removal. However, urgent care often fails to connect families with their medical home. Children's Medical Group Urgent Care in Milwaukee implemented a Patient-Centered Connected Care framework to link asset-limited income-constrained employed parents with a medical home.

Setting: Children's Medical Group (CMG) in Milwaukee, WI was the nation's first pediatric urgent care system recognized by the National Committee for Quality Assurance (NCQA) for Patient-Centered Connected Care (PCCC). CMG operates six urgent care clinics staffed by 49 providers to care for 36,000 patients in 2017. Our clinics are open after-hours – evening and weekends – and serve asset-limited income-constrained employed households with school-age children.

Project: PCCC provided the framework for CMG to measure and to improve patient experience, measure health outcomes and drive quality improvement. PCCC sites meet minimum standards for connecting with primary care, identifying patient needs, culturally appropriate services, systems capabilities, and performance improvement. CMG leveraged the PCCC framework to divert ED visits for asthma, laceration and fractures. In addition, CMG improved antibiotic stewardship by standardizing treatment guidelines for urinary tract infections, pharyngitis, pneumonia and ear infections across sites for all providers. CMG targeted medical waste through guidelines for imaging utilization. The goal is to improve trust between community providers, build a medical neighborhood to support families, help reduce waste in the health care systems, such as duplication of procedures and unnecessary ED visits or hospitalizations, and, most importantly, to communicate clearly with the family's medical home.

Accomplishments / Results: CMG Urgent Care can provide a model for how sites delivering intermittent, outpatient treatment leverage national recognition to promote local quality improvement. CMG Urgent Care sites transfer less than one percent of patients to emergency departments. The average Urgent Care appointment saves families and the healthcare system as much as a thousand dollars compared to treatment in an emergency department. The combination of evidence-based care, low-cost interventions, and waste reduction make Urgent Care attractive to health systems interested in population health management. Most importantly, PCCC integrates outpatient, after-hours care into a medical neighborhood that fosters better pediatric care.

Barriers: Historically, urgent care is not considered as a part of the medical home. The healthcare system has not provided clear communication between providers. Episodic care, especially in urgent

care, is often not coordinated with patient-centered medical home guidelines, workflows or committees. PCCC prioritizes communication with primary care providers. They have built workflows within the EMR to route encounter summaries to patient's primary care team. Urgent Care providers participate in Patient-Centered Medical Home workgroups, quality committees, and contribute to Clinical Practice Guidelines.

Lessons Learned: When urgent care is integrated into the medical home, the result is improved patient experience, better health outcomes, reduced variations in quality of care, and consistent communication that fosters trust between families and the healthcare system.

Information for Replication: PCCC recognition costs \$1,500 per site. The NCQA requires all sites to complete a recognition survey every 3 years. CMG Urgent Care employs a Physician Lead for Quality and Health Equity as a 0.5 FTE position to facilitate quality improvement and ensure continuing PCCC recognition.

Academic-Practice Fellowships: An Apprentice Model for the Next Generation of Public Health Leaders

Authors: Patricia Elliott
Zandra Levesque
Katie Keating
Hitome Abe
Karin Downs
Jennifer Childs-Roshak
Lois McCloskey

Category first choice: Leadership

Category second choice: Community collaboration

Issue: The demographics of students entering into master of public health programs has shifted over the years yielding classrooms full of students with little professional workplace experience. Accredited schools and programs of public health are required to provide applied practice experiences to enrich student learning and develop competencies necessary for successful transition into the workforce.

Setting: The Boston University Center of Excellence in Maternal and Child Health (CoEMCH) has developed a practice-based fellowship program to augment the required student practicum. Working closely with community partners, including the Boston Healthy Start Initiative, the Massachusetts Department of Public Health, Planned Parenthood League of Massachusetts, and the National Institute for Children's Health Quality (NICHQ), specific opportunities are defined and marketed to students interested in maternal and child health.

Project: Selected students are matched with an organization and work on a project team for about 12 hours a week for 10-12 months. Fellows and site supervisors develop clear learning objectives that support areas of student interest and fill gaps for the organization, with time-bound deliverables to support autonomy and growth. Students are integrated into existing teams and receive weekly check-ins from their site mentor. Fellows meet regularly with faculty to discuss challenges and make connections between fellowship experiences, academic coursework, and professional ambitions. Each fellow receives a stipend of \$2000 and presents their work in a School-wide Forum. To evaluate the effectiveness of the fellowship, students and site mentors complete mid-term and exit interviews; and faculty assess job placement six months after students graduate. Results here highlight the success of the fellows working in one site, NICHQ.

Accomplishments / Results: Three students were matched to NICHQ between 2015 and 2017 to work primarily on the Infant Mortality Collaborative Improvement and Innovation Network project. Student deliverables included: extensive bibliographies, report and web content, and national conference abstracts and presentations. Results of exit interviews with mentors and fellows showed that students developed their project management skills, reached their desired competencies, and were meaningful contributors. Two fellows were hired at NICHQ and a partnering organization, and the third received support in attaining other employment.

Barriers: Fellows have expressed the quick pace of the professional environment was challenging and even a struggle at the beginning. Flexibility and effective communication strategies were essential to keeping up with work-flow. Ultimately, students reported that the fellowship was influential to their professional development.

Lessons Learned: In order for this type of program to be truly successful it is necessary to recruit and select students who are ready to climb steep learning curves in fast paced organizations, mentors willing to invest time in students, and faculty able to provide consistent support and feedback throughout.

Information for Replication: For the University, financial resources for student stipends and faculty time bolstered the program's legitimacy and supported oversight. For public health partners, existing relationships with the CoEMCH was essential to establish buy-in and cultivate willingness to foster in-depth mentored practice experiences for the fellows. Continuous communication and effective use of reflective supervision to support students made this program a success.

Health programs excel with student internships

Authors: Jennifer Dykhuizen
Carrie Zavala

Category first choice: Other

Other category first choice: Workforce

Category second choice: Leadership

Issue: Students actively seek opportunities to volunteer their time with local health departments to gain real world and hands-on experience. As professionals, it is our responsibility to ensure the incoming workforce is skilled, motivated and up to the challenges of working in the field. Additionally, health programs identify a need for additional help to meet program goals and objectives as funding streams run dry and budget cuts continue to rise. The implementation of the pilot was in response to the burden imposed on staff to meet program goals and participate in activities and projects outside of day-to-day clinic business. The internship program has since evolved to include other projects that benefit the WIC program, in addition to collaborating health programs at the department and community stakeholders.

Setting: The internship pilot program is part of the Maricopa County Department of Public Health WIC Program, Phoenix, Arizona. Students have contributed to improving the overall wellbeing of pregnant, postpartum and breastfeeding mothers, infants, and children 0-5 years living within Phoenix and the surrounding cities.

Project: Maricopa County Department of Public Health WIC Program is in the third year of the Internship Pilot. Students have helped meet program objectives by assisting in summer programs, designing nutrition education and outreach materials, surveying WIC clientele, developing manuals, working on quality improvement projects and presenting research at local and national conferences. Each project is supported by a thorough literature and best practice review, development of a strategic and implementation plan including logic models and evaluation tools. Several students have completed the intern program and secured work in the public health field and/or continued on to graduate studies.

Accomplishments / Results: Major accomplishments of the intern program include: Provided real world experience to 53 students with nine local conference and four national conference presentations. Increased the number of meals served to children <18 years through the SFSP from 3000 meals (5 clinics for 1 month) in 2014 to 13095 meals (7 clinics for 2 months) in 2015, 18210 meals (11 clinics for 2 months) and 17333 (12 clinics for 2 months). Improved breastfeeding services including development of new breastfeeding curriculum and education to WIC participants during World Breastfeeding Week. Increased the number of contacts with WIC participants through the Breastfeeding Peer Counselor Program. Identified barriers to staff retention and created and implemented quality improvements projects to improve morale amongst staff.

Barriers: Barriers include lack of centralized system for student applications, securing students for projects, and lack of interest or maintaining student interest throughout program. The health department created a student intern portal where students are matched to appropriate projects and programs can collectively review student applications and assign a project within the portal. Allowing students a certain level of autonomy of their work keeps them interested and engaged.

Lessons Learned: Working with students can be beneficial and rewarding for all involved. It allows programs to participate in activities and projects that would normally be infeasible due to lack of staff or funding. However, it requires thorough planning to ensure a well-rounded and meaningful experience is provided.

From Competition to Collaboration - How to Lead Community Engagement

Author: Nathan Fleming

Category first choice: Leadership

Category second choice: Community collaboration

Issue: In rural Wisconsin communities, local chapters of the United Way, County Health Department, critical access hospitals and chambers of commerce frequently have independent community development plans. Health planners struggle with competition between community stakeholders, uncoordinated initiatives, fragmentation, differing expectations, and aspirational rhetoric disconnected from practical results. Local leaders struggle towards Healthy Wisconsin 2020 while simultaneously moving from competition towards community collaborations.

Setting: sustainable financing strategies to support sustained improvement in population health outcomes. In 2016, America's Health Rankings placed Wisconsin 48th in public health funding. In 2016, Wisconsin hospitals provided \$498 million in charity care, \$470 million in bad debt as well as \$16 billion in health services uncompensated Medicare. In contrast, the total spent to keep families healthy – via public health funding – was only \$12.8 billion. The combination of state and federal dollars directed by public health agencies was less than \$61 dollars per person. In comparison, Wisconsin was paid almost \$8412 in price-adjust Medicare reimbursements per person.

Project: Pathways to Population Health (P2PHealth) helps communities connect social needs to medical outcomes and reform population health financing. P2PHealth encourages communities to embrace a culture of health through cross-sector collaborations, emerging financial vehicles that gather local resources, and alignment of existing programs towards health equity. In 2018, P2PHealth published and distributed a book, Pathways to Population Health, to 58 Wisconsin cities. The focus was on communities with a critical-access hospital, a chamber of commerce, and a local health department. P2PHealth followed up the book distribution with public presentations, webinars and coaching sessions to foster cross-sector collaboration.

Accomplishments / Results: P2PHealth created local health equity reports for 58 Wisconsin communities summarizing hospital community benefit dollars, preventable community health expenses, costs of health inequities, and financial strategies to sustainably fund population health programs. Data was collected from County Health Rankings and Roadmaps, local Community Health Improvement Plans, Hospital 990 reports, and Guidestar charity reports. P2PHealth helped local leaders design business plans, vet risk models, and create community presentations that make a local financial argument for health equity.

Barriers: Collaboration takes time, effort and a committed local champion. There is a significant first-mover barrier: everyone once to join a success, no one wants to risk a failure. Successfully funding population health infrastructure often requires blending multiple sources and types of funding, including public grants, hospital community benefit funds, low-interest loan programs as well as private sources,

such as foundations and local donors. This requires a paradigm shift in mindset from a competition over scarce resources to new way of envisioning collaborations on health.

Lessons Learned: It is difficult to find grant-based support for community capacity building. P2PHealth helps communities develop braided stream local funding to support healthy communities. Other public health advocacy groups may consider revenue-generating models to fund local priorities through collaborative efforts that do not have public or philanthropic funders readily available. The creative approach to startup capitol made it easier to attract in-kind support from other key stakeholders including a freestanding children's hospital and a local tech startup.

Information for Replication: Health Equity Reports for Wisconsin Communities was self-financed by Pathways to Population Health through book sales. All book-related revenue was then leveraged expert in-kind support from Children's Hospital of Wisconsin and Broadstreet Health. In 2018, P2PHealth spent \$11,500 on marketing and distributing books to Wisconsin communities. There was in-kind contribution of \$23,000 from Children's Hospital of Wisconsin as well as in-kind contribution of \$27,000 from Broadstreet Health, a Milwaukee tech startup that o assemble health information and make it collaborative, accessible and useful for those working to improve community health.

Learning Community In Action: Illinois' Statewide Initiative on Neonatal Abstinence Syndrome and Breastfeeding

Author: Kelly Vrablic

Category first choice: Reproductive health/family planning

Other category first choice: Please pair with submission: 0994-000158

Category second choice: Women's/maternal health

Other category second choice: Please pair with submission: 0994-000158

Issue: Neonatal Abstinence Syndrome (NAS) is a drug withdrawal syndrome that occurs in infants that have been exposed to opioids while in utero. NAS typically appears within 48-72 hours of birth and includes clinical signs such as: tremors, gastrointestinal dysfunction, temperature instability, high pitched, and continuous crying. In Illinois, between 2011 and 2015, there was a 42% increase in the NAS rate. In 2015, the rate of NAS in Illinois was about 2.5 NAS cases per 1,000 live births, affecting 373 newborn infants born in the state that year.

Setting: Between 2011-2015, NAS rates increased by: 62% in the Collar counties, 69% in urban counties outside the Chicago area, and 212% in rural counties. In comparison, there was a 23% decline in NAS rates in Chicago, and 8% increase in NAS rates in suburban Cook County. The NAS rate is highest among: Non-Hispanic White infants than other racial/ethnic groups, infants on public insurance (Medicaid), and infants residing in urban counties outside the Chicago metropolitan area, and rural counties.

Project: With the knowledge that all mothers need opioid education provided to them prenatally and beyond, the purpose of this project is to develop and disseminate educational materials statewide regarding Neonatal Abstinence Syndrome and breastfeeding. These materials will be made available to women prenatally and for those mothers with opioid use disorder. One set of educational materials will aim to provide information on prevention and opioid prescription to pregnant women. The second set of materials will aim to provide education to mothers that have opioid use disorder regarding the importance of breastfeeding, providing skin to skin contact, and rooming in with their baby. A collaboration between the Illinois Department of Health (IDPH) and the Illinois Perinatal Quality Collaborative (ILPQC), education materials will affirm messaging on reducing the adverse outcomes of opioid use for mothers and babies by implementing best practices for identification and treatment.

Accomplishments / Results: As part of this project, anticipated results included reduced rates of NAS secondary to increased statewide awareness on the impact of opioid use during pregnancy. Coupled with a focus on the benefits of breastfeeding, this project also anticipates an increase in rates of duration of breastfeeding.

Barriers: Barriers include short timelines and buy in from perinatal administrators, including communication issues. The relationship developed with the ILPQC has helped to circumvent this issue by

driving the process of engagement and focus group coordination. Additional pressures to complete project deliverables by the established deadline has proved challenging.

Lessons Learned: Identifying and collaborating with key partners and stakeholders is key to amplify and enhance efforts, this is evident in the partnership between IDPH and ILPQC. Aligning project goals with existing efforts in the state has been critical to program and policy change. Learning from other states has also supporting Illinois as the navigate through collaboration efforts.

State strategies to increase access to long-acting reversible contraceptives among adolescents

Authors: Julia Howland
Olivia Sappenfield
Keriann Uesugi

Category first choice: Reproductive health/family planning

Category second choice: Child/adolescent health

Issue: Teenage pregnancy remains an important priority for many state health departments and Title V programs. Three quarters of teenage pregnancies are unintended and can result in adverse consequences for teens and their children. Despite their safety and effectiveness, long-acting reversible contraception (LARC) is relatively uncommon among teens; approximately 5% of sexually active teens used LARC in 2011-2015. Barriers to LARC use in teens include expense, poor access, patient unfamiliarity with the devices and methods, confidentiality concerns, and provider concerns about safety in teens. States can employ a variety of strategies, educational, financial and regulatory, to increase LARC access and demand among adolescents.

Setting: Health Resources and Services Administration (HRSA) Regions 1 and 2 of Maine, New Hampshire, Vermont, Connecticut, Rhode Island, New York, and New Jersey, encompassing more than 1.8 million adolescents ages 15-19.

Project: We analyzed LARC-related publicly available, web-based documents including state legislation, statutes, Title V reports, Medicaid bulletins, memos, and state briefs and program summaries. We identified policies and programs specific to adolescents.

Accomplishments / Results: States in the selected region developed innovative approaches to patient and provider education, and program funding. Working with pediatricians and adolescent medicine specialists, Vermont developed trainings and technical assistance to increase access to LARC. Massachusetts partnered with teen advocacy organizations to conduct qualitative research on LARC barriers and preference among adolescents and then applied findings in a coalition to promote access. Rhode Island designated Title V support for developing youth-friendly LARC messaging. New York targeted teens in the Medicaid program to provide LARC access and wrap-around services. States promoting access through funding and legal autonomy policies may support LARC utilization. New Hampshire, Connecticut, Maine, Rhode Island and New York included adolescents in their Section 1115 waivers, and Vermont provides services through a similar state-funded program. State laws in Massachusetts and New York explicitly allow teens to individually consent for all contraceptive services. Title V and X block grants in Vermont, New Hampshire, Maine, Massachusetts, and New York have prioritized LARC access, ensuring a sustainable structure for ongoing statewide initiatives and collaboration.

Barriers: Legal and financial barriers may be restricting wider LARC access. In Maine, Connecticut, New Hampshire, Vermont, and New Jersey, adolescents' ability to consent for contraceptive services is limited to certain groups, such as married or parenting teens. New Jersey does not have a Section 1115

waiver, potentially limiting LARC access for lower income teens. Additionally, New Jersey addresses teen pregnancy prevention through abstinence-only education, a potential barrier to providing the comprehensive patient and provider education seen in other states.

Lessons Learned: Environmental policy scans help states better understand current access and barriers to LARC among adolescents. The policies identified here, including research projects, educational initiatives, consent laws, and funding streams, have the potential to increase LARC access among adolescents and reduce unintended teen pregnancy. Partnerships between teen service providers and state agencies, such as Medicaid and Title V, can ensure broad access for teens and allow for innovation in addressing adolescents' unique contraception needs and preferences.

Wellness Strategies for Health: Policy, Systems, and Environmental Changes Related to Tobacco-Use to Improve Alaska Native Maternal Health Disparities

Authors: Taija Revels
Carla Britton
Erin Peterson

Category first choice: Chronic disease/smoking

Category second choice: Women's/maternal health

Issue: During 2000-2011, pregnancy-related (death within 1 year of pregnancy termination due to complications or medical management) and pregnancy-associated (within one year of pregnancy termination due to any cause) mortality rates for Alaska Native (AN) women were 3 times those of non-Native women in Alaska. Thirty-eight percent of pregnancy-related deaths and 68% of pregnancy-associated deaths were considered preventable. AN mothers and children also experience disparities in prenatal tobacco use, pre- and post-natal secondhand smoke (SHS) exposure, and other risk factors that contribute to poor health outcomes such as preterm birth and heart disease. In Alaska, prenatal smoking among AN women varied by tribal health region, ranging from 15.4% to 50.9%. Statewide, 36.4% of AN adults reported current smoking (2010-2014). High smoking rates and household overcrowding in rural Alaska increase the likelihood of SHS exposure among pregnant AN women. Exposure to SHS during pregnancy is not recommended by the CDC. Policy, systems, and environmental (PSE) changes related to tobacco use and other risk factors for poor maternal and child health outcomes support the health and wellness of AN mothers and their families to reduce health disparities.

Setting: Eight Tribal Health Organizations (THOs) located throughout Alaska that provide healthcare and prevention services to over 55,000 AN individuals and their families.

Project: The Wellness Strategies for Health (WSH) program housed in the Alaska Native Epidemiology Center (ANEC) is funded by the CDC Good Health and Wellness in Indian Country (GHWIC) grant. The GHWIC Program is a national program focused on making sustainable reductions in heart disease, diabetes, stroke, and related risk factors among Alaska Native and American Indian people. To achieve the program goals, ANEC works with THOs and other partners throughout the state to implement culturally-appropriate PSE changes that increase access to traditional and healthy foods, increase physical activity, reduce tobacco use, improve health literacy, promote breastfeeding, and enhance chronic disease management. The 5-year project began in 2014

Accomplishments / Results: In years 2 and 3 of the project, WSH partner sites serving 5 tribal health regions in Alaska made 35 PSE changes including tobacco-free healthcare campus policies, improved healthcare systems for tobacco screening and referral to cessation programs, and community tobacco control resolutions. Other PSE changes include improvements to electronic health records, patient-provider communication practices, and community-clinical linkages

Barriers: Project barriers included partner unfamiliarity with policy work and transitioning from direct service programming to PSE activities. Additional barriers included differences in screening and referral processes across partner site clinical services, lack of shared EHRs across all sites, working with all levels of providers (i.e., community health workers, nurses, physicians), and need for consensus across shared jurisdictions in tobacco control programs and cessation services.

Lessons Learned: THO partners have compiled lessons learned from every year of the project. Lessons identified across sites included the need for increased capacity building around policy creation and implementation, stakeholder engagement, and creating public support earlier in the grant cycle

Community Action Leadership: A Community Based Approach to Reducing Disparities in Birth Outcomes Among African American Women and Families

Author: Ronnie Meyers

Category first choice: Racism, equity, and social justice

Category second choice: Perinatal outcomes

Issue: African American babies in Multnomah County are 2 times as likely to die before their first birthdays and are more than twice as likely to be low- or very low-birth weight as white babies born in the county. National research points to toxic stress resulting from daily experiences of racial bias as a key contributor to these disparities. Culturally specific individual level interventions improve birth outcomes for those women directly supported but do not change the pervasive societal and institutional racism that continue to cause toxic stress and the resulting poor birth outcomes.

Setting: Activities are taking place in Multnomah County, Oregon and work to benefit African American pregnant women and their families.

Project: Healthy Birth Initiatives (HBI) is a program of the Multnomah County Health Department that uses an African American culturally-specific home visiting model to provide education and support to participating women throughout their pregnancy and until their child reaches their second birthday. HBI is funded through the HRSA Maternal and Child Healthy Start program. A second program component supports the work of the HBI Community Action Network (CAN), a community collaborative focusing on community-and policy-level strategies to reduce the unfair disparities in birth outcomes and family health among African American women and their families in Multnomah County. With direction and support from national Healthy Start and the CAN, HBI initiated a consumer and community led collective impact strategy to identify key social determinants of health contributing to these disparities. Planning committees comprised of HBI consumers, community members and organizational representatives developed and implemented a community input process. The results of the 2-year community engagement process identified 3 focus areas: Housing, Economic Opportunity, and Family Unity. Initial work plans to make structural changes to reduce the effects of institutional racism on African American birth outcomes were developed. HBI is in the process of forming 3 action committees to move the plan forward. The consumer/community led committees continue to facilitate this process.

Accomplishments / Results: A major accomplishment is the development of the 3 focus areas and methods for moving to action. Based on this work, HBI has received two additional funding streams to increase access to housing, become a partner in an unconditional cash transfer pilot project, and received additional funding for Economic Opportunity and Family Unity action items. In addition, a number of the HBI consumers have formed a consumer led leadership group and has been the recipients of two community and research grants.

Barriers: One of the barriers we have worked to overcome is maintaining an environment where consumer and community members are able to participate at the same level as individuals who

participate as a part of their jobs. Actions to overcome this barrier include offering free childcare, meals, transportation and incentives for consumers/community members.

Lessons Learned: Consumer and community led collective impact processes can be successful in identifying core social determinants of health and result in increased resources to reduce disparities.



Scientific Research Track

Oral Abstracts



Engaging youth to assess their own health: a novel approach to health assessment in Denver

Authors: Maritza Valenzuela
Abigail Steiner
Jessica Forsyth

Category first choice: Child/adolescent health

Category second choice: Community collaboration

Data sources utilized: Hospital Discharge; Birth/Death Certificates; Child Health Survey; Other

Other data source: Public Safety/Police data, Colorado's Youth Risk Behavior Survey, hospital data, EMS data, Colorado Violent Death Reporting System

Background: Health assessments that rely entirely on data collected from traditional surveillance sources often lack the community engagement necessary to ensure findings accurately reflect the experiences of communities in question. Young people as a distinct population are rarely assessed. In 2017, Denver's public health agencies conducted a health assessment focused on and designed by Denver youth ages 13-25.

Study questions: How do Denver youth define the key issues that affect their health?

Methods: Principles of community based participatory research (CBPR) and positive youth development guided the assessment process. Nine youth from diverse backgrounds and geographic areas of Denver were hired to serve on a Youth Leadership Team (YLT). With support from public health staff, the YLT designed the research approach; collected and analyzed the qualitative data; defined assets and opportunities for success; helped to develop the final report; and shared findings with community stakeholders. The YLT surveyed 447 youth in Denver and conducted four listening sessions with young people from harder-to-reach demographics. Additionally, interviews were conducted with staff of 21 youth-serving organizations. Quantitative data from existing surveillance sources—including Denver Public Safety, Colorado's Youth Risk Behavior Survey, hospital data, and the Colorado Violent Death Reporting System—were analyzed to complement the stories told through the youth-collected data.

Results: Released in January 2018, the YHA found that success for youth in Denver is defined by being treated as unique and complex individuals, having their perspective and voice valued, having the ability to realize their current and future potential, and interacting with systems that support and cultivate resilience. The report outlines 11 identified threats to youth health and 16 opportunities for action. Feedback from the YLT indicates that the youth leaders had positive, meaningful experiences over the 13 months of the assessment process. The key benefits of participation they noted: establishing relationships with peers on the YLT, knowing that adults want to hear what youth have to say and are willing to listen, and having their perspectives valued. A key limitation of the YHA is the lower level of representation (in both the YLT and the qualitative data) by youth ages 19-25.

Conclusions: Youth in Denver want to be treated and respected as unique multi-faceted individuals, guided toward a positive and healthy future, resilient and able to bounce back, and connected to their communities. Threats to youth health include mental health challenges, lack of support for healthy sexuality, safety and exposure to violence, access to affordable housing, inadequate access to healthcare, and trauma.

Public Health Implications: The YHA demonstrates that public health agencies can engage young people in meaningful youth-adult partnerships, CBPR principles can be effectively applied to youth populations, and administrative systems can be adapted so that community members can be both compensated for their time and expertise and feel empowered by their participation. The YHA's findings elevate youth voices to inform policies and programs designed to benefit them and provide youth-serving agencies with information they need to further align efforts. The YHA will support stakeholders in multiple sectors with the data needed to strengthen and target strategies to improve youth health.

Pilot Testing a Case Definition for Surveillance of Pregnancy-Related Depression in a Large Safety Net Health System

Authors: Kenneth Scott
Jodi Drisko
Kelly Stainback-Tracy
Gregory Budney

Category first choice: Women's/maternal health

Data sources utilized: Other

Other data source: CHORDS

Background: Depression is the most common complication of pregnancy. Electronic health records (EHRs) have the potential to provide information on pregnancy-related depression (PRD) that is not readily available in common public health surveillance systems. Following the widespread adoption of EHRs, various approaches are being developed and tested to use EHR data for public health surveillance. However, EHR-based surveillance methods and case definitions are still being developed for a wide range of health conditions. It is unknown if there is a standardized computable phenotype for conducting surveillance of PRD using EHR data. This study explores one methodology to capture the burden of PRD on a population.

Study questions: Can EHR data be used for public health surveillance of PRD? If so, how many women seen for a postpartum visit during 2017 had a depression diagnosis documented in the EHR in the year preceding the most recent visit?

Methods: Denver Public Health developed and pilot tested an EHR-based computable phenotype for PRD with 2017 EHR data at Denver Health, a large public safety net health system that includes a network of federally-qualified health centers serving approximately 25% of Denver's population. Denver Health's patient population is not representative of the metropolitan area as a whole and includes higher proportions of vulnerable populations such as individuals experiencing homelessness and prisoners. Women of childbearing age (12-49 years) with at least one postpartum visit (identified through a combination of 6 ICD-10-CM diagnosis codes and/or 26 Current Procedural Terminology (CPT) codes) were eligible. Of these eligible women, those with a depression diagnosis (19 ICD-10 diagnosis codes) were flagged cases. Demographic characteristics of cases and non-cases were compared using t-tests and Chi square tests, as appropriate (significance level: $\alpha=0.05$).

Results: In 2017, 2,832 women had a documented postpartum visit, 544 (19.2%) of which had a documented depression diagnosis during the prior year. Women with a depression diagnosis were of similar mean age as women with no diagnosis (mean ages: 30.7 and 30.1 years, respectively; $p=0.09$). There were no detectable differences in the distributions of race or Hispanic ethnicity between the two groups.

Conclusions: It is feasible to assess PRD using EHR data, an approach that might be adopted by local public health agencies and health systems interested in addressing PRD. The rate of depression identified in this pilot test is approximately two times higher than prevalence estimates from the Pregnancy Risk Assessment Monitoring System. Reasons for this discrepancy are currently unclear; further validation of this methodology is required.

Public Health Implications: One possible approach to this could include working with a network of health care providers and other local public health agencies to refine the computable phenotype and to validate this approach to monitoring the population burden of PRD, as well as test it other care settings, such as the Colorado Health Observation Regional Data Service (CHORDS), a distributed data network in the Metro Denver region. Additional validation results will be presented at CityMatCH, if accepted.

Prenatal Depression Counseling and Depression Help-Seeking, Massachusetts PRAMS, 2012-2015

Authors: Susan Manning
Marina Magicheva-Gupta
Emily Lu
Karin Downs
Beth Buxton

Category first choice: Women's/maternal health

Category second choice: Mental/behavioral health

Data sources utilized: PRAMS

Background: Perinatal depression is an important public health issue affecting up to 20% of pregnant women. The American College of Obstetricians and Gynecologists recommends screening for depression at least once in the perinatal period, and the U.S Preventive Services Task Force suggests incorporating depression screening into routine care by explaining it in a guided conversation using a nonjudgmental approach. However, the extent to which screening and counseling for perinatal depression is completed is not well described.

Study questions: What proportion of new mothers in Massachusetts report that a health care worker discussed depression with them during any of their prenatal care (PNC) visits (PNC depression counseling)? Do mothers who receive PNC depression counseling differ from those who do not? Is receipt of PNC depression counseling associated with seeking help for depression during pregnancy?

Methods: We analyzed 2012-2015 data from the Massachusetts Pregnancy Risk Assessment Monitoring System (PRAMS) to estimate prevalence of PNC depression counseling using responses to the question "During any of your PNC visits, did a doctor, nurse, or other health care worker talk with you about what to do if [you] feel depressed during pregnancy or after [your] baby is born?" Bivariate analyses examined the association of PNC depression counseling with select maternal characteristics. Multivariate logistic regression models assessed the independent effect of PNC depression counseling on seeking help for depression during pregnancy. Information was not available on whether a validated depression screen was administered at the time of depression counseling or whether help was sought for depression in the postpartum period.

Results: Among Massachusetts mothers with recent live births, 77% (95% CI = 76–79%) reported receiving depression counseling during a PNC visit. Compared with women who received PNC depression counseling, those who did not were more likely to be Black or Asian, have lower income, and be foreign-born (Chi-square p-values <0.05 for all variables). Women who received PNC depression counseling had a higher prevalence of previous depression diagnosis (14% vs. 8%) and were more satisfied with the prenatal care they received (time spent with healthcare worker during visit [$p<0.05$], advice received [$p<0.05$], and understanding/respect shown by staff [$p<0.05$]). After controlling for potential confounders including previous diagnosis of depression, women who received PNC depression

counseling were more likely to seek help for depression during pregnancy than those who did not (aRR 1.9, 95% CI = 1.4–2.6).

Conclusions: Almost one in four Massachusetts mothers reported not having discussed depression with a healthcare worker during any of their PNC visits. Women who did not receive PNC depression counseling were more likely to be Black or Asian, have low incomes and be foreign-born. PNC depression counseling was independently associated with seeking help for depression during pregnancy.

Public Health Implications: Untreated depression in pregnancy and postpartum can have adverse effects on women, infants, and families. Perinatal depression is common, identifiable by screening, and treatable; however, it often goes undetected. Perinatal healthcare providers should screen and counsel all women in a culturally-competent manner and ensure connection with appropriate treatment services.

Stressful Life Events Experience and Asian and Pacific Islander Subgroups are Associated with Self-Reported Postpartum Depression in Hawaii, PRAMS 2012-2015

Authors: Carlotta Ching Ting Fok
Donald Hayes
Amy Curtis
Wendy Nihoa
Matthew Shim

Category first choice: Women's/maternal health

Category second choice: Mental/behavioral health

Data sources utilized: PRAMS

Background: Postpartum depression (PPD) affects 10-20% of women in the United States, which can be disabling and limit a mother's ability to care for her new infant and may result in increased use of health care services and hospitalizations. Past research in Hawaii shows almost half (45.6%) of recent mothers had PPD symptoms, and these symptoms occurred more frequently among Native Hawaiian, Filipino, Chinese, Japanese, Korean, Samoan, and Other Pacific Islander mothers. Experiencing stressful life events (SLE) such as relationship, financial, and other hardships before and during pregnancy may contribute to having PPD.

Study questions: Are experiences of SLE associated with self-reported postpartum depression symptoms (SRPDS) in Hawaii, and do disparities in SRPDS by race/ethnicity still exist?

Methods: Data from a total of 5,412 respondents were analyzed from the 2012-2015 Hawaii's Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based surveillance system for maternal behaviors before, during, and after pregnancy. Two questions based on the Patient Health Questionnaire-2 (PHQ-2) on the PRAMS survey used to assess mood and interest in activities since delivery were used to create a three-level variable for a generalized logit model: SRPDS defined as always/often to at least one question, possible SRPDS defined as sometimes to either question (and not always/often to the others), and no SRPDS defined as rarely/never to both questions. Multivariate generalized logit analysis was conducted to determine the association of SLE and race/ethnicity with SRPDS and possible SRPDS, with no SRPDS as the reference group. SLE was based on the number of affirmative responses to a list of 13 stressors occurring 12 months before delivery. SLE was grouped into none, 1-2, 3-5, and 6 or more stressors. Maternal race and SLE were primary predictors of SRPDS with adjustment for maternal age, pregnancy intendedness, prenatal depression, prenatal anxiety, experience of intimate partner violence (IPV) in the 12 months before or during pregnancy, and drug use during pregnancy.

Results: In Hawaii, about 10.0% of women with a recent live birth had SRPDS, and 27.7% had possible SRPDS. Mothers who were Native Hawaiians (adjusted odds ratios=2.05; 95% CI=1.29-3.26), Filipino (AOR=2.32; 95%CI=1.34-4.03), Japanese (AOR=3.13; 95%CI=1.73-5.69), and Other Pacific Islander

(AOR=2.68; 95%CI=1.31-5.46) compared with White mothers; and mothers who experienced 1-2 SLE (AOR 2.23; 95%CI=1.52-3.28), 3-5 SLE (AOR 2.68; 95%CI=1.73-4.13), or 6 or more SLE (AOR 5.83; 95%CI=2.67-12.77) compared with no SLE had higher odds of SRPDS after adjustment for other variables. Mothers who were Filipino (AOR=2.46; 95%CI=1.78-3.40) or Other Pacific Islander (AOR=2.15; 95%CI=1.38-3.34) compared with White; and mothers who experienced 1-2 SLE (AOR=1.85; 95%CI=1.45-2.36), 3-5 SLE (AOR=2.25; 95%CI=1.68-3.01), or 6 or more SLE (AOR=3.21; 95%CI=1.84-5.61) were more likely to have possible SRPDS after adjustment.

Conclusions: In Hawaii, 1 in 10 women reported SRPDS, and close to one-third reported possible SRPDS. Asian and Native Hawaiian or Other Pacific Islander (NHOPI) subgroups and those experiencing SLE were more likely to have SRPDS than comparison groups.

Public Health Implications: Encouraging providers who work with pregnant women to screen for stressful life events and provide appropriate follow up may mitigate the experience of postpartum depressive symptoms.

A Bayesian Approach to Estimating Birth Defect Prevalence in Alaska

Author: Jared Parrish

Category first choice: Birth defects/developmental disabilities

Data sources utilized: Birth Defects Registry/Surveillance; Birth/Death Certificates

Background: Birth defect registries using passive surveillance methods have suspect reliability in estimating prevalence. These systems are challenged by incomplete reporting and poor specificity of disease classification. Some passive systems “enhance” these methods through medical records review of selected conditions. Alaska has conducted medical records review for select conditions for over a decade. This information however, has never been utilized due to incomplete review. This study used this historical case confirmation information to create informative priors to estimate birth defect prevalence and establish a systematic ongoing process for sampling and review of reported conditions.

Study questions: Estimate the annual prevalence of specific birth defects from passively collected data by applying informative knowledge gained through sampled case confirmations

Methods: We estimated the prevalence of 12 birth defects among children born during 2008:2013 in Alaska. Using a Bayesian approach we randomly sampled cases reported for specific conditions and conducted medical records review to establish confirmation probabilities for specified International Classification of Disease (ICD) codes. We subsequently estimated missed cases probability using a set of assumptions that will be described. From the known informative prior, and observed report probability, the estimated prevalence is calculated. This method will be demonstrated for two defects Fetal Alcohol Syndrome, and Microcephaly.

Results: For all conditions assessed to date, the probability of true condition given a report ranged from a high of 86% to a low of 18%, indicating that for some conditions the reported ICD code is a poor representation of actual condition prevalence. This was especially apparent for conditions that shared ICD-9 codes prior to transitioning to ICD-10 codes (e.g. Gastroschisis and Omphalocele), and those that had extensive misclassification (e.g. Microcephaly). After applying the case confirmation probability obtained from the sampled cases medical records review, the reported prevalence decreased from 19.0 to between 3 and 8 per 10,000 live births, and 50.1 to 16.6 per 10,000 live births for Microcephaly and FAS, respectively.

Conclusions: Birth defects contribute to a substantial amount of infant mortality and lifelong morbidity. Birth defects registries using passive surveillance methodologies have substantial challenges in estimating disease prevalence due to both reporting and coding issues. Enhanced surveillance using medical records review can be costly and challenging in large geographic states such as Alaska. This efficient methodology can account in part for reporting delays and correct coding issues to improve disease prevalence estimation. Due to the known limitations with the Alaska Birth Defects Registry, the estimates produced in the past have had little impact and often dismissed by providers and decision makers. These new estimates that have increased scientific rigor are leading to improved attention to these important issues.

Public Health Implications: Estimating the magnitude of defects can be challenging in passive surveillance systems. With improved measurement, the population burden and resulting program and policy efforts can be targeted more effectively. Further, these methods can likely be extended to other health conditions such as Neonatal Abstinence Syndrome.

Opportunities for Reducing Adverse Pregnancy Outcomes in Maryland – Findings from PPOR Phase 1 and 2 Analyses, 2010-2016

Author: Lawrence Reid

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: PRAMS; Hospital Discharge; Birth/Death Certificates; Other

Other data source: US Census American Community Survey 2015 five-year census level estimates for Maryland

Background: Despite a 32% reduction in infant mortality rates (IMR) in Maryland since 1990, racial disparities persist between Black non-Hispanic (NH) and White NH births. Perinatal periods of risk (PPOR) is a vital tool that identifies local areas of opportunity to reduce excess fetal and infant deaths.

Study questions: What period of risk and individual or socioeconomic risk factors are the largest contributors to excess adverse pregnancy outcomes (APO) between Black NH and White NH births in Maryland?

Methods: Maryland Vital statistics fetal death and linked birth-death certificate statistical files were used for PPOR analyses. Census tract data from the American Community Survey 2015 five-year dataset were used for community level factors. Phase 1 PPOR compared fetio-infant mortality rates in Black NH, Hispanic and White NH populations, statewide and by residence jurisdiction, to a gold standard reference group of White NH women ages 20-34 with 13+ years of education in Maryland during 2010-2016. Phase 2 PPOR employed decomposition methods to identify preconception and maternal health risk factors that contribute to racial disparities in adverse pregnancy outcomes (APO), defined as a fetal (>24 weeks) or infant (<28 days) death or a very premature birth (<1500 grams & <32 weeks gestation). Multivariate generalized mixed logit models with random intercepts for community indicators estimated adjusted decomposition coefficients. Population attributable fractions (PAF) identified intervention opportunities based on decomposition results. Analyses were conducted statewide and stratified by residence jurisdiction groups.

Results: Fetio-infant mortality rates were 10.4 per 1,000 pregnancies and highest among Black NH mothers (16.4) and lowest for White NH mothers (6.9); the reference group rate was 5.0. Phase 1 revealed Maternal Health/Prematurity (MHP) among Black NH mothers contributed the most to excess mortality statewide (49% of total excess mortality), followed by Maternal Care (MC) among Black NH mothers (8.5%). Sixty-percent of excess Black NH deaths was due to premature deliveries of very low birthweight infants based on Kitagawa analysis. Black NH APO rates (28.8 per 1,000 pregnancies) were nearly three times higher than White NH rates (9.8). Statewide decomposition of the APO racial disparity suggest leading modifiable contributors were prevalence differences in marital status, maternal education, hypertension, prior preterm births, other pregnancy outcomes, and body mass index (BMI). Adjusted PAFs among Black NH births suggest eliminating the prevalence of hypertension

and obesity could reduce APO rates by 12% and 4%, respectively. Community level factors contributing to APO disparities include lack of health insurance and low vehicle access. Adjusted PAFs among Black NH births suggest improving community level transportation access could reduce APO rates by 13%.

Conclusions: Improving preconception and prenatal health of Black NH mothers in Maryland may produce the largest reductions in IMRs. Target areas include increasing social support, improving diet and nutrition, and improving access to healthcare and educational attainment.

Public Health Implications: MCH programs aimed at reducing IMRs should focus on system-level changes that improve access to care in addition to factors that contribute to poor diets and obesity, particularly among Black NH women.

Understanding Variation in Extremely Short Inter-Pregnancy Intervals in the United States

Authors: Deborah Ehrental
Renee Kramer

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Birth/Death Certificates

Background: Extremely short (<6m) inter-pregnancy intervals (IPI) are associated with increased risk of preterm birth, low birthweight, and neonatal morbidity. In the U.S., extremely short IPI varies by maternal characteristics, but less is known about effects of state-level policies that aim to improve contraceptive access. Today, half of states have adopted family planning expansions (waivers or state plan amendments) to extend Medicaid eligibility. Though increasing birth spacing is a stated goal of many expansions, it is unclear whether living in an expansion state protects against extremely short IPI.

Study questions: How much state variation exists in percentage of live births after an extremely short IPI? Which individual-level characteristics are most associated with extremely short IPI? Net of these, is state family planning expansion status associated with decreased individual-level risk of extremely short IPI?

Methods: We conducted multilevel logistic regression analyses using 2014 NCHS geocoded natality file. Our analytic sample included non-first, singleton births born between 20-45 weeks gestation to U.S. residents. Seven percent were missing data on gestational age and/or live birth interval and thus were excluded (final n=2,085,424). We first modeled odds of extremely short IPI by mother's age at delivery, race, education, nativity, delivery payer, and region, and included a random intercept for state. We then added an indicator for state family planning expansion status in the prior year (2013). Limitations include the cross-sectional design and the exclusion of Connecticut, New Jersey, and Rhode Island due to extensive missing data on IPI.

Results: State-level IPI ranged from 7.4% of non-first births in Louisiana to 3.6% in Vermont. Age was the strongest individual-level predictor: teens aged 12-17 were overwhelmingly more likely to have an extremely short IPI compared to women aged 30-34 (OR=15.8, 95% CI=14.8-17.0). Other individual-level characteristics associated with extremely short IPI included higher parity, Medicaid insurance, being born in the US, and region of residence (South more likely than West), all $p < .05$. When we added family planning expansion status, we found that living in an expansion state was not associated with extremely short IPI, independent of individual-level characteristics (OR=.99, 95% CI=.94-1.05).

Conclusions: Our initial approach suggests that while several individual-level factors are associated with risk of extremely short IPI, living in a family planning expansion state is not. This result may indicate the presence of additional barriers to contraceptive uptake that are not sufficiently addressed by the expansions, or that a more sensitive measure is needed to detect meaningful effects. Our upcoming analyses will investigate whether family planning expansion status affects IPI at the state or county

levels, adjusting for county-level variables that influence women's access to postpartum contraception. We will also characterize cases with missing IPI data to investigate potential selection bias.

Public Health Implications: It is important to know whether family planning expansions are having the intended effects on reproductive health outcomes. If not, we must strive to better understand and address lingering barriers to postpartum contraceptive uptake. Given that socially-disadvantaged women are more likely to have short birth spacing, identifying effective policy strategies for prevention is a critical matter of health equity.

Pregnancy Outcomes among Women who are Deaf and Hard of Hearing

Authors: Monika Mitra
Michael McKee
Ilhom Akobirshoev
Anne Valentine
Karen Clements

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: Linked Data File; Other

Linked data file: Pregnancy to Early Life Longitudinal Data System (PELL) links birth certificates and fetal death records

Other data source: Pregnancy to Early Life Longitudinal Data System (PELL)

Background: Research shows significant health disparities and health knowledge gaps in people who are Deaf and hard of hearing across myriad health conditions, however, to-date there no population-based studies about perinatal outcomes among women who are Deaf and hard of hearing.

Study questions: What are differences in pregnancy outcomes among deliveries to women who are Deaf and hard of hearing (DHH) compared to other women?

Methods: We conducted a retrospective cohort study using 1998–2013 Massachusetts Pregnancy to Early Life Longitudinal Data System. We compared the pregnancy and neonatal outcomes among deliveries to Deaf and hard of hearing women to randomly selected deliveries to non-Deaf and hard of hearing women using multivariate Poisson and multinomial logistic regressions, controlling for maternal age, parity, and birth year.

Results: Deliveries to Deaf and hard of hearing (DHH) women were associated with an increased risk of adverse pregnancy and neonatal outcomes, including: gestational diabetes (RR=1.5, 95% CI, 1.2 - 1.8, $p<0.01$), placental abruption (RR=1.8, 95% CI, 1.2-2.9, $p<0.01$), preterm birth (<37 weeks of gestational age) (RR=1.4, 95% CI, 1.1–1.7, $p<0.01$), low birth weight (<2,500g) (RR=1.3, 95% CI, 1.0-1.6, $p<0.01$) or very low birth weight (<1,500g) (RR=1.8, 95% CI, 1.2–2.8), and low Apgar 5 score (RR=2.0, 95% CI, 1.3-2.9). Although the risk of cesarean delivery and staying more than 4 days during cesarean delivery was significantly higher among DHH women (RR=1.1; 95% CI=1.01-1.21, $p<0.01$, RR=1.6; 95% CI, 1.1-2.4, $p<0.01$ accordingly) in unadjusted analysis, after controlling for age, parity, and birth year, it became non-significant.

Conclusions: Deaf and hard of hearing women are at a heightened risk for adverse pregnancy and neonatal outcomes. These findings also underscore the need for a systematic investigation of the pregnancy and neonatal related risks, complications, costs, and outcomes of DHH women.

Public Health Implications: Findings from this study suggest the need to develop clinical interventions and maternal and child health programs that ensure inclusion and equity for Deaf and hard of hearing women. In addition, information on pregnancy and maternal health that is accessible to Deaf and hard of hearing women must be developed and disseminated.

Exploring the relationship between household dysfunction and contact with child welfare: a prospective cohort study

Author: Jared Parrish

Category first choice: Trauma, violence, and injury

Data sources utilized: PRAMS; Birth/Death Certificates; Linked Data File

Linked data file: Linked the 2009:2011 PRAMS respondents to child welfare, birth and death records, and the Alaska permanent fund dividend database.

Background: The relationship between the number of adverse childhood experiences (ACEs) and a myriad of poor social and health outcomes has been clearly documented in the literature. Typically ACEs are grouped into neglect, abuse, and household dysfunction categories. With the increased knowledge about ACEs and the impact on adult health, prevention and early intervention are essential. Limited research has explored how these experiences are accumulated during childhood and the longitudinal relationship between household dysfunction, child abuse and neglect.

Study questions: Do children that are born to mothers self-reporting increased household dysfunction prior to birth have increased contact with child welfare before age 8 years?

Methods: Using data from the Alaska Longitudinal Child Abuse and Neglect Linkage project (ALCANLink) we calculated the stepwise cumulative risk of child welfare contact by age 8 years by number of self-reported maternal stressors experienced prior to birth. ALCANLink integrates the 2009-2011 Pregnancy Risk Assessment Monitoring System (PRAMS) survey with multiple administrative sources in Alaska, including child protection and the permanent fund dividend (PFD). The PFD database contains records of Alaska residents that apply for oil revenue dividends and is a unique data source used to track the complete cohort over time. Unlike other birth cohort linkage studies, it accounts for out-of-state emigration. We calculated the incidence proportion $F(t)$ stratified by maternal stressor count using a weighted Aalen hazard-based estimation of the survivorship function $S(t)$. Finally, we estimated the hazard of child welfare contact before age 8 by number of stressors reported using cox proportional hazard models.

Results: Before age 8 years, 32% of the births occurring during 2009-2011 experienced at least one report to child welfare. Of the 13 stressors, 21% of respondents reported experiencing four or more, among which 53% of the offspring had contact with child welfare before age 8. Following a increasing stepwise monotonic association, relative to those reporting zero stressors, the more stressors reported, the higher the hazard of child welfare contacts; children born to mothers reporting 6 or more are 4.7 times as likely to be reported to child welfare compared to those reporting zero.

Conclusions: Prevention of ACEs requires a clear understanding of how these adverse events are accumulated during childhood. The novel ALCANLink data source identified that household dysfunction (i.e. self-reported maternal stressors) is highly predictive of child welfare contact which serves as a proxy for child abuse and neglect. These data suggest that ACEs prevention likely must begin prior to birth as

some children are born with immediate ACE loads setting them up for differential life course trajectories.

Public Health Implications: Our understanding of the relationship between ACEs and poor health outcomes via the mechanism of trauma, brain development, and epigenetics has drastically improved our efforts to become trauma informed. Preventing ACEs however, has received less direct attention. This study provides insights into the relationship between ACEs and suggests that prevention must occur extremely early if not before birth. Programs aimed at building healthy relationships, long-acting reversible contraception, and other upstream efforts should be considered.

Joint and Separate Effects of Neighborhood Violence and Food Insecurity on Child Behavioral and Emotional Wellbeing in Chicago

Author: Pamela Roesch

Category first choice: Environment place and health

Category second choice: Mental/behavioral health

Data sources utilized: Other

Other data source: The Sinai Community Health Survey 2.0, a community health needs assessment conducted in ten Chicago neighborhoods. Details available at www.sinaisurvey.org.

Background: Experiencing neighborhood violence (ENV) and being food insecure (FI) are associated with sub-optimal child behavioral and emotional wellbeing; however, few studies examine the ways in which these exposures interact.

Study questions: Within low-income, urban Chicago communities, what are the joint and separate effects of ENV and FI on child behavioral and emotional wellbeing?

Methods: We conducted Sinai Community Health Survey 2.0 in ten racially diverse, low-income Chicago neighborhoods (2015-16) as part of a community-engaged health needs assessment. Primary caregivers provided English and Spanish responses on child health. We categorized children as ENV if they heard or witnessed street fighting or had someone close to them murdered (past year) and as FI if they were screened for low or very low food security using the U.S. Children's Food Security Scale (past year). Outcomes included measures of behavioral and emotional wellbeing among children aged 4 to 12 years (handling emotions, concentrating, controlling his/her behavior, and getting along with others). We used logistic regression accounting for survey sampling to estimate odds ratios adjusted for age, gender, and race/ethnicity.

Results: We collected data regarding 273 children ages 4 to 12 years. About half were male, 57% Latino, and 35% Non-Latino Black. Fourteen percent (14%) screened positive for FI only, 24% for ENV only, and 9% for both. ENV was not associated with any outcomes. FI was associated with difficulties getting along with others (aOR: 2.7, 95%CI: 1.1, 6.2); however, the FI/ENV interaction was insignificant ($p=0.699$). FI was associated with concentration difficulties, and we found a significant FI/ENV interaction ($p=0.011$). Children exposed to FI only had 6.3 times the odds of concentration difficulties compared to children with neither exposure (95%CI: 1.9, 20.7); however, children exposed to ENV only (aOR: 1.6, 95%CI: 0.7, 3.8) or to both ENV and FI (aOR: 0.8, 95%CI: 0.2, 2.9) did not have statistically significant higher odds of concentration difficulties.

Conclusions: Counter to our expectations, we did not find strong evidence of an interaction between ENV and FI in relation to child behavioral and emotional wellbeing. Our findings may be due to low sample size, particularities of our population (including the age group), lack of sensitivity in our measures, or a correct inference of no interaction.

Public Health Implications: To appropriately allocate resources, it is important to understand the social and environmental factors that influence child wellbeing. Our results align with studies that find an association between FI and child behavioral and emotional wellness; however, additional research is needed to understand how FI may interact with ENV. Other areas of recommended research include examining how protective factors, such as family support, may mitigate the negative health effects of ENV and FI.

The Impact of Maternal War Trauma on Children: A Study of South Sudanese Families Resettled in the U.S.

Authors: Nhial Tutlam
Louise Flick
Anne Glowinski
Hisako Matsuo
Hong Xian

Category first choice: Trauma, violence, and injury

Other category first choice: Mental/behavioral health Child/adolescent health

Category second choice: Mental/behavioral health

Other category second choice: Trauma, violence, and injury

Data sources utilized: Other

Other data source: This data was obtained through primary data collection. I interviewed mothers and their children to obtain the data.

Background: Previous studies have suggested that the effects of extreme trauma can be passed on from one generation to the next. The preponderance of studies investigating this phenomenon have focused on offspring of the survivors of the Holocaust. But, with many other civilian populations having been exposed to extreme trauma, such as genocides and civil wars in recent decades, it is imperative that we understand the potential transgenerational repercussions of these traumatic events in these populations. To that end, this study investigated the impact of maternal war trauma of South Sudanese women resettled in the U.S. on their children.

Study questions: What is the impact of maternal war trauma of South Sudanese mothers resettled in the U.S. on their U.S. born children?

Methods: This was a cross-sectional study design. Data were collected from mothers and their U.S. born index children in face-to-face interviews. Maternal exposure to trauma and trauma associated sequelae were assessed using the Harvard Trauma Questionnaire (HTQ) and the Hopkins Symptoms Checklist – 25 (HSCL – 25). Child behavioral and emotional problems and exposure to trauma were assessed using the Child Behavior Checklist (CBCL) and the Traumatic Events Inventory (TEI). Associations between maternal disorders and child outcomes were assessed using logistic regression.

Results: Mothers experienced an average of 9.7 traumatic events in their lifetime, with 47.4% experiencing ≥ 11 events. The prevalence of trauma associated current disorders was high: 26% PTSD; 32% depression; and 39.5% anxiety. The proportion of children that met diagnostic criteria for various disorders was: 11.8% (aggressive behavior); 7.9% (antisocial behavior); 7.9% (anxiety); 6.6% (depression); 10.5% (PTSD); and 21.0% (diagnosis of any disorder). Maternal diagnosis with past depression was associated with child diagnosis of aggressive behavior. Maternal anxiety diagnosis and trauma exposure jointly increased the likelihood of the child diagnosis with depression (aOR = 1.36; 95%

CI: 1.03, 1.79). Similarly, the interaction between maternal depression and trauma exposure and interaction between maternal PTSD and trauma exposure increased the odds of child diagnosis with depression by 46% and PTSD by 47%, respectively.

Conclusions: This study confirms a high level of traumatization among South Sudanese women. Consequently, the burden of trauma associated disorders is high. More importantly, the data support the notion of transgenerational transmission of the effects of trauma.

Public Health Implications: Findings from this study may help inform public health policies on how some of the challenges facing traumatized refugee communities are addressed. Specifically, many of the South Sudanese youth have not been doing well academically and are having problems with the legal system.

Examining racial variations in the relationship between severe adverse childhood experiences and adult body mass index

Authors: Barbara Laraia
Erika Brown
Elissa Epel
Barbara Abrams

Category first choice: Trauma, violence, and injury

Other category first choice: Social disparities

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: NHLBI Growth and Health Study

Background: Studies have consistently demonstrated that adverse childhood experiences (ACEs), or stressful and/or traumatic events occurring before age 18, are associated with poor health outcomes in adulthood. One such consequence is obesity; stress resulting from ACEs is hypothesized to cause excess weight gain through dysregulated eating behaviors, preferences for high energy, low nutrient “comfort” foods, and altered metabolic process. Women of color generally have greater exposure to life stressors (such as ACEs), as well as greater rates of obesity compared to white women. Yet, to our knowledge, racial variations in this relationship have not been examined.

Study questions: To what extent are the number and types of ACEs associated with body mass index (BMI)? Does the relationship differ between black and white women in middle-adulthood?

Methods: We analyzed self-reported survey and staff-measured anthropometric pilot data from 313 black and white women participating in the second wave of the National Growth and Health Study (NGHS). NGHS is a longitudinal cohort that first began recruiting 9/10-year-old girls in 1987. In 2015, a follow-up study was initiated to collect sociodemographic, psychosocial, anthropometric, and health data from the original participants currently aged 36-40. A multivariate linear regression was used to assess the association between the number and type of the most severe self-reported ACEs (exposure to substance abuse, physical abuse, sexual abuse) and adult BMI as an indicator for obesity, incorporating effect modification by race and adjusting for key sociodemographic variables. A likelihood ratio test was run to assess for significance of interaction with a cut-off of $p < 0.20$.

Results: Nearly 53% of the study population reported experiencing at least one ACE; 16% reported two, and 6% reported all three. Reported exposure to substance abuse (37%) was much higher than physical (23%) and sexual abuse (20%). Prevalences were insignificantly higher among whites than blacks across both number and type of ACE. The majority of women were obese (mean BMI: 31.0; 28.3 among whites, 34.3 among blacks). Blacks reporting at least one ACE had BMIs that were 5.4 units higher than whites on average ($p = 0.001$); this pattern was consistent across multiple ACEs, as well. Similarly, BMIs were

substantially higher among blacks than whites reporting the same type of ACE: 4.8 units among those reporting substance abuse ($p=0.010$), 5.6 units among those reporting physical abuse ($p=0.010$), and 6.9 units among those reporting sexual abuse ($p=0.003$). Interactions did not meet statistical significance, though this may be attributed to underpowered analyses as a result of our small sample size.

Conclusions: A high prevalence of severe adverse child experiences were reported in this sample of mid-life women. While the relationship between number and types of adverse child experiences and BMI were stronger for black women than white women, the association was in the same direction for white women, consistent with our hypothesis.

Public Health Implications: Intervening to prevent child abuse as well as creating special programs that directly address issues of women exposed to severe adverse childhood experiences may be important pathways to deter excessive weight gain and reducing obesity.

Adverse Childhood Experiences and Associated Sexual Risk Behaviors among Adolescents, Results from the 2017 Michigan Youth Risk Behavior Survey

Author: Sarah Rockhill

Category first choice: Child/adolescent health

Category second choice: Reproductive health/family planning

Data sources utilized: Other

Other data source: Michigan Youth Risk Behavior Survey, 2017

Background: Exposure to adverse or traumatic experiences during childhood increases the risk of developing emotional dysregulation and maladaptive coping mechanisms such as risk-taking behaviors. Adverse childhood experiences (ACE's) are associated with increased participation in several risk behaviors among adolescents and young adults, including substance use, bullying, vandalism, and weapon-carrying, however little is known about the effect of ACE's on sexual behaviors among youth.

Study questions: Are ACE's associated with an increased participation in sexual risk behaviors among adolescents and do observed associations differ by gender?

Methods: The Michigan Department of Education added a question to the 2017 Michigan Youth Risk Behavior Survey (YRBS) which asked respondents to report the cumulative number of adverse childhood experiences including death of a parent or care-giver, mental, physical, or sexual abuse, witnessing home- or neighborhood-based violence, living with a person who had mental illness, had attempted suicide, had alcoholism, used drugs, or who had been to jail or prison. Separate logistic regression models were used to test the association between sexual risk behaviors and the cumulative number of reported ACE's. Effect modification between gender and number of ACE's was evaluated by the inclusion of an interaction term in each regression model. All models were adjusted for age and race.

Results: Overall, 58.0% (95% CI: 54.8-61.1%) of students reported experiencing one or more ACE's. Females were more likely than males to report one or more ACE's (65.3%, 50.5%, respectively, $p < 0.0001$). After adjusting for age and race, each additional ACE was associated with an increase in the odds of being sexually active (aOR=1.34, 95% CI: 1.26-1.42) and having four or more lifetime sexual partners (aOR=1.32, 95% CI: 1.17-1.50). Including an interaction between gender and ACE's revealed a significantly stronger association between ACE's and current sexually activity among females (aOR=1.45, 95% CI: 1.34-1.58) compared to males (aOR=1.15, 95% CI: 1.03-1.27, p for interaction=0.0071). Likewise, there was also a significant interaction between ACE's and gender with respect to having four or more lifetime sexual partners (females aOR=1.60, 95% CI: 1.44-1.78, male aOR=1.13, 95% CI: 0.93-1.38; p for interaction=0.0020).

Conclusions: ACE's are an important predictor of sexual risk behaviors among youth, however the impact of ACE's on sexual behaviors is stronger for females than males.

Public Health Implications: These results underscore the impact of ACE's on sexual decision-making among adolescents, particularly among females. Addressing ACE's may lead to more effective risk-reduction counseling and education strategies for the adolescent population.

An evaluation of three prenatal care home visitation programs in Palm Beach County

Authors: Michael Scuello
Jeff Goodman
Amy Lora

Category first choice: Home visiting

Category second choice: Perinatal outcomes

Background: As part of its system of care framework, the Children’s Services Council of Palm Beach County (CSC) offers home visitation programs to address outcomes related to prenatal and postnatal care. From 2012 to 2016, an evaluation was conducted to determine the impact of three home visitation programs offered by CSC, two of which are recognized as evidence-based and promising programs (Healthy Families Florida (HFF), Nurse Family Partnership (NFP)) and one locally developed (Prenatal Plus (PNP)). As HFF and NFP have established eligibility criteria, PNP was developed to ensure that at risk expecting mothers who are not eligible for these programs could receive home visitation services. The evaluation included a rigorous quasi-experimental design (QED) component to assess the impacts of each program on their intended prenatal and birth outcomes, including birth-weight and premature birth, mother’s health, and prenatal care.

Study questions: Do expecting mothers who participate in each home visiting program achieve better outcomes related to prenatal care, health and child birth than a similarly situated group of expecting mothers who did not participate?

Methods: Using propensity score matching (PSM), each program participant was matched to a non-participant based on baseline characteristics related to the outcomes of interest. A comprehensive dataset was compiled from multiple sources, including the CSC’s proprietary client tracking system, the Florida Bureau of Vital Statistics, the Florida Department of Children and Families and the Ounce of Prevention Fund. Primary matching variables included race/ethnicity, age, marital status, maternal education, income level, ability to pay bills and a prenatal risk screening score. Regression analyses were then conducted for the matched treatment-comparison samples to estimate program impacts on outcomes.

Results: For NFP, the treatment indicator achieved statistical significance for 5 of the 7 observed impacts: weeks of gestation, full-term births, adequacy of prenatal care, number of prenatal care visits, and risk of depression. Statistically significant impacts were also observed for all 3 of the HFF program’s targeted outcomes: birth weight, weeks of gestation, and full-term births. Finally, statistically significant differences between the treatment and comparison groups were observed for 7 of the 10 targeted outcomes for PNP: birth weight, low birth weight, weeks of gestation, full-term births, infant risk, adequacy of prenatal care, and probable depression.

Conclusions: Owing to the limitations of QEDs – specifically the inability to control for unobserved characteristics such as motivation – these estimated impacts should be viewed with reservations. However, the study shows the promise of these three programs to generate favorable outcomes for

their participants, providing further evidence for the NFP and HFF programs, and beginning to establish an evidence base for the locally developed PNP program.

Public Health Implications: Implementation of evidence-based and promising home visitation programs can lead to positive impacts on intended outcomes. Further, locally developed programs crafted to address the prenatal needs of diverse populations not eligible for these programs may be equally as effective, as indicated by carefully constructed impact studies.

Factors Associated with Client Attrition from the Nurse-Family Partnership Program in New York City

Author: Lauren Birnie

Category first choice: Home visiting

Data sources utilized: Other

Other data source: Administrative data from Nurse-Family Partnership program collected by New York City sites

Background: Nurse-Family Partnership (NFP) is a nationally-implemented home visiting model with demonstrated impacts on a broad range of maternal and child outcomes. Given that these benefits may be diluted for clients who leave early, attrition serves as a primary concern for stakeholders. Although factors associated with attrition have been explored at the national level, it is unclear if these findings hold for New York City (NYC), which is the largest urban NFP site in the United States and serves a considerable number of women who are homeless, in foster care, or involved in the criminal justice system.

Study questions: What are the factors associated with addressable attrition by 1 year postpartum for NYC NFP clients?

Methods: We utilized administrative data collected by 8 NYC NFP sites. Eligible clients enrolled between 2011 and 2016, reached 1 year postpartum by December 31, 2017, and had at least one completed visit (mean completed visits = 19.3; N = 6,656). Discharge reasons were categorized as addressable or non-addressable consistent with classifications from a national study, and a dichotomous outcome variable was created that specified addressable attrition at 1 year postpartum. Odds ratios were used to quantify the associations between client and nurse characteristics and attrition. One limitation is that this study does not examine attrition at 2 years postpartum, as the researcher felt it was important to align methodology with national studies.

Results: Preliminary results suggest that clients were more likely to drop out if they were adolescents (OR = 1.92 [1.73 - 2.14]); primarily English-speaking (OR = 1.42 [1.25, 1.61]); not married (OR = 1.65 [1.43, 1.90]); unemployed (OR = 1.30 [1.16 - 1.47]); enrolled in school (OR = 1.37 [1.22, 1.54]); had not completed high school (OR = 1.95 [1.76 - 2.17]); lived with family or adults other than their partner (OR = 1.16 [1.04, 1.29]); or were homeless, in shelter, or in an institutional facility (OR = 1.64 [1.32, 2.03]). By contrast, clients who primarily spoke Spanish or another language; lived alone or with a partner; had already completed high school; were employed; or were married at the time of enrollment were less likely to leave early. We found no association between client attrition and race/ethnicity, gestational age at enrollment, or nurse attrition.

Conclusions: Similar to national studies, we found that clients who were at higher risk of instability (those who were adolescents, unemployed, had not finished high school) were more likely to drop out of NFP. Unlike these studies, however, we did not find evidence that African American clients or clients whose nurse left the program had higher rates of attrition, or that Latina clients had lower rates of attrition, when compared to the rest of the sample. Additionally, despite the model's guidance that

clients enrolled early in pregnancy stay longer, we did not find an association between early enrollment and attrition.

Public Health Implications: This analysis suggests that greater focus must be placed on adapting the NFP model to fit the needs of clients at higher risk of attrition, particularly those with less stable lives.

Women's experiences in the hospital around the time of a stillbirth: Results from a pilot study in Georgia

Authors: Nimmy Thomas
Lauren Christiansen-Lindquist

Category first choice: Women's/maternal health

Category second choice: Perinatal outcomes

Data sources utilized: Other

Other data source: This study was a secondary analysis of a pilot study of the expansion of the Pregnancy Risk Assessment Monitoring System (PRAMS) to include stillbirths in Georgia. Eligible women were identified through fetal death certificates and were Georgia residents aged > 18 years with a reported stillbirth between 12/1/12 – 2/28/13. Similar to the PRAMS data collection protocol, eligible women received a mailed survey and non-responders were followed-up by telephone. During the study period, 49 women (40%) who delivered at 28 different hospitals in Georgia responded to the survey.

Background: Stillbirth affects roughly 1% of all pregnancies in the United States, and now accounts for just over half of all deaths occurring between 20 weeks' gestation and the first year of life. Qualitative studies and anecdotal evidence have identified that there is insufficient support from the healthcare system for families after a recent stillbirth.

Study questions: The purpose of this study was to examine the prevalence of support services and clinical tests offered to families after a stillbirth and investigate sociodemographic characteristics (maternal race/ethnicity, maternal age, maternal education level, health insurance status during pregnancy, household income level, gestational age at stillbirth) associated with these services.

Methods: Data were analyzed from a pilot study of the expansion of the Pregnancy Risk Assessment Monitoring System (PRAMS) to include women who experienced a stillbirth in Georgia. The pilot study had an adjusted response rate of 40% (n = 49). Fisher's exact tests were used to conduct bivariate analyses between the sociodemographic factors and support services and clinical tests offered to families after a recent stillbirth. Multivariate analyses were conducted using adjusted Mantel-Haenszel methods.

Results: Most women indicated that they were offered the opportunity to see and hold their stillborn, but other opportunities to make memories (i.e. family photographs with the baby, rocking, dressing, and bathing the baby) were offered less frequently (< 50%). The option of taking family photographs with the baby were less likely to be discussed with non-white mothers (PR: 0.37; 95% CI: 0.16 – 0.87) and mothers with stillbirths between 20 – 27 weeks of gestation (aPR: 0.38; 95% CI: 0.16 – 0.92). Although women will produce breastmilk as early as 16 weeks' gestation, women who had early stillbirths (20 – 27 weeks of gestation) were half as likely to receive information regarding breastmilk (aPR: 0.51; 95% CI: 0.30 – 0.85). Most women (77.5%) reported that a fetal autopsy was offered, but only 38.7% of these women indicated that an autopsy was performed (95% CI: 21.9% – 57.8%).

Conclusions: Although this survey was conducted among a small sample of women in Georgia, these results illustrate that support services were not consistently offered across maternal sociodemographic characteristics, and that there are areas for improving the health care services that women receive around the time of a stillbirth. Additionally, more research is needed to better understand the circumstances surrounding the offer of a fetal autopsy, and identifying ways to improve the acceptance of these clinically-recommended evaluations. It is also important to further explore the experiences of women delivering between 20 - 27 weeks.

Public Health Implications: The results of this study provide quantitative evidence in support of the need for developing standardized care practices for women after a stillbirth and training obstetric healthcare teams in perinatal bereavement care. These policies will help reduce disparities in care currently present in support received by women after a recent stillbirth.

Capturing the Experiences of Pregnant Survivors of Intimate Partner Violence: A Qualitative Interpretive Meta-Synthesis

Authors: Sarah Robinson
December Maxwell

Category first choice: Trauma, violence, and injury

Category second choice: Women's/maternal health

Background: Intimate partner violence (IPV) is a serious public health issue (Abramsky et al., 2011) affecting 1 and 3 women worldwide (Black et al., 2011). Experiencing IPV has been associated with a variety of negative health outcomes (Cohen, Field, Campbell, & Hien, 2015; Dillon et al., 2013; Taylor & Jasinski, 2011). Pregnant women who experience IPV are at greater risk of violence and even femicide (Brownridge et al., 2011). Women also face birth complications such as postpartum hemorrhage, preterm births, and perinatal death (Janssen, Holt, & Sugg, 2003; Shah & Shah, 2010). While research has quantified the consequences of pregnant women who have experienced IPV, research to understand their unique experiences is limited.

Study questions: The purpose of this study is to capture the lived experiences of survivors of IPV who are or who have been recently pregnant.

Methods: A qualitative interpretive meta-synthesis was conducted to discover the lived experiences of currently or recently pregnant survivors of IPV. A qualitative interpretive meta-synthesis (QIMS) is a method used in the social work profession to identify themes across multiple published qualitative studies (Aguirre & Whitehill Bolton, 2013). Qualitative articles were found using a search of online databases. Articles were included in the study if the study design was qualitative in nature, participants had experienced both IPV and pregnancy, and the study was completed in the United States. Once articles were identified, two researchers processed the articles for themes. Next, the quotes published in the articles were imputed into Atlas.ti to discover additional themes. Finally, the researchers triangulated their findings by discussing the codes and coming to an agreement on central themes.

Results: After a review of the literature, 12 articles met the eligibility criteria. Participants had a mean age of 25, represented a variety of racial and ethnic groups, and were primarily recruited from medical clinics. Common themes noted by the researchers were as follows: New identity as sole provider: Women felt the formation of a new identity to provide for the unborn fetus marked by an increased desire to protect the child from the stress of abuse. Concern for fetus: Women were concerned about the growth and health of the fetus and felt that stress of abuse was to blame for slow fetal growth or low birth weight. Altered coping: Women expressed changing behaviors towards the abuser such as pacifying the abuser, avoiding conflict, and leaving the relationship in order to protect the unborn child or reduce stress. Fetal awareness: Belief that the fetus knew about the abuse prompted women to avoid violence or attempt to change behaviors.

Conclusions: This study demonstrated women alter their lives when they become pregnant and this change often puts them at elevated risks for future violence. This results demonstrate the need for developing interventions to mitigate the unique struggles of pregnant women who experience IPV.

Public Health Implications: Women who experience IPV during pregnancy encounter higher levels of stress that may negatively affect outcomes for the infant, mother, and family. These negative outcomes affect healthcare, nutritional, breastfeeding, and educational outcomes for the child.

Bringing voice to women, through women: jointly defining disrespect and abuse of women during facility based childbirth

Authors: Shanon McNab
Angela Doyinsola Aina
Gabriela Ammann
Sang Hee Won
Lynn Freedman

Category first choice: Women's/maternal health

Category second choice: Racism, equity, and social justice

Background: Much attention has been given to the increase in maternal mortality and morbidity in the United States, with a particular focus on addressing racial disparities. However, little documentation exists that gives voice to women's experiences of care throughout childbirth. Linking with the global movement to address Disrespect and Abuse (D&A), or mistreatment of women during facility-based delivery, and promote respectful maternity care, this research project sought to bring the voices of women to the forefront, and to understand the health systems challenges that may be contributing to these disparities. The Averting Maternal Death and Disability (AMDD) program, Black Mamas Matter Alliance (BMMA) and the By My Side Birth Support Program (BMS) in New York City (NYC) worked, along with several other community-based organizations, to make sure the voices of women were heard in the national discussion to improve maternal health outcomes.

Study questions: How is disrespect and abuse manifested in facility-based childbirth in NYC and Atlanta? What are the drivers of disrespect and abuse during childbirth?

Methods: In NYC and Atlanta, qualitative data collection methods were employed using a community based participatory research approach. Teams of researchers, including community members, were formed to jointly develop the tools, sampling and analysis framework. Focus group discussions (FGDs) were conducted with women of color who had delivered in the last two years, doulas, and fathers to understand their experiences and interactions with hospital providers and staff. In-depth interviews were conducted with hospital providers and staff to understand the complex interactions between patients and providers/staff within the health system context. Data analysis was conducted in teams. Community-level data was also analyzed to identify trends and enhance understanding of how women, community members and providers understood the larger definition of D&A.

Results: Categories of D&A of women during childbirth were identified after the joint analysis processes in NYC and Atlanta. The teams presented their findings back to community members for feedback and to ensure what they were hearing resonated with how women and men were experiencing D&A. The community sharing meetings were also an opportunity to present the joint community/provider analysis, to give insight into what was found to be factors from the hospital and health system perspective. Ultimately, a joint convening of all partners as well as national and global experts is planned

to learn about the manifestations of D&A in the US, and to present findings to identify possible solutions to address some of the drivers.

Conclusions: The process of leveraging expertise of academia, community representatives, city health departments, clinicians and national advocacy groups provided a challenging yet important 360 degree view of the problems women face during childbirth, as well as to identify strategies to address some of the drivers of disrespect and abuse, once it was fully understood.

Public Health Implications: Understanding how women are treated during childbirth, and the health systems factors that play a role in that treatment, is crucial in helping to identify how to begin to improve maternal health outcomes and reduce disparities.

Maternal Healthcare Needs Identified in South Carolina: A Qualitative Analysis of the 2015 Pregnancy Risk Assessment Monitoring System

Authors: Dana AlHasan
Chelsea Lynes
Vinita Leedom
Kristin Simpson
Harley Davis

Category first choice: Women's/maternal health

Data sources utilized: PRAMS

Background: Maternal and Child Health (MCH) disparities have been recorded in South Carolina (SC). SC's infant mortality rate is twice as high for black compared to white women. Efforts have been made to improve MCH in SC. A multi-stakeholder collaboration, Birth Outcomes Initiative, successfully addressed several MCH issues including reducing unwarranted early-elective deliveries by 50%. Even with these accomplishments, the most recent Title V Needs Assessment conducted by the SC Department of Health and Environmental Control identified several issues that require attention, such as expanding access to care, providing family support services, and addressing social determinants of health. Qualitative data on mothers' perceptions can provide additional insight into systemic healthcare-specific challenges.

Study questions: This study aims to complement existing MCH literature by analyzing responses to one open-ended question sent to women who gave birth in 2015.

Methods: Data from the 2015 Pregnancy Risk Assessment Monitoring System were obtained, which is a primarily mail-based survey of new mothers. Participants were asked at the end of the survey to comment "about your experiences around the time of your pregnancy or the health of mothers and babies in South Carolina." Answers were transcribed verbatim, and a qualitative analysis was conducted where common themes were identified through techniques of thematic analysis using NVivo. Sensitivity analysis was conducted to compare demographics between those who answered the question (n=208) versus those who did not (n=559) using SAS 9.4.

Results: Approximately 27% of women responded to the open-ended question in 2015. The two overarching themes identified were personal pregnancy experiences and general health among mothers and babies in SC. Under personal pregnancy experiences, two subthemes emerged: pregnancy complications and healthy lifestyle choices. Many women reported various pregnancy complications (e.g., pre-eclampsia) where they felt healthcare providers did not adequately communicate all options or thoroughly review their medical record and history. Further, several women advised the importance of healthy eating and regular exercise while not stressing. Under the general health theme, two subthemes emerged: access to care and lack of transportation. Needing to travel far distances to access a hospital with adequate maternal care was reported. Two women also commented on the difficulty of obtaining transportation to and from frequent hospital appointments. The sensitivity analysis revealed

no significant differences by demographics (e.g., race) between those who completed the question versus those who did not. A study limitation is not calculating inter-rater reliability between the two coders.

Conclusions: Women reporting poor communication with healthcare providers can indicate poor health literacy among the population as well as be indicative of larger health system deficiencies relating to quality of care. These issues have been previously identified by the SC Title V Needs Assessment, and this evidence further warrants the need to increase access to care across SC.

Public Health Implications: Small number of baby-friendly hospitals and limited healthcare access contribute to poor MCH outcomes. However, policies aimed to increase access to transportation, improve health insurance coverage, and educate the population can help close the gap in MCH disparities in SC by reducing negative effects of social determinants of health.

Disparities in Knowledge of Preterm Birth Topics among Women with Very Premature Births in Utah, 2009-2012

Authors: Alexandra Gero
Laurie Baksh

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: "Premie Facts" survey, Utah Maternal and Child Health Bureau, 2013

Background: Preterm birth trends have remained constant in Utah; between 2009 and 2016, an average of 9.4% of all live births in the state have been born prematurely. In 2013, the Utah Maternal and Child Health Bureau conducted a survey among women who delivered very preterm and were enrolled in the Neonatal Follow-Up Program in order to better understand their experiences.

Study questions: To determine whether self-reported awareness of risk factors and symptoms of preterm birth differed significantly between women who had and had not been informed of their risk by their prenatal care provider (PCP).

Methods: A paper survey was mailed to 504 women enrolled in the program who gave birth between 2009 and 2012, with 230 returned. Chi square tests assessed the relationship between being informed of risk for preterm birth and self-reported awareness of various preterm birth topics, patient satisfaction with their PCP, and patient satisfaction with their NICU experience. Logistic regression was used to produce odds ratios describing the relationship between knowledge of personal risk and awareness of preterm birth topics, a three-level categorical variable.

Results: Among respondents, 115 women (50.7%) reported their PCP had informed them of their risk of preterm birth, while 112 (49.3%) reported they had not been informed of such risk. There was no association between being informed of risk of preterm birth and whether a woman trusted her PCP to keep her informed, and take steps to prevent problems. Similarly, there was no association between being informed of risk of preterm birth and satisfaction with NICU experience. There was a significant association between being informed of risk and desiring more information after PCP visits ($p = 0.0025$). Compared to women who were informed of their risk for preterm birth by their PCP, women who were not informed were more likely to report no awareness of symptoms of preterm birth (OR = 4.4, 95% CI: 2.2, 8.8), of the risk factors for preterm birth (OR = 11.5, 95% CI: 5.1, 25.7), of available treatments to prevent preterm birth (OR = 5.3, 95% CI: 2.7, 10.5), of potential infant complications resulting from preterm birth (OR = 4.7, 95% CI: 2.4, 9.3), of potential lifelong problems affecting an infant resulting from preterm birth (OR = 4.6, 95% CI: 2.4, 9.0), and of the capability level of the hospital at which they delivered (OR = 6.7, 95% CI: 3.2, 14.0). Age, education level, race and ethnicity were not significant in any of the models and were thus removed.

Conclusions: Whether or not a woman was informed of her risk of preterm birth did not influence her satisfaction with her PCP, nor with her NICU experience. Women who knew they were at risk of preterm

birth were more likely to be aware of risk factors, symptoms and complications resulting from preterm birth.

Public Health Implications: Results suggest that women may better understand preterm birth risks and complications if they discuss their own risk with their PCP. PCPs should provide patients with information on these topics, regardless of a woman's individual risk.

Trends in non-resident abortion rates in New York City from 2005 to 2015: a time series analysis

Authors: Emily White Johansson
Erica Lee
Aileen Langston
Alison Yager
Hannah Searing
Sze Yan Liu

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: Induced Termination of Pregnancy (ITOP) certificates filed with the NYC Department of Health and Mental Hygiene for the years 2005-2015

Background: Growing abortion restrictions across many states could drive women to seek care in jurisdictions with few or no burdensome regulations including New York City (NYC). Research on trends in non-resident abortion rates in NYC and differences between resident and non-resident abortion patients is limited.

Study questions: We examined trends in non-resident abortion rates in NYC between 2005 and 2015 disaggregated by home state of residence. We also compared demographic and clinical characteristics of non-residents versus residents in the year 2015.

Methods: We used data from the Induced Termination of Pregnancy certificates filed with the NYC Department of Health and Mental Hygiene in 2005-2015, which includes the patient's county and zipcode for New York State residents and state of residence for patients living elsewhere. An autoregressive integrated moving average (ARIMA) model was fit to the monthly time-series of non-resident abortion rates in NYC. ARIMA (p,d,q) models describe the composition of a time series in terms of the number of autoregressive lags (p), moving average lags (q) and differences (d) by relating how the present value correlates to previous values and prediction errors. Pearson chi-square tests were used to test for associations between patient's residence and other key demographic or clinical variables.

Results: During 2005-2015, there were 885,816 abortions reported in NYC with 76,990 (8.7%) among non-residents. A total of 50,211 (65.2%) non-residents lived in other parts of New York State and most out-of-state patients lived in the Northeast region. The overall NYC abortion rate (per 1000 NYC females 15-44 years) declined from 49.4 in 2005 to 32.7 in 2015 while the non-resident rate (per 1000 US females 15-44 years) increased slightly from 0.11 in 2005 to 0.14 in 2007 and then declined to 0.10 in 2015. The moving average model that optimally fit the time series was ARIMA(0,1,1)(0,0,1)[12] indicating monthly changes in non-resident abortion rates were minimal, reflective of seasonal fluctuations and recent rates were more influential in predicting current values. Non-residents were significantly different from NYC residents in all investigated variables including terminating at later gestational weeks (9.0% vs 2.5%, $p<0.001$) and having surgical procedures (87.2% vs 82.2%, $p<0.001$).

Conclusions: Non-residents constitute a small proportion of abortion patients in NYC and there was minimal change in the non-resident abortion rate in 2005-2015. Nevertheless, it is possible that non-residents could increasingly seek abortion care in NYC since laws across many states have become more restrictive in recent years. Since non-residents were found to use local abortion services differently than residents, including terminating at later gestational weeks and having surgical procedures, this issue should continue to be monitored to ensure local service delivery is responsive to potentially changing patient demographics.

Public Health Implications: Surveillance of non-resident abortion trends and differences in utilization characteristics between resident and non-resident patients is valuable for planning local abortion services. This is particularly important in jurisdictions committed to providing comprehensive women's healthcare where non-residents from more restrictive states could increasingly seek abortion services.

Tracking the Storm: Monitoring Surveillance System Response Rates with PRAMS after a Natural Disaster

Authors: Rosaria Trichilo
Sumrita Bindra

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: Disaster Response

Data sources utilized: PRAMS; Other

Other data source: PRAMS Integrated Data Collection System (PIDS)

Background: Louisiana utilizes Pregnancy Risk Assessment Monitoring System (PRAMS) data to inform policy, resource allocation and program development. Per protocol, the Centers for Disease Control and Prevention (CDC) currently recommends a response rate (RR) of at least 55% to ensure generalizability of data. In August 2016, extensive rainfall resulted in catastrophic flooding in the greater Baton Rouge area of Louisiana, affecting operations and surveillance of statewide public health programs, including PRAMS.

Study questions: Does a statewide surveillance system, such as PRAMS, experience significant changes to response rates following a natural disaster in one region of a state?

Methods: Responses were separated into three categories: overall 2016 state births (n=883), affected flood zone (n=63) and non-affected flood zone (n=55). The affected group consisted of zip codes from East Baton Rouge Parish (county), per Federal Emergency Management Agency (FEMA) mapped hazard areas. The non-affected group consisted of zip codes from Jefferson Parish, which are similar to the affected area in terms of census population count, median household income and geographic proximity to an urban center. RRs for overall, phone and mail surveys were determined for each category. Chi Square analysis was conducted to determine the significance of the differences in overall, mail and phone RRs between affected vs. unaffected, affected vs. state, and unaffected vs. state.

Results: The overall RR for the affected zone was 61.2%; 32% through phone and 29.1% through mail. The RR for the non-affected zone was 64.7%, with 34.1% and 30.6% through phone and mail respectively. The overall state RR was 63.6%, with 28.8% through phone and 24.8% through mail. No significant differences (p value >0.01) were found between the overall, phone and mail RRs of overall, affected and unaffected areas.

Conclusions: While it was predicted that household displacement due to flooding leads to decreased response, there were no significant differences between groups. We attribute this to concentrated efforts toward phone operations to counteract anticipated decreased mail, and to additional operational improvements taking place at the time to boost overall RRs. Limitations include a low sample size for affected and non-affected zones, comparing only one time period due to a PRAMS phase change, and the ability to match on limited variables between affected and non-affected areas.

Public Health Implications: With climate change and the increased frequency of natural disasters, it is essential for public health programs and systems to have methodology and protocol in place by which to monitor RRs for surveillance systems. Natural disaster surveillance methods and toolkits, such as using alternative interview scripts for increased sensitivity when calling a potentially affected respondent, communication with regional post offices to anticipate affected zip codes and the development of disaster response operational protocol to monitor changes, can potentially abate unanticipated drops in RRs and surveillance can remain as uninterrupted as possible.

Linked Birth-Infant Death Files: Period? Cohort? What's all the fuss?

Authors: Deborah Ehrental
Daphne Kuo

Category first choice: Perinatal outcomes

Category second choice: Other

Other category second choice: Research Methods

Data sources utilized: Birth/Death Certificates

Background: United States (US) natality and mortality data are used for public health surveillance as well as epidemiologic and demographic research into population level determinants of important health outcomes. Until recently, the National Center for Health Statistics (NCHS) linked birth to infant death records and produced both period and cohort files. However, with the last linked cohort file available in 2011, a variety of procedures have been used to address the potential error intrinsic to the use of period files as a cohort.

Study questions: How much error is introduced by the use of period files, and can period files be reconfigured to create cohort files?

Methods: We use 2011-2015 public use linked birth-infant death period ("period files") and 2011 cohort files ("cohort file"). Each downloaded data package includes a numerator file (death records linked to birth records) and a denominator file (birth records). For 2011, we compute and compare infant mortality rates for the period and the cohort, and use multivariable logistic regressions to test for differences in the association of maternal characteristics, with infant and post-neonatal mortality, comparing the coefficients across the period and cohort files. We also construct a cohort file for all 2011 births by: 1) appending to the 2011 denominator file the linked records from the 2012 period numerator file for the 2011 infants who died in 2012, and then 2) deleting the duplicate birth records from the 2011 denominator file. No individual records are linked. We compare this constructed cohort file to the public use cohort file for 2011 and replicate this process for 2014 for which no cohort file is available from NCHS. The data construction and comparison analysis are carried out in Stata/SE 15.1.

Results: The 2011 infant mortality cohort rate of 5.95 per/1,000 live births was significantly lower than the period rate of 5.99 ($p < .000$). The neonatal mortality rate was 4.00 for both; the post-neonatal mortality cohort rate was 1.95, while the period rate was 1.99 ($p < .000$). There were no significant differences in the coefficients predicting the associations of maternal demographic characteristics with infant mortality, overall and for neonatal and postneonatal mortality. Using 2011 and 2012 period files, we were able to construct a cohort file identical to the 2011 NCHS cohort file. In addition, using the 2014 and 2015 period files, we were similarly able to construct a 2014 cohort file with complete capture of birth records for the infants who died in 2015.

Conclusions: The difference between period and cohort data are small but significant, especially for postneonatal deaths. Investigators can use public use period data to construct a cohort data set for use in regression and other analytical methods.

Public Health Implications: It is possible to use period data to construct annual cohort data more precise estimates of infant mortality trends over time, and for advanced explanatory analysis.

Association of Smoke-free Policies with Premature Deliveries -- A Multistate Analysis

Authors: Xu Ji
Shanna Cox
Scott Grosse
Wanda Barfield
Rui Li

Category first choice: Perinatal outcomes

Category second choice: Chronic disease/smoking

Data sources utilized: Hospital Discharge

Background: Tobacco exposure during pregnancy is a risk factor for preterm birth and low birth weight (PTB/LBW). A number of studies from European countries showed that smoking bans were associated with reduced PTB/LBW, while most U.S. studies reported an overall null effect of statewide smoke-free legislation on PTB/LBW. Little is known about whether the association with legislation varies across racial/ethnic subgroups.

Study questions: Was the enactment of statewide smoking ban associated with reduced risk of maternal delivery hospitalizations for PTB/LBW?

Methods: We applied a quasi-experimental method to compare the rate of delivery hospitalizations associated with PTB/LBW births among mothers from states that implemented smoke-free laws ("treatment") before and after the policy implementation, compared with the rate in states not passing the legislation during the study period ("control"). We identified 8,018,715 delivery hospitalizations (identified using ICD-9 and DRG codes) in 10 states from the 2002-13 State Inpatient Databases, with data for at least three years before and after the implementation of smoke-free laws. To ensure a balanced number of treatment and control states, we stratified the analysis into: (1) earlier laws (using 2002-09 data): five states that enacted the legislation before 2009, compared with five states that did not have the legislation during 2002-09, and (2) later law (using 2006-13 data): three states that enacted the legislation in 2010 (which were used as controls in the first stratification), compared with two states that did not have smoke-free laws in place as of 2013. Considering the lags between legislation enactment and implementation, as well as pregnancy and delivery time, we used three dichotomous variables to evaluate the policy effects: the first two years, Year 3, and later years post-legislation in treatment states; for the control states, all the policy variables were coded as zeros. Logistic regressions were used to estimate the association of smoke-free laws with the rate of PTB/LBW delivery hospitalizations, controlling for maternal characteristics, county-level unemployment rate, federal/state cigarette tax, and state and year fixed effects. The analyses were stratified by maternal race/ethnicity.

Results: Around 9.2% of delivery hospitalizations were PTB/LBW, with non-Hispanic Black mothers having the highest rate (13.3%) versus non-Hispanic White mothers (8.6%) and Hispanic mothers (8.3%). Overall, we observed a statistically insignificant association of smoke-free laws with PTB/LBW delivery hospitalization rates. However, among non-Hispanic Black mothers, the implementation of

earlier smoke-free laws (enacted during 2002-09) was associated with reduced odds of PTB/LBW delivery in Year 3 (odds ratio [OR] = 0.93; 95% confidence interval [CI]: 0.86, 0.99) and later years (OR = 0.88; 95% CI: 0.81, 0.95), respectively. The association was weaker among Hispanic mothers and was not statistically significant among non-Hispanic White mothers. Findings were similar when evaluating smoke-free laws implemented later (enacted in 2010).

Conclusions: Statewide smoke-free legislation is associated with a lower odds of PTB/LBW deliveries among non-Hispanic Black mothers.

Public Health Implications: State smoke-free laws may be an opportunity to address racial/ethnic disparities in PTB/LBW rates in the United States.

Impact of the California Medi-Cal Incentives to Quit Smoking Program on Maternal and Child Health

Authors: Melanie Dove
Susan Stewart
Sharon Cummins
Neal Kohatsu
Elisa Tong

Category first choice: Chronic disease/smoking

Category second choice: Life course perspective

Data sources utilized: Other

Other data source: California Helpline Caller Data, California Health Interview Survey, and Maternal and Infant Health Assessment Survey

Background: Although the prevalence of prenatal smoking is low in California, California's Medicaid (Medi-Cal) accounts for 75% of all women who smoke during pregnancy. Quitting smoking during pregnancy benefits the maternal and child health life course. Quitlines provide free, individual smoking cessation services, including tailored counseling for pregnant women, and have been shown to double long-term cessation rates. The Medi-Cal Incentives to Quit Smoking (MIQS) program provided financial and medication incentives to adults on Medi-Cal to call the California Smokers Helpline (Helpline) from March 2012 to July 2015. At the same time, First 5 of California provided free nicotine patches to Helpline callers who were pregnant or caregivers of children 0-5.

Study questions: This analysis examined differences in how pregnant women and women with young children responded to MIQS incentives and outreach compared with non-pregnant women without children.

Methods: We examined Helpline caller data from 2010 to 2015 among women of reproductive age (18-45 years) enrolled in Medi-Cal (n=32,777). We calculated the annual percent of the population reached who called the Helpline from 2010 to 2015 by pregnancy status. Population reach was defined as the annual number of women aged 18-45 on Medi-Cal who called the Helpline divided by the estimated annual number of women aged 18-45 who smoked and were enrolled in Medi-Cal, the latter obtained through the Maternal and Infant Health Assessment Survey and the California Health Interview Survey. In addition, we used adjusted prevalence ratios (aPR) to examine the association between pregnancy/child status and MIQS incentives (\$20 gift card and nicotine patches). Pregnancy/child status was defined as pregnant women and non-pregnant women with a child 0-5 years, 6-17 years, or no children <=18 years (used as the reference category).

Results: The percent of the population reached by the Helpline increased for pregnant and non-pregnant women during the MIQS program (pregnant: 2.3% in 2011 to 3.6% in 2014; non-pregnant women: 2.0% in 2011 to 2.9% in 2013). The percent of women who asked for the \$20 gift card (13.6%) was not substantially different by pregnancy/child status, and WIC and nonprofits were important referral sources. Pregnant women were less likely to receive nicotine patches (aPR = 0.37, 95% CI: 0.32,

0.43) and counseling services (aPR = 0.87, 95% CI: 0.83, 0.92) compared with non-pregnant women without children. Women with children 0-5 years were more likely (aPR: 1.13, 95% CI: 1.10, 1.15) to receive nicotine patches.

Conclusions: Results suggest that the promotion of financial and medication incentives for calling the Helpline increased population reach among pregnant and non-pregnant women. All women of reproductive age similarly responded to the financial incentives, through outreach channels such as WIC. Women with children 0-5, eligible for both MIQS and First 5, were more likely to receive the nicotine patch incentives. However, pregnant women may need messaging not solely about nicotine patches.

Public Health Implications: The MIQS program demonstrated incentive and outreach strategies to increase reach and utilization of evidence-based cessation services for pregnant and non-pregnant women of reproductive age.

Cost analysis of statewide implementation of an incentive-based prenatal smoking cessation program targeted at low-income women in Colorado

Authors: Tessa Crume
Rachel Wolfe

Category first choice: Perinatal outcomes

Category second choice: Reproductive health/family planning

Data sources utilized: PRAMS; Birth/Death Certificates; Linked Data File

Linked data file: Prospectively collected evaluation data from the BMTF program, linked to birth certificates.

Background: Prenatal smoking is associated with maternal delivery complications and adverse neonatal outcomes with substantial medical costs. Baby & Me Tobacco Free TM (BMTF) is an incentive-based smoking cessation intervention targeting low-income pregnant women that has been implemented at the community-level across Colorado since 2013. This is the first study that we are aware of to evaluate the statewide cost savings of a community-based prenatal smoking intervention targeting low-income women. This analysis takes on the payer perspective of the state, which is supporting both the intervention and the medical care for the patients of the study.

Study questions: The aim of this project is to determine the cost savings of BMTF for the State of Colorado by comparison to two statewide reference populations.

Methods: We evaluated the risk difference of smoking-related adverse maternal and neonatal health outcomes in the BMTF intervention group compared to two reference populations of low-income women who relied upon Medicaid during pregnancy between 2014 and 2017. The first reference group was selected from aggregate birth certificate data that excluded BMTF participants and the second referent population derived from the CO Pregnancy Risk Assessment Monitoring System (PRAMS); both groups were matched for prenatal smoking, low-income status and Medicaid insurance coverage during. The outcomes for the study and reference groups were obtained from birth certificate linkage and included gestational hypertension, low birth weight, Neonatal Intensive Care Unit admission, and preterm birth. The Medicaid re-imbursement cost of each outcomes was multiplied the by the risk difference between the study and reference populations. The return on investment (ROI) was calculated by dividing the per person cost savings by the per person cost of BMTF implementation over the study interval.

Results: The BMTF program cost \$781.44 per person and \$1.74 million to implement between 2014 and 2017. Compared to the birth certificate referent population, the BMTF intervention had a positive return on investment of \$10.45 per person; for every \$1 spent on the intervention, \$9.45 was saved. The per person cost savings was \$8,166.62 and the total cost savings was \$18,211,556. Compared to the PRAMS referent population, BMTF had a positive return on investment of \$2.78 per person; for every \$1 spent on the intervention, \$1.78 was saved. The per person cost savings was \$2,169.22 and the total

cost savings was \$4,837,352.92. Explanations for the observed discrepancy in cost savings between the birth certificate and PRAMS referent populations are likely due to selection bias of lighter smokers in PRAMS.

Conclusions: The BMTF intervention resulted in a substantial cost savings compared with both the birth certificate and PRAMS referent populations, from the perspective of the state of Colorado.

Public Health Implications: It is vital to promote all cost-effectiveness research into smoking cessation programs for high-risk groups, such as pregnant women who rely upon Medicaid coverage. Preventing detrimental health outcomes for both mothers and babies, as well as effectively assisting women to quit using tobacco products, represents a substantial public health impact and cost savings.

Maternal Tobacco Cessation and Risk for Small for Gestational Age: Risk Varies by Race

Authors: Pamela Xaverius
Asabe Garber

Category first choice: Perinatal outcomes

Category second choice: Racism, equity, and social justice

Data sources utilized: Birth/Death Certificates

Background: Approximately 20% of women smoke during pregnancy in Missouri, which is a significant public health concern. Smoking during pregnancy is associated with several adverse birth outcomes. Smoking cessation, before and during pregnancy, can have an important impact not only on the health of the mother, but also on the health of her newborn baby.

Study questions: Among pregnant women, what are the differences in risk for small-for-gestational age based upon smoking exposure before and during pregnancy, stratified by race?

Methods: This was a cross-sectional study of Missouri birth certificates data for singleton births among smokers in Missouri from 2010 to 2012 (n =48,511), to determine the difference in prevalence of small for gestational age (SGA), as it varied by smoking cessation status (quit before pregnancy [PREQuit], quit in the first trimester [1st Quit], quit in the second trimester [2nd Quit], and did not quit [Smoker], stratified by Black, non-Hispanic (Black) and White, non-Hispanic (White), Hispanic, and Other. Covariates included education, age, prenatal care, body mass index (BMI), insurance, hypertension, and pregnancy related infections. We used binary and multivariate logistic regression to assess the relationship between exposure to smoking throughout pregnancy and risk for SGA, and chi-square to assess differences in characteristics between smoking exposure groups. Race was found to be a significant interaction term between smoking status and SGA.

Results: Among White women, SGA rates were 8.3% for those PREQuit, 9.8% for 1st Quit, 14.5% for 2nd Quit, and 19.1% for Smokers. For Black women, these rates were 9.9%, 12.0%, 13.6%, and 15.9%, and for Hispanic women 4.4%, 8.2%, 16.7% and 15.9%, respectively. Black women in the 2nd Quit category were at 47% increased odds of SGA in reference to non-smokers (aOR 1.47 95% CI 1.04, 2.08) and 68% increased odds for Smokers (aOR 1.68 95% CI 1.37, 2.05). Among White women, the odds for SGA were greater for 1st Quit (aOR 1.13, 95% CI 1.00, 1.28), 2nd Quit (aOR 1.72, 95% CI 1.47, 2.00), and Smokers (aOR 2.36, 95% CI 2.18, 2.55), in comparison to PREQuit. Among Hispanic women, the odds for SGA were greater for 2nd Quit (aOR 3.95, 95% CI 1.73, 9.06), Smokers (aOR 3.93, 95% CI 2.34, 6.60), in comparison with PREQuit.

Conclusions: White and Hispanic women experienced the greatest increased risk for SGA as smoking exposure continued throughout pregnancy. However, risk for SGA among Black women was not as strongly associated with smoking reduction, suggesting persistence of other unmeasured factors influencing risk for SGA that are specific to the Black women.

Public Health Implications: While smoking cessation plays a significant role in reducing risk for SGA among a population of smokers, for Black women broader socio-cultural factors may need to be explored in our larger societal efforts towards health equity.

Electronic cigarette use before and during pregnancy: Findings from the 2016 Ohio Pregnancy Assessment Survey

Authors: Michelle Menegay
Anthony Nixon
Reena Oza-Frank
Alisha Brown
Rachel Tumin

Category first choice: Women's/maternal health

Category second choice: Chronic disease/smoking

Data sources utilized: Birth/Death Certificates; Linked Data File

Linked data file: 2016 Ohio Pregnancy Assessment Survey (OPAS) and Ohio birth certificate data

Background: Prevalence of electronic cigarette use during pregnancy remains relatively unknown. Recent studies have shown that women perceive electronic cigarettes as safer alternatives to tobacco cigarettes. However, it is well known that electronic cigarettes also deliver nicotine, a substance that can have harmful effects on both mother and baby.

Study questions: Among women in Ohio, what is the prevalence of electronic cigarette use 3 months before and during the last 3 months of pregnancy? How does electronic cigarette use during pregnancy compare with tobacco cigarette use during pregnancy? How many women stop using electronic cigarettes during pregnancy and what are their demographic characteristics?

Methods: The 2016 Ohio Pregnancy Assessment Survey (OPAS) is a statewide, population-based survey that monitors maternal health and experiences before, during, and after pregnancy among residential women who experienced a live birth in Ohio (n=3,386). A stratified sample of new mothers was selected from Ohio's birth certificate data to participate in OPAS 2-4 months following delivery. Demographic variables, including maternal age, race, education, county of residence type and marital status were derived from the birth certificate. Descriptive analyses using survey weights were conducted to obtain prevalence estimates and 95% confidence intervals (CIs). Pearson chi-square tests accounting for the complex survey design were conducted to identify differences between electronic cigarette use, tobacco use, and demographic measures.

Results: Among Ohio women who gave birth in 2016, 5.2% (95% CI: 4.0, 6.8; n=132) reported electronic cigarette use in the 3 months before pregnancy and 1.7% (95% CI: 1.0, 2.9; n=39) reported use during pregnancy. Among women who used electronic cigarettes during the 3 months before pregnancy, 85.0% (95% CI: 75.9, 91.0) also used tobacco cigarettes before pregnancy. Among women who used electronic cigarettes during pregnancy, 94.5% (95% CI: 82.6, 98.4) also used tobacco cigarettes during pregnancy. Electronic cigarette users were more likely to be White and unmarried compared to non-users (p<0.05). Among those who used electronic cigarettes or tobacco during pregnancy (12.1%, 95% CI: 10.2, 14.3), only 0.79% (95% CI: 0.24, 2.52) used only electronic cigarettes. The majority, 76.0% (95% CI: 60.9, 86.5),

of these women were not using electronic cigarettes at the end of their pregnancy. Women who stopped using electronic cigarettes during their pregnancy were mostly White, unmarried, residing in urban counties, had an intended pregnancy, and had annual incomes >\$16,000.

Conclusions: The prevalence of electronic cigarette use during pregnancy is much less than tobacco cigarette use. However, the majority of women in Ohio who used electronic cigarettes during their recent pregnancy were also tobacco cigarette users.

Public Health Implications: Electronic cigarettes have been subject to much debate regarding their use and ability to assist individuals to quit smoking. These findings provide the first data for Ohio on the prevalence of their use, and suggest that further, national, research is needed to gain a better understanding why pregnant women who use tobacco cigarettes during pregnancy also tend to use electronic cigarettes.

Evaluation of Indiana 2014 Sudden Unexpected/Unexplained Infant Death data: Prevention through understanding

Authors: Gretchen Martin
Kolawole Ale
Fausta Houzanme

Category first choice: Child/adolescent health

Category second choice: Other

Other category second choice: - Injury prevention - Child fatality review

Data sources utilized: Medicaid Files; Birth/Death Certificates; Other

Other data source: Other data sources used in this retrospective study are - Autopsy reports - Department of Child Services records - National Center for Fatality Review and Prevention Case Reporting System (NCFRP CRS)

Background: In the past five years, more than 3,000 Indiana babies lost their lives before their first birthday. That's 46 school buses at full capacity. The Indiana infant mortality rate remains consistently above the national average of 5.9 deaths per 1,000 live births. Moreover, the state's third leading cause of infant mortality - Sudden Unexpected/Unexplained Infant Death (SUID) – is mostly preventable. To make matter worse, a new Centers for Disease Control and Prevention (CDC) research revealed that U.S. medical examiners and coroners misattributed a significant number of SUIDs to other causes of infant deaths. To identify inconsistencies in infant death reporting, the Statewide Child Fatality Review (CFR) Committee reviewed the quality and completeness of all 2014 SUIDs data sources, including the death certificate and the National Center for Fatality Review and Prevention (NCFRP) Case Reporting System (CRS).

Study questions: How consistent and complete are SUIDs classification, investigation, and reporting in Indiana?

Methods: To evaluate the quality of SUID data, the Statewide CFR Committee, in conjunction with the Indiana State Department of Health (ISDH) Vital Records division, identified children between 0-17 years that died in 2014 (n=233). These data were then sorted to isolate deaths of infants under one year of age (n=132). Because of possible errors in the cause of death, the committee examined each death through death certificates, Department of Child Services (DCS) records, autopsy reports, and coroner verdicts. After excluding deaths with an obvious cause (e.g. drowning), the committee classified the remaining cases (n=105) to the best-fit category on the CDC-SUID Case Registry decision-making algorithm. Additionally, the committee examined key variables needed to determine circumstances and risk factors associated with SUID.

Results: The Statewide CFR Committee identified 105 deaths meeting the SUID inclusion criteria. Based on available investigation data and strict adherence to the SUID Case Registry algorithm, only 10.5% of

the SUIDs could be labeled as Accidental Suffocation or Strangulation in Bed (ASSB). Only 35% of those were entered in the NCFRP CRS by local CFR teams.

Conclusions: In 2014, epidemiologic analysis of Indiana vital records resulted in 86 SUIDs. However, the Statewide CFR Committee identified 105 SUIDs. The 19 previously unreported deaths increased the SUIDs percentage from 14% to 17% of the infant deaths in 2014. NCFRP CRS reporting is crucial to inform prevention and measure outcomes associated with prevention strategies. This retrospective study is important as it shows more accurately the burden SUIDs have on Indiana overall infant mortality distribution, and exemplifies the need for improved investigation and documentation protocols.

Public Health Implications: Reducing the SUID rate in Indiana will require sustained efforts at the state and local level. This study will provide valuable information to local CFR teams and death scene investigators. It can also be used by the ISDH CFR Division to design training tools to improve the quality of data collected by the investigators, the completeness of documentation of data processed by the local teams, and the classification of the cause and manner of death. Additionally, the data will provide crucial information to help inform successful prevention efforts.

Implementation of Safe Sleep Practices in Massachusetts NICUs: A State-Wide Quality Improvement Collaborative

Authors: Sunah Hwang
Patrice Melvin
Margaret Settle
Hafsatou Diop
Munish Gupta

Category first choice: Perinatal outcomes

Background: Sudden unexpected infant death (SUID) is the third leading cause of infant mortality and the leading cause of post-neonatal mortality in the U.S. and Massachusetts. Although preterm birth is a major risk factor for SUID, preterm infants are less likely to be placed supine in the hospital as well as after discharge to home. In Massachusetts, there is need to standardize the infant sleep environment in the NICU and to effectively educate staff and families about safe sleep practices.

Study questions: Can safe sleep practices (SSP) be integrated into the care of high risk infants discharged from Massachusetts NICUs?

Methods: The Neonatal Quality Improvement Collaborative of Massachusetts (NeoQIC) is a consortium of neonatal providers that provides infrastructure to lead and manage state-wide quality improvement initiatives. The safe sleep initiative was started in July 2015 with participation of all 10 MA level III NICUs; level II special care nurseries were invited to join in July 2016. Participating centers organize local improvement teams focused on safe sleep practices and participate in twice-yearly statewide summits. Based upon the project algorithm, all infants are eligible for two sleep practices: SSP or NICU therapeutic positioning (NTP) depending on their gestational age, weight, clinical illness, and need for therapeutic interventions. Compliance with SSP is defined as: 1) supine positioning, 2) in a flat crib with no incline, 3) without positioning devices, and 4) without toys, comforters, or fluffy blankets. NTP comprised usual NICU care. Local improvement teams devise intervention strategies, perform weekly crib audits for all NICU infants and submit data on overall compliance and compliance with each SSP component on a monthly basis to NeoQIC. NeoQIC continues to provide education on QI improvement methods and an infrastructure to help teams improve and measure their practices to increase adherence to safe sleep practices in the NICU.

Results: From July 2015 to June 2017, 7,261 cribs were audited. Statistical process control charts showed significant improvement in the primary outcome of interest, overall compliance with safe sleep practices for all participating NICUs. Compliance increased from 47.7% at the start of the project to 81.0% during by June 2017. Variability by hospital with SSP compliance significantly decreased.

Conclusions: This state-wide collaborative has improved SSP compliance in all level III MA NICUs and may improve adherence to SSP in the home and reduce the risk of sleep-related morbidity and mortality in this vulnerable population of infants.

Public Health Implications: This statewide safe infant sleep quality improvement effort focused on high risk preterm infants could provide a model of care for other U.S. states to improve the integration of

safe sleep practices into the medical care of infants in neonatal intensive care units. Given that preterm infants are at higher risk for SUID, hospital- and community-level efforts should consider targeting this vulnerable population.

Perinatal Characteristics of 2016 Sudden Unexpected Infant Death Cases, Compared to Kentucky's Birth Population

Authors: Emily Ferrell
Tina Ferguson
Janice Bright
Henrietta Bada
Joyce Robl

Category first choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates; Linked Data File; Other

Linked data file: Linked Certificate of Live Birth with Sudden Unexpected Infant Death Case Registry dataset

Other data source: Kentucky's Sudden Unexpected Infant Death Case Registry dataset

Background: Sudden Unexpected Infant Death (SUID) is a death that occurs in the first year of life, in which the cause of death is not immediately obvious. This category includes but is not limited to: undetermined causes, Sudden Infant Death Syndrome (SIDS), and accidental suffocation and strangulation in bed (ASSB). It is one of the leading causes of infant mortality in both the United States (U.S.) and Kentucky. The 2016 Kentucky rate of 190.5 cases per 100,000 live births is more than double the 2015 U.S. rate of 92.6 per 100,000 live births. Sleep-related risk factors were present in 95% of the 2016 Kentucky SUID cases, and many SUID prevention activities rely on universal safe sleep messaging. Less is known about the perinatal factors surrounding these cases and their potential for informing prevention efforts.

Study questions: Are there differences in the maternal demographics, maternal health behaviors, birth characteristics, and enrollment in services between SUID and non-SUID cases? How can this data be used to target interventions to prevent SUID?

Methods: In 2015, Kentucky was funded by a Centers for Disease Control and Prevention (CDC) grant to develop a SUID Case Registry. Starting with the 2016 death cohort, the Kentucky SUID Case Registry program has collected detailed information about all SUID cases, including sleep-related risk factors and other circumstances surrounding the death. Cases are linked to many data sources, including the Certificate of Live Birth, which facilitates comparison to the birth population. Univariate, bivariate, and multivariate logistic regression analyses were performed in SAS version 9.3.

Results: There were statistically significant differences ($p < 0.05$) in SUID cases ($n = 103$) and the non-SUID birthing population ($n = 54,058$) in several key areas. These included maternal demographics: age at delivery, race, education, marital status, parity; enrollment in services: insurance type, Women, Infants, and Children (WIC) enrollment, adequacy of prenatal care; maternal health behaviors: smoking during pregnancy, alcohol use during pregnancy, breastfeeding; and birth characteristics: Neonatal Intensive Care Unit (NICU) admission, birth weight, gestational age, perinatal Hepatitis C exposure. A final logistic

regression model included maternal age, race, insurance type, parity, breastfeeding, gestational age, and smoking during pregnancy as predictors of SUID.

Conclusions: The mothers of SUID cases were more likely to be younger, non-white, and with multiple previous live births. They were more likely to have Medicaid or no insurance and more likely to smoke during pregnancy. Preterm birth was associated with higher odds of SUID, while breastfeeding was a protective factor in the model.

Public Health Implications: This analysis will help inform prevention efforts by describing the risk factors associated with SUID, allowing for targeted interventions beyond universal safe sleep messaging. In particular, increasing efforts in breastfeeding promotion, preterm birth prevention, and smoking cessation may have the added benefit of reducing the risk of SUID. Partnerships with the state Medicaid program may assist with targeting prevention materials to a high-risk population. Additionally, safe sleep education should be provided during all pregnancies, not just first time births.

Identifying Contraceptive Deserts at the Census Tract Level of Analysis: Feasibility and Usefulness

Authors: Michele Issel
Paul Jung
Jean-Claude Thill

Category first choice: Reproductive health/family planning

Category second choice: Other

Other category second choice: GIS

Data sources utilized: Other

Other data source: County birth data, ACS

Background: The use of Geographic Information Systems (GIS) to map and thus understand the distribution of risk factors and the accessibility to resources has been widely used in public health, such as identification of food deserts. More recently GIS is being used to identify other types of deserts, such as pharmacy deserts or tobacco outlet density. Reproductive health researchers have underutilized GIS. Contraceptive deserts are defined as locations with a comparatively low number of places to obtain contraceptive products (eg, condoms and birth control pill prescriptions) and low availability relative to the need for contraceptive products. The underlying assumptions are that the distribution of risks and resources across a geographic unit reflects areas of need and thus provides information upon which to locate services and make strategic decisions.

Study questions: This study sought to: (a) detect contraceptive desert locations within one county in the southeastern U.S where contraceptive services and products are provided at disproportionately low levels, and (b) determine additional locations where contraceptive deserts overlap with locations of high need based on known risk factors.

Methods: Using Exploratory Spatial Data Analysis (ESDA), a spatial relationship between teen births and clinics serving women or men <40 years old (n=153), pharmacies and grocery stores was mapped at the census-tract level (n=233). The location data of all pharmacies, grocery stores with contraceptive products, and clinics known to provide either emergency contraception or contraceptive products are compiled to create the contraceptive desert map. Then, Maximum Coverage Location Model, a spatial optimization algorithm, detected census tracts where contraceptive products and services are less provided. Data from the American Community Survey (e.g., socioeconomic status, mobility) and county health department generated variables (e.g., teen birth rates) were used to create a risk score specific to the need for contraceptive services. Moran's I is used to determine significance of the overlap of contraceptive deserts with high risk score.

Results: In a recent county community assessment focused on reproductive services, specifically family planning, mapping via GIS was used to identify contraceptive deserts. Subsequent detailed ESDA revealed a significant spatial variation of teen births by census-tract and negative association between high rate of teen births and accessibility to contraceptive product or service facilities. The spatial

optimization analysis spatially identified underserved areas (contraceptive deserts) also has higher teen birth rates.

Conclusions: Our GIS-based study shows significant census tract-level variation in spatial disparities of contraceptive deserts and teen births, revealing where place-based healthcare policies are needed. Incorporation of spatial optimization techniques enable public health researchers and practitioners to identify locations of contraceptive deserts which is marginalized in terms of contraceptive products and services.

Public Health Implications: Geographically fine-scale analysis is important in reproductive health research and public health practice. GIS and spatial optimization techniques can help public health researchers focus on unintended pregnancy prevalence in finer scale and examine contraceptive desert where local health policies should target. The method applied in this study can be easily replicated in other areas to find contraceptive deserts.

The impact of spatial social polarization on preterm birth

Authors: Julia Howland
Kristin Rankin

Category first choice: Racism, equity, and social justice

Category second choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates; Other

Other data source: 1990 Census data

Background: Preterm birth (PTB) is associated with several social determinants of health, including racial segregation, experiences of racism, and neighborhood-level disadvantage. The Index of Concentrated Extremes (ICE) measures spatial social polarization using census tract level racial and economic measures. Previous studies have not examined the association between the ICE measure and PTB and have not separated the effect of ICE from race.

Study questions: What is the association between racial and economic segregation, as measured by ICE, and preterm birth among Chicago women? Does ICE describe an independent effect of segregation beyond the effect of individual-level race?

Methods: The ICE is calculated by subtracting the number of disadvantaged people in each census tract from the number of privileged people and dividing by the sum of disadvantaged and privileged people, for a possible range of -1 (100% of the population is disadvantaged) to 1 (100% privileged).

“Disadvantage” may be defined by tract-level income only, race only, or income and race combined. Data on infant PTB and maternal characteristics are from the transgenerational birth file (TGBF), birth certificate data from Chicago (1989-1991), with maternal residence geocoded to census tract. We calculated the ICE using 1990 census data. We examined PTB rates across ICE quintiles, then used generalized linear models to estimate risk ratios for the association between ICE and PTB, overall, adjusted for covariates, and stratified by maternal race.

Results: In analyses using the combined race-income ICE, the PTB rate varied by ICE quintile, from 18.5% to 7.2% in the most disadvantaged and most privileged quintile, respectively. ($p < .0001$). Nearly 95% of women in the most disadvantaged quintile were black, and 86% of women in the most advantaged quintile were white. After stratifying by race, the race-income ICE was no longer a significant predictor of PTB among black or white women. Using the income-only ICE, PTB rates were significantly higher for women in the most disadvantaged compared the most privileged quintile [RR = 1.89 (95% CI 1.38-2.58) and 1.30 (95% CI 1.20-1.41) among white and black women, respectively], although rates were not significantly different in the adjusted models.

Conclusions: After stratifying by race, spatial social polarization was not associated with preterm birth for black or white women. The ICE measure reflected the hyper-segregated nature of Chicago neighborhoods, with little racial variation within the quintiles. It was therefore difficult to disentangle the effect of segregation from that of individual-level race. In income-only ICE analyses, black and white women had significantly higher risk of preterm birth in the most disadvantaged quintile than in any

other quintile, suggesting that the detrimental effects of spatial social polarization may be driven more by economic than racial segregation.

Public Health Implications: The ICE measure is appealing due to its simultaneous capture of the extremes of deprivation and privilege, interpretable nature, and use of publicly-available data. However, ICE analyses not stratified by race may not distinguish neighborhood-level effects of segregation from the individual-level effect of race. Future analysis with ICE should include race-specific measures. Programs addressing social determinants of health should continue to focus on racial disparities.

Producing Estimates of Child Health and Well-Being for Cities, Counties, and Other Sub-State Areas

Author: Beth Jarosz

Category first choice: Child/adolescent health

Category second choice: Children and youth with special health care needs

Data sources utilized: Child Health Survey; Other

Other data source: National Survey of Children's Health, American Community Survey, other health surveys (e.g. California Health Interview Survey)

Background: While child health data are readily available for the nation and states, a substantial share of public health work occurs at the city- and county-level. Practitioners need reliable local data to understand health status and assess community needs, yet collecting that data through local health surveys may be cost prohibitive.

Study questions: Our research explores the question: Is it possible to leverage national and state surveys to estimate local (city and county) health and well-being? This analysis builds upon prior work to refine a method for producing reliable child health data at the sub-state level.

Methods: We summarize the methods and results of a project that blends data from the National Survey of Children's Health (NSCH) and the American Community Survey to produce local estimates of child health in California. The blended estimates are developed by applying prevalence rates for a larger area (e.g., state), by demographic subgroup to population estimates at the sub-state level (e.g., county). To test the model, we produce state-level estimates based on larger geographies (e.g., Census Regions) and compare those with published state estimates from NSCH. We also compare the blended estimates with published county-level data from other surveys (e.g. California Health Interview Survey) that publish comparable county estimates. To assess the performance of the model framework, we report mean algebraic percent error (a measure of bias) and mean absolute percent error (a measure of accuracy).

Results: We find that the method has distinct advantages--producing reasonable results while maintaining cost-savings and ease of implementation. The method also has disadvantages such as being less sensitive to local policy change than a survey would be.

Conclusions: In short, we find that while these blended-data estimates may not be an ideal diagnostic tool for pre-/post-policy evaluation, they may be useful for needs assessments, grant applications, and similar analyses of community conditions. This framework could be extended other states and to other health surveys.

Public Health Implications: Because the estimation methodology described in this research produced reasonable results and fills a need for city- and county-level data, it may be used to provide valuable information to public health practitioners.

Cluster analysis ranking in public health decision-making: Exploring childhood asthma inpatient hospitalizations in Cook County, Illinois, 2011-2014

Authors: Katie Labgold
Amanda C. Bennett
Kristen M. Wells

Category first choice: Child/adolescent health

Category second choice: Chronic disease/smoking

Data sources utilized: Hospital Discharge

Background: Asthma remains 1 of the top 5 principal diagnoses for pediatric inpatient hospitalizations in the United States. Inpatient hospitalizations are an indicator for the severity of asthma symptoms, suggesting inadequate management of disease and limited access to routine care. In Illinois (IL), hospitalization rates in the Chicago metropolitan area (Cook County) exceed the Healthy People 2020 objective, however not all neighborhoods can be targeted for intervention due to limited program resources. When many high-need areas exist, geographic cluster analysis can be used to identify communities to initiate public health programs.

Study questions: Are there geographic areas (clusters) in Cook County, IL with high rates of childhood asthma hospitalizations? How can various cluster characteristics be used to prioritize clusters for public health initiatives?

Methods: We obtained inpatient hospitalization data from the Illinois Department of Public Health for discharges during 2011-2014. Inclusion criteria were: residence in Cook County, 0-19 years old, with a principal International Classification of Diseases version 9 (ICD-9) diagnosis code of '493.XX' (asthma). Crude rates were calculated by ZIP code using American Community Survey (ACS) 5-year population estimates. SaTScan was used to identify high rate clusters, which we then ranked by log likelihood ratio, prevalence ratio, total cases, and population size.

Results: From 2011 through 2014, there were 11,456 asthma inpatient hospitalizations among children ages 0-19 over 174 Cook County, IL ZIP codes. We identified 13 ZIP code clusters with hospitalization counts significantly higher than expected for the population size, based on the overall Cook County hospitalization rate. The 13 clusters represented 25% of the pediatric population and 49% of all childhood asthma hospitalization cases in Cook County. Clusters were identified primarily in the western and southern regions of Chicago and in southern Cook County. Our ranking of clusters varied by public health measure. For example, compared to the other clusters, cluster A had the highest number of cases and third largest population. Alternatively, cluster D had the highest prevalence ratio (compared to the expected rate), but the second smallest total population.

Conclusions: We provided a framework balancing the common public health considerations of relative burden (prevalence ratio), absolute burden (number of cases), and population size, for use by Cook County community stakeholders in prioritizing communities in which to initiate childhood asthma

intervention. Clusters A-E may be of particular interest when valuing communities with a high relative burden (greater disparity). Clusters D and E have fewer children to target, which might be of interest for community organizations with fewer resources. Clusters A, B, or C may be valued highly for organizations interested in addressing more asthma cases.

Public Health Implications: Cluster analysis of area-level aggregate data can be used to identify geographic areas of high-need across numerous health outcomes, providing direction in resource targeting and contributing to more effective health policy. Public health entities can use the proposed ranking framework to prioritize identified geographic clusters for childhood asthma, and other health outcomes.

Maternal opioid use during pregnancy and infant health outcomes in Massachusetts, 2002-2010

Authors: Sunah Hwang
Chia-Ling Liu
Erica Wymore
Yin Stein
Hermik Babakhanlou-Chase
Hafsatou Diop

Category first choice: Perinatal outcomes

Linked data file: We analyzed data from three linked statewide datasets from 2002-2010: 1) Massachusetts (MA) Pregnancy to Early Life Longitudinal data system which longitudinally links birth certificates and fetal death records to maternal and infant delivery hospital discharge records; 2) Center for Health Information and Analysis (CHIA) Case Mix database (non-birth/non-delivery-related hospital discharge, observational stay, and emergency department visit records); and 3) MA Bureau of Substance Abuse Services Management Information System (treatment records for reproductive-aged women to all publicly-funded MA substance abuse treatment facilities).

Background: The incidence of opioid use in pregnant women and subsequent delivery of exposed infants has been increasing in recent years. To date, epidemiologic studies about maternal opiate use and infant outcomes have primarily been cross-sectional, lacking longitudinal analysis of outcomes of mothers and infants as dyads.

Study questions: Is maternal opiate use during pregnancy associated with 1) adverse neonatal outcomes and 2) infant hospital re-admissions, observational stays, and emergency room utilization in the first year of life?

Methods: We analyzed data from three linked statewide datasets from 2002-2010: 1) Massachusetts (MA) Pregnancy to Early Life Longitudinal data system which longitudinally links birth certificates and fetal death records to maternal and infant delivery hospital discharge records; 2) Center for Health Information and Analysis (CHIA) Case Mix database (non-birth/non-delivery-related hospital discharge, observational stay, and emergency department visit records); and 3) MA Bureau of Substance Abuse Services Management Information System (treatment records for reproductive-aged women to all publicly-funded MA substance abuse treatment facilities). Generalized estimating equations were used to assess the independent association between maternal opiate use and neonatal outcomes and infant hospital-based care in the 1st year of life, controlling for maternal and infant characteristics.

Results: The prevalence of maternal opiate use increased from 5.7 per 1000 live births in 2003 to 12.2 per 1000 live singleton births in 2009. In the adjusted analysis, exposed neonates were more likely to be born preterm (AOR 2.21; 95% CI: 2.02-2.41) and low birth weight (AOR 2.89; 95% CI 2.63-3.17). After controlling for preterm birth (in addition to maternal characteristics), exposed neonates were more likely to have intrauterine growth restriction, cardiac, respiratory, neurologic, infectious, hematologic, and feeding/nutrition problems, and prolonged hospital stay (AOR range 1.33-11.52). Exposed infants

were more likely to be re-hospitalized (AOR 1.28; 95% CI 1.18-1.40) but less likely to use the emergency room (AOR 0.82; 95% CI 0.76-0.87) in the 1st year of life.

Conclusions: Infants exposed to maternal opiate use during pregnancy are at higher risk for adverse health outcomes in the perinatal period and are also more likely to be re-hospitalized in the 1st year of life.

Public Health Implications: Additional research is needed to elucidate the biologic mechanisms and social factors by which maternal opiate use causes infant health complications during infancy. Mothers with substance use disorders should be counseled about the potential health complications for their infants in the 1st year of life.

Hepatitis C Virus Infection among Women who had a Live Birth in Florida, 2012-2016

Authors: Angel Watson
Leticia Hernandez

Category first choice: Women's/maternal health

Category second choice: Immunization/Infectious disease

Data sources utilized: Birth/Death Certificates

Background: Hepatitis C virus (HCV) infection rates are increasing among young persons, women of childbearing age, individuals living in nonurban areas, and those with a history of injection drug use. In 2015, Florida and nine other states accounted for 59.6% of the acute HCV infections in the United States. HCV infection among pregnant women is increasing and studies indicate it is a potentially modifiable threat to maternal and child health.

Study questions: To examine current trends of Hepatitis C virus infection among women who have a live birth and determine what factors are associated with having Hepatitis C virus infection during pregnancy.

Methods: A retrospective study was performed examining maternal HCV rates from Florida birth certificates from 2012 to 2016. Using data for 1,060,989 singleton live births during this period, the analysis calculated unadjusted and adjusted risk ratios (RR) using Stata/SE 14.2 to determine factors associated with HCV during pregnancy.

Results: Between 2012 and 2016, HCV rates in Florida increased 96% from 2.7 to 5.3 per 1,000 live births. About 84% of maternal HCV infections were among non-Hispanic white mothers. In unadjusted analyses, non-Hispanic (NH) white mothers were more than six times more likely to have HCV at delivery when compared to NH black mothers. In adjusted analyses, mothers with HCV at delivery were significantly more likely to be NH White (RR= 7.21, 95% CI: 6.05-8.60), NH Other (RR=3.07, 95% CI: 2.27-4.16), Hispanic (RR=1.32, 95% CI: 1.06-1.65), 20 years and older (RR=4.60, 95% CI: 2.76-7.66), and unmarried (RR= 3.01, 95% CI: 2.72-3.33). Women with HCV were also more likely to have smoked during pregnancy (RR= 5.13, 95% CI: 4.67-5.63), drank alcohol (RR= 2.19, 95% CI: 1.73-2.77), had a previous preterm birth (RR= 1.45, 95% CI: 1.18-1.79), received late or no prenatal care (RR= 1.92, 95% CI: 1.71-2.15), had a low birth weight infant (RR=1.59, 95% CI: 1.41-1.80) had syphilis (RR= 2.89, 95% CI: 1.50-5.60), gonorrhea (RR= 1.68, 1.06-2.65), and hepatitis B (RR= 8.89, 95% CI: 6.35-12.44).

Conclusions: Maternal HCV infection rates are increasing. This increase in maternal HCV infection coincides with the rising heroin and prescription opioid epidemics occurring nationally that have acutely affected white populations. By ensuring that pregnant women have access to HCV screening the risk of negative outcomes for both mother and infant may be reduced.

Public Health Implications: HCV remains poorly understood. Further studies, like this one, are needed to establish patterns for pregnant women and children affected with HCV to develop strategies to prevent transmission of HCV.

Examining neonatal outcomes and characteristics of mothers delivering infants with neonatal abstinence syndrome in Delaware, 2010-2015

Author: Khaleel Hussaini

Category first choice: Perinatal outcomes

Category second choice: Chronic disease/smoking

Data sources utilized: Hospital Discharge; Birth/Death Certificates; Linked Data File

Linked data file: Hospital Discharge Data and Birth Certificate Data

Background: Neonatal abstinence syndrome (NAS) is a withdrawal syndrome in newborns caused by maternal opioid use during pregnancy. Despite the increase in overall incidence of NAS (~300% during 1999-2013), there are very few published studies examining the maternal characteristics and neonatal outcomes at a population-level utilizing linked data, and those available are limited to a subset of the population.

Study questions: The objective of this study is to describe the neonatal outcomes of infants born with NAS and the characteristics of mothers delivering these infants in Delaware, compared to newborns without NAS.

Methods: A retrospective analysis of linked hospital discharge data (HDD) and Delaware Vital Statistics birth certificate (BC) data for 2010-2015 was utilized to examine the incidence, hospital length of stay, and costs of NAS in Delaware (HDD), and to describe birth outcomes and characteristics of mothers delivering infants with NAS (BC). Sociodemographic variables, such as maternal age, race and ethnicity, insurance status, educational levels, access to prenatal care, prepregnancy obesity, and maternal behaviors, such as cigarette use, were obtained from BC data to supplement HDD data. To ascertain NAS cases, International Classification of Diseases – Ninth Revision Clinical Modification (ICD-9-CM) diagnosis code of 779.5 and ICD-10-CM code of P96.1 from HDD birth hospitals was used; iatrogenic NAS cases were excluded.

Results: There was a substantial increase (~94%) in NAS incidence rates in Delaware, from 11.9 per 1,000 births per year in 2010 to 23.0/1,000 in 2015. The median charges billed (~ \$16,000) and median length of hospital (11 days) for infants born with NAS were significantly higher compared to those without NAS (\$2,900 and 2 days respectively). Neonatal outcomes from the linked HDD and BC data for singleton births (n = 1,052) indicated that infants with NAS, compared to infants without NAS, were significantly more likely to have low birth weight (19.2% vs. 6.8%), be born premature (19.3% vs. 10.6%), or be small for gestation (26.0% vs. 12.2%). Over 70% of mothers who delivered infants with NAS smoked tobacco during pregnancy, compared to 11% who did not deliver an infant affected by NAS. Mothers who delivered NAS-affected infants, compared to mothers who did not deliver NAS infants, were significantly more likely to have no prenatal care (8% vs. 2%) and to have delayed getting prenatal care (28% vs. 20%).

Conclusions: The study adds to emerging evidence on NAS by using linked population-based surveillance methods to identify maternal characteristics and neonatal outcomes associated with NAS infants in Delaware. The NAS-associated higher medical costs and poor birth outcomes, coupled with high smoking rates and lack of prenatal care, underscore the importance of enhanced and rapid surveillance among mothers delivering NAS infants for early identification, treatment, and/or referral to community-based programs. Delaware currently has several community-based programs, such as the Nurse Family Partnership, Healthy Families America, and Healthy Women and Healthy Babies, that identify and enroll high-risk women of childbearing age and connect them to preconception and interconception services.

Public Health Implications: It is important to connect these identify and connect these high risk women to preconception and interconception services.

Neonatal Abstinence Syndrome in Maryland Newborns, 2007-2016

Authors: Kristin Silcox
Lawrence Reid

Category first choice: Perinatal outcomes

Data sources utilized: Hospital Discharge; Other

Other data source: American Community Survey

Background: Neonatal abstinence syndrome (NAS), a drug withdrawal syndrome that occurs in a newborn after in utero exposure to opioids, has increased during the past decade. Recent trends in the rate, demographic characteristics, and their implications have not been well characterized in Maryland.

Study questions: What are the trends and characteristics associated with NAS in Maryland from 2007 to 2016?

Methods: Trends in NAS rates were calculated using Maryland Health Services Cost Review Commission (HSCRC) hospital discharge data from 2007 to 2016. Social determinants were assessed using the American Community Survey 2015 five-year ZIP code level estimates. Demographic characteristics, health service utilization, clinical outcomes, and social determinants were compared for newborns with and without NAS. Chi-squared tests were used to determine significance between NAS and non-NAS newborns. Analysis was limited to births of Maryland residents in Maryland hospitals.

Results: Since 2007 the rate of NAS newborns in Maryland has more than doubled from 6.9 per 1,000 newborns to 14.0 per 1,000 newborns in 2016. The increase in NAS rates was mainly among White, non-Hispanic (NH) newborns. Newborns with a NAS diagnosis were more likely to experience low birth weight (21.3% vs 8.6%), respiratory symptoms (34.0% vs 12.2%), feeding difficulties (8.4% vs 1.9%), tachypnea (17.0% vs 3.9%), and have an admission to the NICU (25.0% vs 7.1%) than non-NAS newborns. The average length of stay for the newborn hospitalization was more than four times higher in NAS newborns than non-NAS newborns (14.4 days vs 3.5 days) and the average inpatient charges were four times higher in NAS newborns than non-NAS newborns. In ZIP code areas with a higher rate of NAS newborns, Maryland residents tended to be less educated (possess less than a college degree), have lower median household incomes, a higher rate of families enrolled in the Supplemental Nutrition Assistance Program (SNAP), and have a greater percentage of families in poverty. Higher rates of NAS newborns were observed in the northern, more rural parts of the state, as well as in pockets of Baltimore City.

Conclusions: Similar to national trends, these findings show an increase in NAS rates in Maryland from 2007 to 2016 with disparities among certain demographic groups. These findings support the need for targeted interventions and education across the state of Maryland with a focus on targeting socio-economically disadvantaged areas, particularly for newborns with NAS.

Public Health Implications: With the rising opioid epidemic, pregnant mothers should be educated about the dangers of opioid use during pregnancy and its impact on newborn health

Effects of Early Discharge on Readmission Rates among Newborns with NAS

Authors: Hafsatu Diop
Xiaohui Cui
Timothy Nielsen
Munish Gupta

Category first choice: Other

Other category first choice: Perinatal Opioid Exposure

Category second choice: Perinatal outcomes

Data sources utilized: Hospital Discharge; Birth/Death Certificates; Linked Data File

Linked data file: Birth certificates linked with hospital discharge records for the delivery and non-delivery hospitalizations.

Background: Newborns diagnosed with neonatal abstinence syndrome (NAS) are more likely to have a prolonged length of stay (LOS) during their delivery hospitalization. The use of innovative approaches focused on non-pharmacologic care has reduced LOS for these infants; however, it is unclear whether a shorter LOS is associated with an increased risk of readmission.

Study questions: What is the prevalence of readmission among newborns with NAS? Is a shorter LOS associated with a higher prevalence of readmission among newborns with NAS?

Methods: Our study included resident live births during 2011–2015 in Massachusetts from the Pregnancy to Early Life Longitudinal (PELL) data system. PELL linked birth certificates with hospitalization discharge records to identify readmissions within 6 weeks, 3 months, and 6 months, excluding transfers. NAS was defined using ICD-9 (779.5) and ICD-10 (P96.1) diagnostic codes. LOS was calculated as the number of days between birth and discharge (0–6, 7–13, 14–20, 21–27, and 28+ days). We restricted our analyses to full-term infants (≥ 37 weeks). We calculated the prevalence of readmission and used multivariate log-binomial regression to examine the associations between LOS and the prevalence ratios (PRs) of readmission, controlling for age, race, education, smoking, method of delivery, birthweight, and insurance. We did not fit a multivariate model for readmission within 6 weeks due to the small number of readmissions.

Results: During 2011–2015, there were 354,323 live births, including 4,764 newborns with NAS (13.4/1,000 live births). Among the NAS cases, 4,048 were full-term (12.5/1,000 live births), with a median LOS of 17 days, compared to two days for term infants without NAS. The overall prevalence of readmission among full-term newborns with NAS was higher than those without NAS: 2.5% vs. 0.7% within 6 weeks, 4.9% vs. 1.1% within 3 months, and 6.7% vs. 1.4% within 6 months. The highest prevalence of readmission was observed in the 0–6 days category (5.5% within 6 weeks, 7.1% within 3 months, and 9.0% within 6 months) and the lowest prevalence in the 14–20 days category (1.2% within 6 weeks, 3.3% within 3 months, and 5.5% within 6 months). In the multivariate models, compared to LOS 14–20 days, adjusted PRs of readmission within 3 months were 2.81 (95% CI: 1.76–4.49), 1.76 (95%

CI: 1.05–2.94), 1.31 (95% CI: 0.73–2.36), and 1.63 (95% CI: 0.99–2.69), among the 0–6, 7–13, 21–27, and 28+ days categories, respectively. Readmissions within 6 months show a similar pattern, with adjusted PRs of 2.25 (95% CI: 1.54–3.28), 1.57 (95% CI: 1.04–2.36), 1.06 (95% CI: 0.65–1.76), and 1.63 (95% CI: 1.10–2.40), among the 0–6, 7–13, 21–27, and 28+ days categories, respectively.

Conclusions: Among full-term newborns with NAS, shorter LOS is associated with higher prevalence of readmission.

Public Health Implications: Decreasing LOS for infants with NAS can be beneficial to the family and health care system; however, it is important to balance this goal with the risk of readmission in order to minimize illness and cost.

Hospital Variation in Length of Stay for Infants with Neonatal Abstinence Syndrome: Contribution of Individual and Hospital Factors in Florida

Authors: Tara Foti
Chinyere Reid
Alfred Mbah
Ronee Wilson
Russell Kirby
Maya Balakrishnan
Mark Hudak William Sappenfield

Category first choice: Perinatal outcomes

Category second choice: Other

Other category second choice: Neonatal Abstinence Syndrome

Data sources utilized: Hospital Discharge; Birth/Death Certificates

Linked data file: Birth certificates deterministically linked with hospital discharge data

Background: Neonatal abstinence syndrome (NAS) is a constellation of symptoms occurring after termination of fetal exposure to opioids after birth. This often results in longer length of hospital stays (LOS), typically within Neonatal Intensive Care Units (NICU) with higher hospitalization costs. No national treatment guidelines have been recommended. While protocols for standardized treatment practices reduce variation in LOS, they are not well defined nor universally followed, resulting in variability of LOS. Like national trends, NAS incidence has increased in Florida, from 0.9/1000 births in 2009 to 6.3/1000 births in 2013. Understanding the maternal/infant dyad, hospital, and community-level factors contributing to the variability in hospital LOS for infants diagnosed with NAS in Florida would help inform a state clinical quality improvement (QI) initiative to reduce LOS.

Study questions: What maternal/infant, hospital, and community level factors contribute to hospital variation in LOS for infants diagnosed with NAS?

Methods: Linked birth certificate and hospital discharge data were used to identify infants diagnosed with NAS by ICD-9-CM code (779.5 or 292.0) born 1/1/2010-9/1/2015. Term (37-41 weeks), singleton births born at a level II or level III Florida hospital and discharged home after at least 4 days were included. Births at military and VA hospitals, deaths or transfers, and possible iatrogenic withdrawal were excluded. Unlinked births and births at hospitals with fewer than 40 NAS discharges over the study period were also excluded. Hierarchical linear modeling was performed with variables at levels of the individual, hospital, and county of residence. Length of stay was truncated at 80 days to exclude high LOS outliers. Analyses were conducted using SAS 9.4.

Results: The study included 3315 NAS infants born at 30 hospitals, with most mothers (85.0%) receiving Medicaid/Medicaid Managed Care. LOS varied by hospital (mean=20.1, SD=16.1). Average LOS by

hospital ranged from 12.5 to 34.4 days and number of patients per hospital ranged from 43 to 327. Community level variables were not significant and not included in the final model. Random intercepts for hospital of birth were retained in the model ($p=0.025$), although none of the hospital-level variables were statistically significant. Significant linear variables of LOS included birth year ($\beta=-0.90$, $SE=0.17$, $p<0.001$) and gestation weeks ($\beta=0.71$, $SE=0.22$, $p=0.001$). Significant categorical variables included maternal education (<HS compared to HS, $\beta=1.15$, $SE=0.53$, $p<0.03$), maternal race/ethnicity (other compared to white/non-Hispanic, $\beta=-2.36$, $SE=0.79$, $p=0.003$), and maternal insurance (Medicaid/Medicaid Managed Care compared to other, $\beta=1.84$, $SE=0.68$, $p=0.007$).

Conclusions: NAS LOS in Florida declined by almost one day of hospitalization per year over the study period, with significant hospital variation. Infants born at higher full-term gestation weeks tended to have higher LOS, as did infants born to mothers with less than high school education, Medicaid insurance, and white/non-Hispanic mothers.

Public Health Implications: Linked data can be used to identify factors that explain LOS variability. Findings can inform hospital leaders when planning LOS identification and treatment initiatives. Implementation of such a QI initiative would ideally reduce overall LOS, hospital variation in LOS, and birth hospitalization costs.

Using linked data to examine prevalence of birth defects among infants with neonatal abstinence syndrome in Delaware, 2010-2014

Authors: Khaleel Hussaini
Dana Thompson
Louis Bartoshesky
Amy Acheson
Kathleen Stomieroski
David Paul

Category first choice: Birth defects/developmental disabilities

Category second choice: Chronic disease/smoking

Data sources utilized: Hospital Discharge; Birth Defects Registry/Surveillance; Linked Data File

Linked data file: Birth Defects Registry Data, Hospital Discharge Data, and Vital Statistics Birth Certificate Data

Background: A recent systematic review of maternal opioid use during pregnancy suggests uncertainty regarding the teratogenicity of opioids. By contrast, the sequelae of in utero exposure to opioids in neonates, known as neonatal abstinence syndrome (NAS), has been well documented. While NAS has been studied extensively as an outcome of maternal opioid use, there are to date few studies that examine the prevalence of birth defects among infants diagnosed with NAS. Our study estimates the proportion of infants with NAS who have birth defects and the association between NAS and birth defects, and identifies the specific types of birth defects infants with, and without, NAS have in Delaware.

Study questions: Assess the prevalence and identify birth defects among NAS infants and non-NAS infants.

Methods: We performed a retrospective analysis of linked Delaware Birth Defects Registry (BDR) data, hospital discharge data (HDD), and birth certificate (BC) data for 2010-2014. The Delaware BDR abstractors reviewed medical records on each child with a reported birth defect, born in Delaware to a Delaware resident. To ascertain NAS cases, International Classification of Diseases – Ninth Revision Clinical Modification (ICD-9-CM) diagnosis code of 779.5 from HDD was used; iatrogenic NAS cases were excluded. Maternal age, parity, pre-pregnancy obesity, gestational diabetes, smoking, and prenatal care were obtained from BC data to supplement BDR and HDD data. We calculated birth defect prevalence (cases per 1,000 live births).

Results: Our study population consisted of 50,941 resident births with evaluable data from the linked datasets during 2010-2014 in Delaware. Of these infants, 1,883 had a birth defect. During the same period, 875 infants in Delaware were diagnosed with NAS. The overall prevalence for birth defects was 36.9 per 1,000 births (95% confidence interval (CI), 35.3-38.6) and the overall rate for NAS was 17.2 per 1,000 births (95% CI, 16.0-18.3). The prevalence of birth defects was about 4% for infants with NAS

diagnosis (38/875 ~4.3%) and without NAS diagnosis (1,845/50,066 ~3.7), with a crude relative risk of 1.2 (95% CI: 0.9-1.6). The three most prevalent birth defects among those diagnosed with NAS were ventricular septal defects (8/38; ~21%), hypospadias (7/38; ~18%), and clubfoot (3/38; ~8%). The three most prevalent birth defects among those without NAS were ventricular septal defects (337/1845 ~18%), hypospadias (203/1845 ~11%), and developmental hip dysplasia (~123/1845 ~7%).

Conclusions: Our population-based study describes the relationship between NAS and birth defects and the prevalence of birth defects among infants with and without NAS in Delaware. Our study found a modestly elevated but not statistically significant association between birth defects and NAS. Ventricular septal defects and hypospadias were both common among those diagnosed with and without NAS. Active surveillance of NAS in Delaware, similar to birth defects surveillance, may improve ascertainment.

Public Health Implications: Our study found a modestly elevated but not statistically significant association between birth defects and NAS. Active surveillance of NAS in Delaware, similar to birth defects surveillance, may improve ascertainment.

Inpatient Hospitalizations and Emergency Department Visits Related to Mental Health or Substance Use among Women of Reproductive Age, Illinois 2012–2014

Authors: Amanda Bennett
Angela Rohan

Category first choice: Mental/behavioral health

Category second choice: Women's/maternal health

Data sources utilized: Hospital Discharge

Background: Mental and substance use disorders are leading causes of disability and death in the United States. Emergency department (ED) visits and inpatient hospitalizations for mental health (MH) and substance use (SU) demonstrate opportunities for the healthcare system to improve prevention, diagnosis, and management of MH/SU conditions. This study describes patterns and characteristics of MH/SU-related inpatient hospitalizations and ED visits among Illinois women of reproductive age (WRA).

Study questions: 1) What are the principal causes of MH/SU-related inpatient hospitalizations and ED visits? 2) How do rates of MH/SU-related hospital encounters for mental health or substance use vary by age, race/ethnicity, and geography? 3) To what extent do MH and SU conditions co-occur?

Methods: We used 2012–2014 Illinois hospital discharge data to identify inpatient hospitalizations and ED visits for resident WRA (15–44 years old). MH/SU-related hospital encounters were identified from the first-listed diagnosis codes or external cause of injury codes (e-codes) related to ten types of MH/SU disorders, self-injury, and alcohol or drug poisoning. Co-occurrence was defined as presence of both MH- and SU-related codes in any diagnosis or e-code fields. Post-censal population estimates were used as the denominator to calculate rates of hospital encounters. Rate ratios (RR) and 95% confidence intervals (CI) were calculated, including stratified rates by age, race/ethnicity, and urban-rural classification of residential county.

Results: During 2012–2014, there were 101,400 inpatient hospitalizations (129.7 per 10,000 WRA) and 151,234 ED visits (193.4 per 10,000 WRA) related to MH/SU among Illinois WRA. The leading cause of MH/SU-related inpatient hospitalizations was mood disorders (59.3%); the leading cause of MH/SU-related ED visits was anxiety disorders (28.4%). Compared with women 40–44 years old, women 15–19 years old had higher rates of both types of MH/SU-related hospital encounters (RR-hospitalization=1.61 95%CI=[1.59–1.64], RR-ED=1.68 [1.65–1.71]), while women 20–39 years old had lower rates of inpatient hospitalizations but higher rates of ED visits (RR-hospitalization=0.85 [0.84–0.86], RR-ED=1.19 [1.17–1.21]). Non-Hispanic black WRA had higher rates of MH/SU-related hospital encounters than non-Hispanic white WRA (RR-hospitalization=1.44 [1.42–1.46], RR-ED=1.23 [1.22–1.25]), but Hispanic and Asian WRA had lower rates. WRA who were residents of medium/small metropolitan or rural counties had higher rates of both types of MH/SU-related hospital encounters than WRA who were residents of large metropolitan counties (RR-hospitalization=1.06 [1.05–1.08], RR-ED=1.56 [1.54–1.57]). Co-

occurring MH and SU was identified in 42.2% of MH/SU-related inpatient hospitalizations and 12.4% of MH/SU-related ED visits.

Conclusions: During 2012-2014, there were 3 MH/SU-related hospital encounters for every 100 WRA in Illinois. The burden varied significantly by age, race/ethnicity, and geography. Co-occurring MH and SU conditions were present for nearly half of the MH/SU-related inpatient hospitalizations, but co-occurrence was less common for ED visits.

Public Health Implications: Describing MH/SU-related hospital encounters can demonstrate the importance of improving behavioral health services and systems. Strategies across the prevention spectrum, such as implementing recommended screening to improve early identification and assuring effective treatment of MH/SU disorders, may reduce crisis events that lead to hospital encounters, particularly among high burden populations.

Assessing Effective Interventions to Improve the Health of Pregnant and Postpartum American Indian and Alaska Native Women: A Systematic Review

Authors: Hope Thompson
Danielle Arellano
David Goodman
Charlan Kroelinger

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Background: AI/AN women of reproductive age, though a small segment of the US population, experience higher rates of health conditions such as diabetes and depression, which can lead to adverse birth outcomes. Unfortunately, due to limited published research on AI/AN women, identifying effective interventions that address the complex risk factors associated with those outcomes remains a challenge for public health professionals.

Study questions: We sought to identify interventions that improved the health of AI/AN women during pregnancy and postpartum, through a critical literature review.

Methods: A systematic review was conducted searching 10 databases (e.g., PubMed, Cochrane, Embase) from 1993–2015 to identify evidence-based interventions that improved the health of AI/AN women during pregnancy and the postpartum period (<12 months post-delivery). We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement methodology for our review, with an expert review panel (N=10) utilizing the Cochrane Risk of Bias tool to independently assess study quality. A narrative synthesis was developed to describe the effectiveness of interventions using an evidence-based continuum, quantifying study quality and impact of low risk bias articles.

Results: Of 2,664 articles identified, 34 met inclusion and eligibility criteria. After Risk of Bias assessment, 28 (82.35%) of the 34 studies had a high or unclear risk of bias, indicating significant flaws in study design. The six remaining studies had low risk of bias; however, variability in study outcomes prevented further quantitative analysis. The interventions focused on increasing breastfeeding, changing maternal behavior through home-visiting, decreasing postpartum depression, and reducing postpartum obesity. The six studies were categorized on the continuum; two were considered emerging practices, three were promising practices, and one was a leading practice based on study quality and impact. No interventions were considered best practices.

Conclusions: Six studies fell on the evidence-based continuum, with one leading practice, indicating gaps in evidence-based interventions among AI/AN women during pregnancy and postpartum.

Public Health Implications: More evidence-based interventions, designed to reduce biases and inclusive of maternal outcomes, are needed to identify effective interventions for pregnant and postpartum

AI/AN women. Development of best practice interventions could be used as an effective strategy for improving maternal health among AI/AN women and their newborns.

The Effect of Prenatal Care Coordination on Birth Outcomes: A Sibling Fixed Effects Analysis

Authors: David Mallinson
Andrea Larson
Eric Grodsky
Lawrence Berger
Deborah Ehrenthal

Category first choice: Women's/maternal health

Category second choice: Perinatal outcomes

Data sources utilized: Medicaid Files; Birth/Death Certificates; Linked Data File

Linked data file: Multi-Sample Person File, Area Health Resource File

Background: Prenatal care coordination programs direct pregnant Medicaid (MA) beneficiaries to social services to improve birth outcomes, but the effectiveness of these programs is uncertain. Moreover, the fragmented administration of these programs renders their evaluation prone to selection bias and unobserved confounding. To mitigate these factors, we assessed Prenatal Care Coordination's (PNCC) association with birth outcomes in Wisconsin using three modeling techniques.

Study questions: What is the association between PNCC and birth outcomes (birth weight, low birth weight, gestational age, and preterm birth) in Wisconsin?

Methods: The study sample consisted of all Wisconsin in-state resident live births during 2008-2012 that were MA-covered ($N = 136,224$). Birth records were linked to paid MA claims for PNCC services. PNCC treatment was coded both dichotomously (any vs. never) and categorically (none vs. 1-2 services [assessment and care planning] vs. >2 services [receiving services beyond care planning, such as education, case management, or home visiting]). Outcomes of interest were birth weight (grams), low birth weight (<2,500g), gestational age (weeks), and preterm birth (<37 weeks). For each treatment-outcome pair, we tested the association using ordinary least squares (OLS) regression, inverse probability of treatment weighted (IPTW) regression, and sibling fixed effects (FE) regression. To our knowledge, this is the first study to use sibling fixed effects analysis in this area of research.

Results: All model specifications demonstrated a beneficial effect of PNCC on birth outcomes and showed that the beneficial effect depended on taking up PNCC (i.e. receiving >2 services). In the first FE model, any PNCC was associated with a 39.6g increase in birth weight ($p2$ PNCC services was associated with a 54.0g increase in birth weight ($p < 0.001$) and a 0.24-week increase in gestational age ($p < 0.001$). This suggests that PNCC's observed effect on birth outcomes is driven by continued PNCC use after initial assessment. Additionally, the FE models demonstrated that PNCC uptake was associated with an approximately two percentage point decrease in the likelihood of low birth weight and preterm birth. Results were consistent in the OLS and IPTW models.

Conclusions: PNCC is associated with beneficial effects on birth outcomes, potentially reducing incidence of low birthweight and early births.

Public Health Implications: PNCC can reduce the incidence of unhealthy births, and the observed association between PNCC and birth weight was similar to the effect of not smoking during pregnancy. As a result, PNCC administrators can target at-risk populations in order to reduce disparities in adverse birth outcomes. Such findings can motivate county health departments to improve PNCC outreach to and assessment of pregnant Medicaid beneficiaries. Moreover, state health departments can use this evidence to strengthen existing prenatal care coordination programs or to implement such programs.

Comparing postpartum visit attendance for Medicaid-enrolled women receiving CenteringPregnancy compared to individual prenatal care

Authors: Emily Heberlein
Sarah Covington-Kolb
Jessica Smilth
Pelin Ozluk
Amy Crockett
Carla Willis

Category first choice: Women's/maternal health

Category second choice: Perinatal outcomes

Data sources utilized: Medicaid Files; Birth/Death Certificates; Linked Data File

Linked data file: Birth certificates are linked to Medicaid claims

Background: While guidelines recommend all women attend a postpartum visit, as many as 40-50% of women do not see a healthcare provider in the 4-6 weeks after giving birth. Women with limited resources, including those with Medicaid, have lower attendance rates. CenteringPregnancy is an evidence-based model of group prenatal care combining individual medical examinations with group discussion, interactive education, and social support with 6-12 pregnant women, facilitated by the healthcare provider. Studies of CenteringPregnancy have documented promising results, including high rates of prenatal care use and satisfaction, improvements in preterm birth rates, and higher rates of breastfeeding. Based on this research, South Carolina's Department of Health and Human Services and March of Dimes have provided financial support and technical assistance to expand CenteringPregnancy services in South Carolina (SC). Limited research has examined the impact of CenteringPregnancy on postpartum women's health and healthcare use. Two small studies suggest CenteringPregnancy participants have higher rates of postpartum visit attendance, and one study found CenteringPregnancy participants were more likely to access family planning visits. Because of the additional time for health education and patient engagement, CenteringPregnancy may be more effective in counseling and addressing barriers to increase postpartum visit attendance. The SC Expansion project provides a large sample across 13 CenteringPregnancy practices to compare postpartum visit attendance.

Study questions: Do Medicaid-enrolled CenteringPregnancy patients have higher rates of postpartum visit attendance compared to a matched sample of individual prenatal care patients? What are practice and policy implications?

Methods: CenteringPregnancy patient lists were matched to birth certificate and Medicaid claims data. An individual care comparison group was identified using National Provider Identifier number, delivery month and year. We used available characteristics of women from birth certificates to develop propensity scores to account for differences between CenteringPregnancy and individual care groups, using a preferential-within matching technique (matching within practice first to account for the nested

nature of the data). Medicaid claims through 12 weeks' postpartum were analyzed for the presence of postpartum visit codes. The impact of CenteringPregnancy on postpartum visit attendance was evaluated using logistic regression and repeated for three groups, reflecting a progression in prenatal care and CenteringPregnancy participation.

Results: CenteringPregnancy (N=2,464) and individual care (N=10,237) participants differed across demographic characteristics and prenatal care access. The propensity-matching procedures met accepted thresholds for balancing groups prior to outcomes analysis. Women participating in five or more CenteringPregnancy visits had higher rates of postpartum visit attendance (58.5% CenteringPregnancy vs. 54.7% individual care, $p<.05$). Limitations include reliance on claims to capture all healthcare encounters.

Conclusions: CenteringPregnancy participation had a statistically significant but clinically modest impact on postpartum visit attendance. Women who did not attend at least five CenteringPregnancy visits were not more likely to attend a postpartum visit. The additional patient engagement and education in CP may not be sufficient to address women's barriers to attending postpartum visits.

Public Health Implications: Postpartum care planning during prenatal care is an important strategy for connecting women to postpartum healthcare. Additional work to understand and address systemic barriers is needed to substantially increase Medicaid-enrolled women's postpartum visit attendance.

Highly Effective Reversible Contraception in Title X Clinics: Variation By Selected State Characteristics

Authors: Nathan Hale
Michael Smith
Amal Khoury

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Linked Data File; Other

Linked data file: Title X Family Planning Annual Reports linked with census data and other secondary sources of state-level socio-demographic data.

Other data source: Title X Family Planning Annual Reports

Background: The use of long-acting reversible contraceptive (LARC) methods, such as intrauterine devices (IUDs) and implants, has demonstrated high effectiveness in preventing pregnancy. While LARC use in Title X programs has increased over the past decade, little is known about the extent to which gains are occurring uniformly across states. This study addresses this issue by examining the extent to which increased LARC use within Title X programs is occurring uniformly across states' with varying levels of underlying need for publically funded family planning services.

Study questions: To what extent has increased LARC use within Title X programs occurred uniformly across states' with varying levels of underlying need for publically funded family planning services?

Methods: We examined state-level changes in LARC use among Title X clients between 2012 and 2016 using a repeated cross-sectional study design. States were characterized by the proportion of reproductive age women in need of publicly funded contraception and divided into groups of low, average, and high need. Variation in LARC use by level of need was examined using GEE models. Additional state-level measures reflecting important constructs specific to reproductive health were also included in the analysis.

Results: Across all states, LARC use in Title X clinics increased from 9.1% to 16.2% during the study period. While increases in LARC use were noted across all levels of need, observed increases were not proportional. In 2012, LARC use in the states with the highest and lowest level of need differed by 2.3 percentage points (7.8% compared to 10.1%). By 2015 the gap in LARC use between high and low need states widened to reach 5.3 percentage points, more than double what was observed in 2012. However, by 2016 the margin of the gap narrowed. After adjusting for time-invariant state characteristics, time-varying state and Title X program specific measures and their subsequent interactions, observed relationships between state level of need and changes in LARC use remained significant. Adjusted analysis also suggest increasing Medicaid coverage at the state-level was associated with increased LARC use.

Conclusions: Observed increases in LARC use among states with the highest level of need for publically funded services are much lower than what is observed among states with the lowest level of need. However, we did find this gap is narrowing. This finding is particularly relevant given states with greater need are those with higher proportions of low-income and younger women who are at greater risk for experiencing unintended pregnancies.

Public Health Implications: Given that high need states are those with higher proportions of low-income and younger women who are at greater risk for experiencing unintended pregnancies, observed variation in LARC use noted in this study has important implications for policy and practice. Title X programs are an important component of larger efforts to reduce rates of unintended pregnancy and subsequent abortions. Variation in LARC use within Title X could potentially undermine larger efforts to reduced unintended pregnancy in states increasingly vulnerable to such outcomes.

Women's Informed Choice and Satisfaction with Immediate Postpartum Long-Acting Reversible Contraception in Georgia

Authors: Carla DeSisto
Arden Handler
Sadia Haider
Rachel Caskey
Nadine Peacock
Melissa Kottke
Kristin Rankin

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Medicaid Files; Other

Other data source: We used Medicaid claims to sample all women with a live birth paid for by Georgia Medicaid during November 2015-February 2017 who received an immediate postpartum LARC. We then used a one-to-one match on age, timing, and hospital of delivery to sample comparable women who did not receive immediate postpartum LARC. We then contacted sampled women and conducted telephone interviews with them.

Background: In April 2014, the Georgia Medicaid agency changed its policy to allow reimbursement for long-acting reversible contraception (LARC) placement at the time of delivery. Many other states around the nation have made similar policy changes. There is much enthusiasm among providers and policy makers about the potential for immediate postpartum LARC to decrease unintended pregnancies and in turn, reduce public expenditures. However, there is also some concern that this enthusiasm, while often well-meaning, could lead to coercion and a general disregard for women's informed choice and autonomy.

Study questions: To what extent are women afforded the opportunity to make an informed choice about receiving immediate postpartum LARC? To what extent are women satisfied with their decision to choose or decline immediate postpartum LARC?

Methods: Using Medicaid claims, we sampled all women with a live birth covered by Georgia Medicaid during November 2015-February 2017 who received an immediate postpartum LARC. We then used a one-to-one match on age, timing, and hospital of delivery to sample comparable women who did not receive immediate postpartum LARC. Women were contacted via telephone for a 25-30 minute interview regarding their knowledge, attitudes, and behaviors related to immediate postpartum LARC and their satisfaction with postpartum contraception. We calculated descriptive statistics and components of informed choice overall and by receipt of immediate postpartum LARC, using chi-square tests to assess differences by group.

Results: We approached 481 women and completed interviews with 51; 25 received immediate postpartum LARC (24 implants, 1 intrauterine device) and 26 did not receive immediate postpartum LARC. The mean time from the infant's birth to the interview was 35.5 weeks (range: 14 to 83 weeks). The majority of participants had completed high school or a GED, were unmarried, black, and stated that their most recent pregnancy was unintended. Two-thirds reported that their provider discussed the option of receiving immediate postpartum LARC during prenatal care and 71% reported being offered immediate postpartum LARC at the time of delivery. The majority of women reported that they received all the information they needed to make a decision. Most women believed that the ideal time to begin using birth control postpartum is in the hospital immediately after delivery, although this differed significantly by women's receipt of immediate postpartum LARC. Few women reported feeling pressure from anyone to make a particular decision about immediate postpartum LARC. Most women who received immediate postpartum LARC reported that they are very (40%) or extremely (32%) happy with their device.

Conclusions: Women on Medicaid in Georgia report making informed choices regarding immediate postpartum LARC. Among those who received immediate postpartum LARC, women report high levels of satisfaction. Larger studies and representation from other geographic areas are necessary to confirm the generalizability of these findings.

Public Health Implications: Women's perspectives are critical for informing protocols for the implementation of immediate postpartum LARC. This will increase the likelihood that women are empowered to choose the method and timing of contraception that best meets their needs.

Explaining county-level variation in cesarean delivery rates in U.S.-Mexico border states

Authors: Charlotte Gard
Anup Amatya
Jesus Sigala
Katherine Stone
Jill McDonald

Category first choice: Women's/maternal health

Data sources utilized: Birth/Death Certificates; Other

Other data source: HRSA Area Health Resources File, American Hospital Association Annual Survey Database, and Healthcare Cost and Utilization Project.net

Background: Despite declines in cesarean delivery (CD) rates nationally since 2009, CD rates among Hispanic women in the U.S.-Mexico border region have remained high. Rates vary across states in the region and are highest in Texas.

Study questions: We sought to describe county-to-county variation in overall CD rates in the four U.S.-Mexico border states and to identify factors that explain this variation.

Methods: We used data from 788,705 birth certificates from California, Arizona, New Mexico, and Texas to calculate the CD rates for counties in the four border states during 2015. We used data from birth certificates, the Area Health Resources File, the American Hospital Association Survey Database, and the Healthcare Cost and Utilization Project to describe the demographic, environmental, and hospital characteristics of counties where births took place. We used linear regression to model CD rates as a function of county characteristics and R-squared values to determine which characteristics contributed the most to the county-level variation in rates.

Results: Overall CD rates among 196 counties with 20 or more live births ranged from 14.0% to 57.0% (mean = 31.1%, standard deviation (SD) = 7.4%). CD rates were highest for Texas counties (n = 113, mean = 33.2%, SD = 7.9%) and lowest for New Mexico counties (n = 21, mean = 23.9%, SD = 5.3%). Individually, county-level demographic, environmental, and hospital characteristics each explained between 0.01% and 16.31% of the variation in CD rates. Characteristics that explained the most county variation (>9% each) included Texas state, border county, average household size, percent of non-English speaking residents, percent of families below the poverty level, per capita Medicare costs, and percent of early term births, which were positively associated with CD rates, and New Mexico state, percent of births with augmentation of labor, percent of weekend births, percent of births attended by a midwife, and number of certified nurse midwives per capita, which were negatively associated with CD rates. Collectively, county-level demographic, environmental, and hospital characteristics explained more than 50% of the variation in rates.

Conclusions: There is considerable county-to-county variation in overall CD rates in the U.S.-Mexico border states, and this variation can be linked to certain county-level characteristics. In future work, we

will explore the extent to which groups of variables explain the variation in CD rates and will develop separate models for rates of low-risk nulliparous, primary, and repeat CD.

Public Health Implications: To be effective, policy aimed at reducing CD rates in the U.S.-Mexico border region must take into account modifiable environmental and hospital factors that impact the variability in CD rates.

Assessment of NTSV Cesarean Delivery Indications and Compliance with Guidelines, Florida 2017

Authors: Estefania Rubio
Emily Bronson
Annette Phelps
Paige Alitz
Linda Detman
Karen Bruder
Julie DeCesare William Sappenfield

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: Other

Other data source: data was abstracted from medical charts by 45 Florida hospitals and submitted online through REDcap

Background: In 2016 Florida's Cesarean rate was 37.4%, one of the highest in the nation. Nulliparous Term Singleton Vertex (NTSV) cesarean deliveries are the largest contributor to the increasing cesarean rates and hospital variation. Among Florida delivery hospitals, the NTSV cesarean rates range from 12.6% to 66.3%. Less than 1 in 5 of these (17%) meets the Healthy People 2020 national goal for NTSV cesarean deliveries (23.9% or less). Wide hospital variation suggests clinical practice contributions present an opportunity for improvement. The Florida Perinatal Quality Collaborative (FPQC) has recently launched the PROVIDE initiative in 45 Florida delivery hospitals adapting criteria developed by The American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine (SMFM) with the intention of reducing the NTSV cesarean delivery rate.

Study questions: We sought to determine how many NTSV cesarean deliveries could be prevented by adherence to the ACOG/SMFM/FPQC guidelines among the 45 participating hospitals

Methods: Quality improvement teams for each facility were responsible for auditing up to 20 NTSV cesarean records per month for 3 months (July-September 2017) using a well-defined structured tool. Audit results were entered online through REDcap. Algorithms were created in SAS 9.4 to assess indication type (induction, labor-dystocia and fetal health rate concerns (FHRC)) and compliance with ACOG/SMFM/FPQC criteria (met/unmet).

Results: All 45 participating hospitals provided 3 months of data. The most frequent indication category for NTSV cesarean was Induction (35%) followed by FHRC (30%) and Labor Dystocia (21%). Other indications, including maternal request, accounted for the remaining 14%. Overall, 50% of the records audited for these indication categories do not meet criteria. For induction, the hospital median for meeting criteria was 45%. Among inductions that did not meet criteria, the largest subcategory was insufficient labor time for a cervical dilation of <6 cm (67%) followed by cervical dilation of 6-9 cm (17%). For induction with a bishop score <8, 46% did not use a cervical ripening agent. For the labor dystocia cases, the hospital median for meeting criteria was 30%. Among not met labor dystocia cases, the

largest subcategory was insufficient labor time for a cervical dilation of < 6 cm (43%) followed by cervical dilation of 6-9 cm (31%). For the FHRC cases, the hospital median for meeting ACOG/SMFM criteria was 53%. FHRC cases did not meet criteria due to a lack of appropriate corrective measures such as: infant stimulation (30%), reducing or stopping oxytocin (30%), basic maternal resuscitation techniques (15%), and others.

Conclusions: This assessment confirms these three indication categories (inductions, labor dystocia and FHRC) account for 86% of the reasons for performing NTSV primary cesareans. Only half of these cases meet ACOG/SMFM/FPQC criteria suggesting an ample opportunity to improve medical practices. Inadequate labor times and not using appropriate resuscitation techniques contributed to not meeting criteria.

Public Health Implications: FPQC recently launched the PROVIDE Initiative aiming to promote primary vaginal deliveries at Florida delivery hospitals and ultimately reduce NTSV cesareans. Unless medically necessary, following clinical labor guidelines may substantially reduce unnecessary NTSV cesarean.

Trends and Factors Associated with Maternal Reported Indications for Low-Risk Cesarean Delivery in 17 States, PRAMS 2009-2015

Authors: Brenda Le
Titilope Oduyebo
Megan O'Connor
Denise D'Angelo

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: PRAMS

Background: Safe reduction in cesarean delivery is critical given the increased risk of short- and long-term adverse outcomes compared to vaginal delivery. Studies have identified trends and disparities in cesarean rates, but few have focused on maternal reported indications for these deliveries. This analysis examines trends and factors associated with maternal reported indications for cesarean delivery.

Study questions: What are the trends for maternal reported indications for low-risk cesarean delivery? What maternal characteristics are associated with reported indications for cesarean delivery?

Methods: We analyzed 2009-2015 data from the Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based surveillance system that collects data on maternal experiences before, during, and shortly after pregnancy. We included data from 17 states that asked women about the indications for their low risk cesarean delivery (cesarean). Low-risk cesarean is defined as cesarean delivery among primiparous women who delivered a term (≥ 37 weeks), vertex (not breech), live-born singleton (N=16,181). The outcome, indication for low risk cesarean delivery, was classified into three groups: pre-pregnancy medical condition, pregnancy complication, and maternal request. We used SUDAAN version 11.0 to estimate prevalence and conduct regression analysis to examine associations between maternal characteristics and reported indications for a low risk cesarean. We used JoinPoint software to test for crude trends and estimate the annual percentage change (APC).

Results: The overall prevalence (95% confidence limit) of low-risk cesarean was 28.7% (27.7-29.7) and annual rates did not change significantly over time. For reported indications for low risk cesarean delivery, 89.7% (88.1-91.1) of women reported pregnancy complication; 7.4% (6.3-8.7) reported pre-pregnancy medical condition; and 2.9% (2.1-3.8) reported maternal request. From 2009-2015 there was a 4.3% APC increase in pregnancy complication, 21.3% APC decrease in pre-pregnancy medical condition, and no change in maternal request. Regression results showed women who reported pregnancy complication as an indication for cesarean delivery were more likely to be younger (< 35 years) [adjusted prevalence ratio (95% confidence interval) = 1.2(1.1-1.3)] and of Hispanic ethnicity versus Black [1.1(1.1-1.2)]. Those reporting pre-pregnancy medical condition were more likely to be older (≥ 35 years) [2.5(1.5-4.2)], to be Black versus White [2.1(1.4-3.1)], and to have smoked cigarettes during pregnancy [1.5(1.1-2.0)]. Women who reported personal request as the indication were more

likely to be White versus Black [5.2(1.4-19.8)] and to have entered prenatal care after their first trimester [3.6(1.8-7.0)].

Conclusions: While the overall trend in low-risk cesarean was stable over time, the reported reasons for these deliveries have changed. Pregnancy complication as an indication has increased while pre-pregnancy medical condition has decreased. Rates of maternal request have remained unchanged and are consistent with national estimates.

Public Health Implications: Findings from this study indicate opportunities to reduce low-risk cesarean delivery by encouraging optimization of health before and during pregnancy. Counseling to advise women about the risks involved in even low-risk cesarean delivery may result in decline in maternal request for this procedure.

Birth Options After Cesarean: Perceptions of Hispanic Women Living in the United States

Authors: Roxanne Mirabal-Beltran
Terrinieka Williams Powell
Donna Strobino

Category first choice: Women's/maternal health

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: Primary data was collected using in-depth interviews. Purposive sampling was undertaken with inclusion of three groups of women defined by ethnicity/race: 9 Hispanic women of any race; 10 non-Hispanic black women; 8 non-Hispanic white women.

Background: Hispanic women are less likely to have a vaginal birth after cesarean (VBAC) when compared to non-Hispanic white women. Reasons for this disparity are unclear. Prior studies have been racially rather than ethnically diverse, only included English-speaking women, or taken place outside the US. The underrepresentation of Hispanic American women in studies means there is limited understanding of why Hispanic women in the US have elective repeat cesarean deliveries (ERCD). To support patient informed care for ERCD, factors influencing women's decision-making need to be understood.

Study questions: Investigate perceptions about VBAC and ERCD among Hispanic and non-Hispanic women with a previous cesarean delivery (CD).

Methods: In-depth interviews were conducted late in the third trimester and 1-3 days postpartum with 27 Hispanic and non-Hispanic women at a District of Columbia hospital. Topics explored were the impact of previous delivery experiences on subsequent decision-making; perceived safety of delivery options; patient-provider communication; supports for decision-making; and decision-making factors. A Trust in Provider scale was also administered. First interviews were reviewed prior to conducting second interviews and all interviews were conducted by a bilingual researcher. An inductive coding process was used for analysis. Interviews were coded in their original language by two bilingual researchers trained in qualitative analysis. Line-by-line, in-vivo, focused and axial coding were all employed.

Results: Hispanic and non-Hispanic women stated preferences for VBAC, describing vaginal deliveries as natural, with easier recovery periods. No Hispanic women expressed a preference for RCD. RCD was not perceived as the safest option, but all women agreed that baby's safety took precedence over individual preferences. Most women were unable to discuss RCD risks and were more likely to recall benefits associated with their preferred delivery method. Hispanic women consistently discussed delivery plans with family and often did not recall similar discussions with their providers. Findings suggested ethnic/racial differences in women's trust of providers and in their perception of choice in birth options. Hispanic women expressed less trust in their providers' decisions but stressed that women should "respect and support" provider decisions. All Hispanic women, even those receiving care in private practices, were delivered by providers not from their prenatal practice. While women generally

formed early preferences for mode of delivery after their primary cesarean delivery, only non-Hispanic women reported a choice in their decision; Hispanic women remarked on their uncertainty and lack of choice, despite preferences.

Conclusions: Most women preferred VBAC. Hispanic women indicated strong preference for VBAC, but they reported little opportunity to establish a VBAC plan with delivery providers. All Hispanic women delivered with providers they had not previously met. Moreover, while complying with provider recommendations, they reported distrust in recommendations. Hispanic women cited family, rather than providers, as the most helpful source of information about their delivery options.

Public Health Implications: Interventions about choices of delivery options should consider socio-cultural perspectives to assist women to be active participants in decision-making. Identifying women's perceptions about VBAC and ERCD may better inform patient education whereby contextual factors are integrated into providers' conversations with women about childbirth decisions.

Impact of Maternal Risk Factors on Racial and Ethnic Differences in Low-Risk Cesarean Delivery Rates

Authors: Yuri Sebastião
Judette Louis
Roneé Wilson
Skai Schwartz
Wei Wang
Lindsay Womack
William Sappenfield

Category first choice: Racism, equity, and social justice

Category second choice: Perinatal outcomes

Data sources utilized: Hospital Discharge; Birth/Death Certificates; Linked Data File; Other

Linked data file: Maternal hospital discharge and birth certificate

Other data source: US Census Bureau (American Community Survey)

Background: Primary cesareans among low-risk mothers are a major contributor to the large increase in cesarean delivery rates in the United States, and a focus for prevention. Studies report that several racial and ethnic minorities experience higher adjusted rates of low-risk cesarean delivery compared to non-Hispanic whites. The reasons for these disparities and whether they can be reduced are still under investigation.

Study questions: The objective of this study was to examine factors that modify racial and ethnic differences in low-risk cesarean delivery rates in Florida.

Methods: We conducted a population-based retrospective cohort study using a validated, statewide linked birth certificate and maternal hospital discharge database for the period of 2012-2014. The study population was comprised of 145,117 nulliparous, term (37-41 weeks), singleton, vertex (NTSV) deliveries with spontaneous or induced labor. This population is considered low-risk for primary cesarean delivery. The following five maternal racial and ethnic groups were included: non-Hispanic blacks, Cubans, Puerto Ricans, Mexicans, and non-Hispanic whites (referent group). Generalized linear mixed models were used to examine the risk of cesarean delivery associated with minority race and ethnicity. Effect modification of the cesarean risk ratios associated with minority race and ethnicity were examined using regression tests of interaction. Potential confounders and effect modifiers included individual socioeconomic, health, and health-service related factors, hospital factors, and maternal neighborhood socioeconomic status.

Results: Unadjusted cesarean delivery rates were highest among Cubans (38.8%), followed by Non-Hispanic blacks (27.1%), Puerto Ricans (26.5%), Non-Hispanic whites (23.8%), and Mexicans (23%). Each of the four racial and ethnic minority groups experienced significantly greater risk of cesarean delivery compared to non-Hispanic whites after adjusting for significant risk factors ($P < .01$). Significant effect modifiers were identified for non-Hispanic black race (gestational age and labor onset type) and Cuban

ethnicity (presence of ≥ 1 medical risk conditions for delivery and labor onset type). The risk ratios for cesarean delivery for non-Hispanic black race ranged from 1.04 (95% CI: 0.96-1.14; $P=0.33$) among early-term, spontaneous deliveries, to 1.40 (95% CI: 1.19-1.65; $P<0.001$) among late-term, spontaneous deliveries. Risk ratios for cesarean delivery for Cuban ethnicity ranged from 1.14 (95% CI: 1.04-1.26; $P=0.006$) among induced deliveries with ≥ 1 medical risk conditions, to 1.45 (95% CI: 1.34-1.56; $P<0.0001$) among spontaneous deliveries without medical risk conditions. No significant effect modifiers were identified for Puerto Rican or Mexican ethnicity.

Conclusions: Disparities between non-Hispanic blacks and whites in Florida NTSV cesarean delivery rates are associated with gestational age and labor onset type. In contrast, disparities between Cubans and non-Hispanic whites persist beyond the health and health service-related factors studied. Smaller population size among Puerto Ricans and Mexicans may have prevented the identification of significant effect modifiers for these ethnicities.

Public Health Implications: By identifying factors associated with greater or lesser racial and ethnic differences in NTSV cesarean rates in Florida, our findings can be used to inform efforts to reduce existing disparities. In addition, future quantitative and qualitative study examining the role of unmeasured clinical, provider, and cultural factors by race and ethnicity may further clarify opportunities for intervention.

Assessment of Contraceptive Use in Puerto Rico during the 2016-2017 Zika Virus Outbreak

Authors: Sascha Ellington
Howard Goldberg
Karen Pazol
Carrie Shapiro-Mendoza
Regina Simeone
Annelise Dutton
Margaret Honein Denise Jamieson

Category first choice: Reproductive health/family planning

Category second choice: Other

Other category second choice: Emergency preparedness and response

Data sources utilized: Other

Other data source: Data come from the 2016 Contraceptive Assessment in Puerto Rico during Zika (CAPRZ). CAPRZ is a population-based survey conducted among women 18-49 years of age in Puerto Rico via cell phone interview. .

Background: Zika virus (ZIKV) infection during pregnancy can cause fetal brain defects and other adverse pregnancy outcomes. During the 2016-2017 ZIKV outbreak in the Americas, Puerto Rico (PR) had more ZIKV cases than any other U.S. jurisdiction. Use of effective contraception by women not wishing to become pregnant is a countermeasure for preventing ZIKV-related birth defects. The last population-based estimates of contraceptive use among women in PR are from 2002. To address this knowledge gap, we conducted the 2016 Contraceptive Assessment in Puerto Rico during Zika (CAPRZ).

Study questions: Among women of reproductive age (18-49 years) in PR, what percent were at risk for unintended pregnancy during the ZIKV outbreak? Among women at risk for unintended pregnancy, what was the overall prevalence of contraceptive use by method effectiveness? During the ZIKV outbreak in PR, what percent of recent and current pregnancies were unintended?

Methods: The PR Department of Health conducted CAPRZ, a cell phone survey of women aged 18-49 years living in PR, from July-November 2016. The sample consisted of 3,059 completed interviews. After weighting, the data provide population-based estimates for all women aged 18-49 years in PR. Of eligible women contacted, 97% agreed to participate. We defined women at risk for unintended pregnancy as sexually experienced and not currently pregnant or desiring pregnancy. We excluded women who reported being infertile, in menopause, or having had a hysterectomy as a reason for not using contraception. Unintended pregnancies were defined as unwanted and mistimed pregnancies. Recent pregnancies were those ending in 2015 or later.

Results: Among women surveyed, 85% (95% confidence interval [CI]: 83-86%) were at risk for unintended pregnancy. Overall, 72% (95% CI: 70-74%) of women at risk for unintended pregnancy reported using a contraceptive method: 41% (95% CI: 39-43%) female sterilization; 4.8% (95% CI: 4.0-

5.6%) male sterilization; 2.9%, (95% CI: 2.3-3.6%) long-acting reversible contraception; 7.1% (95% CI: 6.1-8.2%) moderately effective contraceptive method (pills, patch, shot, or ring); and 17% (95% CI: 15-18%) less effective method (condoms, diaphragm, rhythm, or withdrawal). Among current and recent pregnancies, 63% (95% CI: 58-69%) were unintended. Among women at risk for unintended pregnancy, 45% (95% CI: 43-47%) were using less effective or no contraception; this translates to an estimated 298,106 (95% CI: 282,735-313,478) women at risk for unintended pregnancy who are not using one of the most effective or moderately effective contraceptive methods.

Conclusions: At the height of the ZIKV outbreak in PR, nearly 300,000 women were at risk for unintended pregnancy and not using one of the most effective or moderately effective contraceptive methods.

Public Health Implications: These findings underscore the need for programs to improve access to contraception during public health emergencies that might have an impact on pregnancy, such as the Zika Contraception Access Network (Z-CAN). Z-CAN was a network of trained physician providers that provided women who chose to avoid or delay pregnancy with access to client-centered contraceptive counseling and a full range of contraceptive methods during the ZIKV outbreak in PR.

Postpartum Care among Oregon Women with Gestational Diabetes and Hypertensive Disorders of Pregnancy

Authors: Cheryl Robbins
Nicholas Deputy
Roshni Patel
Lisa Oakley
Jangho Yoon
Carrie Shapiro-Mendoza
Jeff Luck
Van Tong Danielle Barradas
S. Marie Harvey

Category first choice: Women's/maternal health

Category second choice: Preconception health

Data sources utilized: Linked Data File

Linked data file: Medicaid eligibility/claims and birth certificate data

Background: Gestational diabetes mellitus (GDM) and hypertensive disorders of pregnancy (HDP) increase the risk of adverse pregnancy and birth outcomes, and the development of chronic diseases. Postpartum visits (PPV) and contraceptive services are important for all women, but particularly for women who had these pregnancy-related conditions. PPVs provide an opportunity for follow-up testing and treatment related to GDM and HDP. Postpartum contraceptive services may enable women who had these pregnancy-related conditions to postpone future pregnancies until optimal health status can be achieved. Few studies have examined postpartum healthcare utilization among Medicaid populations and how utilization differs by women with and without pregnancy-related conditions.

Study questions: 1.Among Oregon women who retained Medicaid coverage for at least one year after delivery, what percentage received PPVs and contraceptive services? 2.Does receipt of PPVs and contraceptive services differ between Medicaid women with and without a pregnancy-related condition?

Methods: Using linked Oregon Medicaid eligibility and birth certificate data, we identified women with Medicaid-financed deliveries in 2009-2012 who retained coverage one year postpartum (n=35,514). We calculated the prevalence of GDM only, HDP only (includes gestational hypertension, preeclampsia and eclampsia), both conditions, and neither condition (based on birth certificate data and diagnosis codes in Medicaid claims data). Outcomes were defined by diagnosis and procedural codes in Medicaid claims data. We examined the association between pregnancy-related conditions (referent=neither condition) and postpartum care using generalized estimating equations to calculate adjusted odds ratios (aORs) and 95% Confidence Intervals (CI) controlling for age, race/ethnicity, education, residence, marital status, and parity. These associations account for possible non-independence of mothers with more than one pregnancy. These data are not generalizable to other Medicaid populations.

Results: Overall, 7.9% of women had GDM, 7.7% had HDP, 1.1% had both conditions and 83.3% had neither. Prevalence of PPVs and contraceptive services, respectively, were: 73% and 41% for women with GDM-only; 79% and 44% for HDP-only; 73% and 41% for both conditions; 77% and 45% for neither. We found no statistically significant differences in adjusted analyses between women with pregnancy-related conditions and those with neither condition. The aORs for receipt of PPVs comparing pregnancy-related conditions to neither condition were: GDM-only (0.9, 95% CI: 0.7-1.1), HDP-only (1.0, 95% CI: 1.0-1.2), both conditions (1.0, 95% CI: 0.9-1.1). The aORs for receipt of contraceptive services were: GDM-only (0.9, 95% CI: 0.8-1.2), HDP-only (1.0, 95% CI: 0.9-1.1), both conditions (0.9, 95% CI: 0.9-1.0). Misclassification is possible due to the nature of administrative data.

Conclusions: Approximately one quarter of Oregon women who retained Medicaid coverage for at least one year after delivery did not receive PPVs, and more than half did not receive contraceptive services. Receipt of these services did not differ by pregnancy-related medical condition.

Public Health Implications: Given the importance of follow-up testing, prevention, and control of future chronic disease among women with GDM and HDP, we expected these women to have higher utilization of PPVs and contraceptive services than women without these conditions. Yet, we found receipt of these services during the year after delivery was universally suboptimal, suggesting missed opportunities for follow-up care in this Medicaid population.

Estimates of Pregnancy Intention and Family Planning Methods in the General Population of Women of Reproductive Age, Hawaii BRFSS 2016

Authors: Donald Hayes
Matthew Turnure
Carlotta Fok
Betty Wood
Matthew Shim

Category first choice: Reproductive health/family planning

Category second choice: Preconception health

Data sources utilized: Other

Other data source: Behavioral Risk Factor Surveillance System Survey

Background: Reproductive life planning is an important strategy to empower women to achieve their reproductive health goals to promote healthy, intended pregnancies, and to improve overall birth outcomes. In the Hawaii State Department of Health's 2015-2018 strategic plan, "Investing in healthy babies and families" is a priority and decreasing unintended pregnancies is an objective. One of the strategies to address this priority is to integrate One Key Question® (OKQ) in various service delivery settings (e.g., clinical and non-clinical sites) in the State. OKQ encourages providers to routinely ask women of reproductive age (WRA) about their pregnancy intention to facilitate a discussion about essential preventive health services which include preconception care and use of family planning methods. Developing baseline estimates in the general population can help in surveillance and evaluation of statewide initiatives to reduce unintended pregnancy.

Study questions: What are the overall estimates related to OKQ? What is the distribution by effectiveness category of family planning methods used?

Methods: We examined the OKQ module added to the 2016 Hawaii Behavioral Risk Factor Surveillance System (BRFSS) for 2,408 women aged 18-44 years in Hawaii. The initial question in the module is "Do you want to become pregnant in the next 12 months?" Not wanting to get pregnant was a "No" response while "Yes," "Ok either way", and "Don't know/Not sure" considered not to be actively avoiding pregnancy. Overall prevalence estimates for the various components of the OKQ and follow up questions of the family planning method based on effectiveness (high, moderate, low, and none) were calculated among those avoiding pregnancy.

Results: An estimated 88.8% (95%CI=86.5%-90.7%) of women of reproductive age did not want to get pregnant in the next year, 7.5% (95%CI=5.9%-9.6%) wanted to get pregnant, 3.3% (95%CI=2.4%-4.6%) were ok either way, and 0.4% (95%CI=0.2%-0.9%) were not sure. Of those who did not want to get pregnant, 59.1% (95%CI=56.1%-62.0%) said they were not at risk of getting pregnant for some reason (list includes not sexually active, no partner, post-sterilization, same sex partner, or too old to get pregnant), 25.9% (95%CI=23.3%-28.7%) reported using a family planning method, and 15.0%

(95%CI=13.0%-17.2%) were not using a method. Of those who were at risk of getting pregnant, 37.5% (95% CI=33.0%-42.3%) were not using a method, 12.7% (95%CI=9.8%-16.2%) were using a low effectiveness method, 25.0% (95%CI=21.0%-29.5%) were using a moderately effective method, and 24.9% (95%CI=20.8%-29.5%) were using a highly effective method.

Conclusions: About 9 in 10 women of reproductive age did not want to get pregnant in the next year yet about half were not using a method to avoid pregnancy or were using a low effectiveness method.

Public Health Implications: These results provide baseline data on women of reproductive age in Hawaii related to pregnancy intention in the next year health and highlights a need for counseling on the effectiveness of family planning methods among those that don't want to get pregnant within the next year. This baseline information can be compared with future surveys to help provide some evaluation into these statewide efforts to promote OKQ and reduce unintended pregnancy.

The health and social service needs of women experiencing unintended pregnancies

Authors: Nancy Berglas
Sarah Roberts

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: Other

Other data source: We conducted a self-administered survey and brief structured interview with pregnant women at their first prenatal care visit at four prenatal care facilities in Louisiana and Maryland (N=586).

Background: In recent years, states have enacted an increasing number of policies restricting abortion. Between 2011 and 2015, states enacted 288 abortion restrictions, more than in any other five-year period since Roe v. Wade. As a result, some women are unable to obtain a wanted abortion and instead continue their pregnancies. These women may have particular health and social service needs that would bring them to the attention of maternal and child health professionals in local health departments.

Study questions: What are the health and social service needs of women unable to obtain abortions?

Methods: Pregnant women completed a self-administered survey and brief structured interview at their first prenatal care visit at four prenatal care facilities in Louisiana and Maryland (N=586). These locations were selected to make comparisons between a state with multiple abortion restrictions (Louisiana) and one with fewer (Maryland). Participants reported their intentions to become pregnant (using London Measure of Unplanned Pregnancy), whether they had considered abortion during the pregnancy, and their reasons for not having an abortion. Participants were also asked whether they would like to receive or have received health and social services (9 items, including WIC, home visits, housing assistance, mental health, etc.). A scale of women's self-determined service needs was created by summing across the items for each participant. Data were analyzed through descriptive statistics, χ^2 and t-tests of bivariate relationships, multivariable regression models, and coding of open-ended responses.

Results: Most women's pregnancy intentions were categorized as unplanned (10%) or ambivalent (63%). Nearly one-third (31%) reported that they had considered having an abortion, even briefly, during their pregnancy. Among these women, 10% reported that they did not have an abortion due to a policy barrier. More women in Louisiana than Maryland reported facing a policy barrier that kept them from having an abortion (22% vs. 2%, $p<.001$). On average, women reported 3 health and social service needs (range 0 to 9), and needs were greater for women who had faced a policy barrier (3.95 vs. 3.05, $p=.005$). The relationship between having faced a policy barrier and the number of service needs was statistically significant in Louisiana ($p=.006$) but not in Maryland ($p=.813$). The most commonly reported needs among the women who had faced a policy barrier to abortion were food stamps (100%), WIC (95%), and housing assistance (79%).

Conclusions: Pregnant women who encountered policy barriers to obtaining an abortion have considerable health and social service needs. State policies that restrict access to abortion have an impact on women who are continuing their pregnancies and, as such, have important implications for the maternal and child health programs that aim to meet their needs.

Public Health Implications: Maternal and child health professionals play a critical role in supporting women and families by promoting linkages to needed services. Women who continue a pregnancy after not being able to obtain a wanted abortion are a population with heightened needs. Health departments should consider the service needs of pregnant women living in states that highly restrict access to abortion.

Why are African American Infant Mortality Rates in Wisconsin the Highest Among US states?

Authors: Deborah Ehrental
Amy Godecker
Daphne Kuo
Yousra Ali Mohamoud
Fiona Weeks

Category first choice: Perinatal outcomes

Category second choice: Racism, equity, and social justice

Data sources utilized: PRAMS; Birth/Death Certificates

Background: Wisconsin's 2015 infant mortality (IM) rate for African American (AA) mothers was highest among all states: 14.28 per 1,000 live births. The IM disparity ratio is consistently among the worst in the nation. While some research has compared AA to white, non-Hispanic women (WNH), little has examined how Wisconsin's AA mothers compare to AA mothers elsewhere in the United States (US).

Study questions: How do social, demographic, medical, and obstetric characteristics and perinatal outcomes of AA mothers in Wisconsin compare to WNH mothers in Wisconsin and AA and WNH mothers nationally?

Methods: We analyze the 2015 Public Use Period Linked Birth and Infant Death data of the National Center for Health Statistics, the 2016 Natality Detail file, and the 2014-2016 Wisconsin Interactive Statistics on Health. We compare 2011-2016 Pregnancy Risk Assessment Monitoring System (PRAMS) data for Wisconsin to 31 states plus New York City for psychosocial characteristics, behaviors, and risk factors. Analyses includes descriptive comparisons across groups and birthweight- and gestational age-race-specific IM rates.

Results: AA mothers in Wisconsin are younger, have less education, lower income, are less likely to be married, and more likely to have public insurance than WNH mothers in Wisconsin and AA and WNH mothers in the US. For example, 61.9% of AA mothers in Wisconsin were in the lowest income quartile, compared to 13.3% of WNH mothers in Wisconsin and 47.7% of AA women and 17.4% of WNH mothers in national PRAMS data. AA mothers in Wisconsin more often report tobacco use; prepregnancy obesity; unwanted pregnancy; later prenatal care; traumatic, partner-related, emotional, and financial stressors; prepregnancy diagnosis of depression; physical abuse during pregnancy; and postpartum depression symptoms than the 3 comparison groups. Despite these myriad poor risk factors, gestational age and birthweight distributions are very similar to distributions for WNH mothers in Wisconsin and AA and WNH mothers in the US. Rather, differences in gestational age- and birthweight-specific IM rates were identified. Compared to AA infants in the US, neonatal mortality rates are 1.1 times higher for AA infants in Wisconsin <32 weeks; 1.9 times higher for infants 32-35 weeks; 1.4 times higher for infants 36 weeks; and 1.5 times higher for infants 39-41 weeks.

Conclusions: While AA mothers in Wisconsin are more disadvantaged than WNH mothers in Wisconsin on a number of dimensions, they are also disadvantaged relative to AA and NHW mothers nationwide.

Birthweight and gestational age distributions are similar for AA infants in WI compared both to WNH infants in Wisconsin and AA infants in the US, but gestational age-specific mortality rates are higher, suggesting other pathways to high IM rates besides through their effects on preterm delivery. Additional investigations into factors related to survival rates for AA infants in Wisconsin are needed.

Public Health Implications: There is a critical need to address underlying disparities in social determinants of health and health care factors that are leading to differential outcomes for AA infants in Wisconsin compared to WNH infants of similar gestational ages in Wisconsin and AA infants nationally.

Black and White Preterm Birth and Infant Mortality: An Evaluation of State and County Progress toward Healthy People 2020 Objectives

Authors: Ashley Hirai
Lauren Rossen
Michael Kramer

Category first choice: Perinatal outcomes

Category second choice: Environment place and health

Data sources utilized: Birth/Death Certificates; Linked Data File

Linked data file: Period Linked Birth/Infant Death File

Background: Recognizing the importance of early life health and the magnitude of persistent disparities, reducing preterm birth, infant mortality, and their disparities are leading health objectives for Healthy People (HP) 2020, which sets a framework for national, state, and local action. Previous geographic analyses of perinatal disparities have not examined progress relative to HP targets at state and county levels. Using Bayesian models to spatially smooth unstable estimates, we sought to evaluate the number and location of states and counties that have met HP2020 targets for: preterm birth, infant mortality, and the goal of disparity elimination to identify potential successes.

Study questions: How many states and counties have met the HP2020 targets for preterm birth and infant mortality among non-Hispanic Black and non-Hispanic White births? Have any achieved disparity elimination? Are there patterns by region, urbanization, and economic characteristics?

Methods: Using 2013-2015 national linked birth/infant death files and Bayesian hierarchical multivariate conditionally autoregressive models that smooth unstable estimates, we evaluated state/county performance relative to HP2020 targets for preterm birth (PTB, <37 weeks: 9.4%) and infant mortality (IM: 6.0 per 1000) for non-Hispanic Black and White births. Black-White Rate Ratios (RR) of posterior medians <1.10 defined disparity elimination. Patterns were examined along geographic, rural/urban, and poverty dimensions.

Results: For Black and White births respectively, national rates of PTB were 13.4% and 8.9% and IM were 11.1 and 5 per 1,000. At the state-level, 44 states met the PTB target among White births, 6 states met the PTB target among Black births, and 2 had no disparity. For IM, 44 states met the target among White births and none had met the target among Black births or achieved disparity elimination (RR range: 1.63 – 3.05). Of 2,779 counties with Black births, 130 (5%) met the PTB target and none met the IM target. Of 3,140 counties with White births, 1,872 (60%) met the PTB target and 2,286 (73%) met the IM target. Similar to the state results, there were no counties that achieved IM disparity elimination (RR range: 1.54 – 3.61) but 141 counties had no PTB disparity (RR range: 0.71 – 1.10) of which 70 had optimally met the target for both Black and White births. All but one of these counties were located in the plains (IA, MN, ND, NE, SD) and tended to be more rural and have lower poverty levels than those

that had not achieved optimal disparity elimination. Additional examination by degree of prematurity and for US-born women will be performed.

Conclusions: The majority of states and counties have met PTB and IM targets among White births while a minority have met targets among Black births and only for PTB. Nonetheless, there were states and counties that had eliminated PTB disparities—a leading cause of IM. Discrepancies may be due to variation in causes of IM and/or persistent disparities in very PTB.

Public Health Implications: The counties that eliminated the Black-White PTB disparity and met HP targets deserve further investigation to better understand how factors related to their success may be extended to other areas.

Big Bird Goes to Prison: Incarceration as an Opportunity for Maternal/Child Health

Authors: Dora Dumont
Christine Brousseau
Jacob van den Berg
Jennifer Clarke

Category first choice: Other

Other category first choice: Criminal justice

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: Data from clinical trial on contraceptive intentionality

Background: Men and women who pass through the criminal justice system often have chaotic family lives, with high rates of homelessness, substance dependence, domestic violence, and generally poor health maintenance. Correctional facilities have been frequent public health partners in treatment and prevention efforts for infectious disease and addiction, but maternal/child health (MCH) has remained far behind in such partnerships, despite the inclusion of parental incarceration in surveys like PRAMS and National Survey of Children's Health, and even in the Sesame Street toolkit. Our analysis provides the basis for recommendations on partnering with corrections on family planning and parent counseling.

Study questions: We used data from a clinical trial on birth control intentionality among incarcerated women to query the association of family history to future birth control and pregnancy intentions in a high-risk population.

Methods: We analyzed data from the baseline interview of the Contraceptive Awareness and Reproductive Education (CARE) clinical trial conducted in a New England correctional facility. A final sample of 257 18-35 year-old women provided data on family and reproductive histories; attitudes and intentions related to future reproduction and birth control use; and health risk factors. We calculated adjusted odds ratios for current and intended future parenthood in relation to childhood adverse exposures (parental substance abuse/incarceration; physical, sexual, or emotional abuse; and/or having been in foster care).

Results: The vast majority of women in the study (85.9%) had some form of childhood adversity or trauma, with 67.1% reporting a parent with a substance problem and 45.1% reporting physical abuse. A majority (58.4%) already had living children, and almost half (49.6%) were very definite that they wanted to be pregnant at some point in the future. This rate was as high or higher for women reporting each type of adverse exposure in their own childhoods. This pattern was maintained even after accounting for covariates: adjusted odds ratios were significantly higher for two types of adversity (parental incarceration, AOR 2.10 (95% CI 1.17-3.76) and foster care, AOR 2.02 (95% CI 1.04-3.96)) and not statistically different for the others, compared to women not reporting the adversity.

Conclusions: Incarcerated women are likely to both already have children and to want them at some point in the future. With high rates of childhood adversity of their own, this presents a cross-agency opportunity to disrupt patterns of continuing intergenerational adversity.

Public Health Implications: Incarceration can provide a valuable opportunity for two important MCH interventions. First, the “pause button” of incarceration offers a chance to reach out to both women and men for family planning counseling and offers of LARC or other birth control for the post-release transition period, which is particularly vulnerable to unplanned pregnancy. Second, the equal interest in future parenthood even among women with highly traumatic childhoods themselves indicates the multi-generational risks at play. Identifying people with especially high-risk backgrounds – even within an overall high-risk population – is an important tool in maximizing overstretched resources for counseling and education to ensure stable MCH outcomes.

An analysis of the recommendations stemming from reviews of fetal and infant mortality cases and the potential for recommendation optimization.

Authors: Sandra Braun
Monica Rogers

Category first choice: Child/adolescent health

Category second choice: Other

Other category second choice: Fetal and Infant Mortality

Data sources utilized: Other

Other data source: Tulsa Fetal and Infant Mortality Review Program Case Review Team recommendations data

Background: Fetal and infant mortality rates are often viewed as indicative of population health and are used as a measure of overall wellbeing. The Tulsa Health Department reviews fetal and infant deaths occurring in the 7 counties that comprise the metropolitan statistical area. The Case Review Team (CRT,) includes physician specialists (pathologist, maternal fetal medicine, obstetrician, etc.) nurses, outreach workers, and other experts, who evaluate cases by reviewing information collected from medical records and relevant documents. The team makes recommendations to improve outcomes. These recommendations are sent to the community action team for implementation.

Study questions: What is the expected impact of recommendations formulated by the CRT?

Methods: Recommendations from fiscal years 2014 – 2017 were scored based on the level of influence the recommendation would have if implemented. Levels were: small (education/advisement for the community, provider or health system,) medium (clinical intervention, coordination across care,) large (lasting protective intervention, improve risk assessment and response,) extra-large (healthcare system redesign, improve frameworks or models of care,) giant (address social determinants of health.) The small-impact, education-based recommendations were further analyzed and assigned subcategories based on the topic to be addressed.

Results: Of 334 cases reviewed, 105 recommendations were generated. 99 recommendations were scored. Across the expected impact levels, 67 were small, (with 9 education-based subcategories,) 18 medium, 4 large, and 4 extra-large. There were no giant level recommendations. 91.9% of recommendations were of the least two impactful levels, and less than 8% were of the three greatest impact levels. Of the small-level impact recommendations, there were 39 education recommendations delineated into 9 subcategories: safe sleep (21,) pre/interconception health (7,) tobacco cessation (3,) obesity (2,) pharmaceuticals (2,) and 1 each for birth spacing, funerary practices, general health/well-being, and sex education. Limitations: 6 recommendations were unable to be scored due to an inability to determine the mechanism of implementation, (examples: explore partnerships and resource information at homeless shelters, CRT expressed their continued support for “baby boxes,” etc.)

Conclusions: Recommendations were primarily education-based (across a variety of subjects) with a small associated impact, and large and extra-large impact recommendations were rare. The lack of giant level recommendations shows marked room for improvement. As recommendations are being formulated, CRT members should consider impact levels and the actionability of recommendations. Recommendations could be tailored to be less case-specific and focus on broader influencing factors such as long-lasting protective interventions or social determinants of health. A guided discussion tool would be useful. The absence of higher level impact recommendations during the time period, as identified by this analysis, has prompted the Tulsa Health Department's fetal and infant mortality review department to develop and implement a guided discussion tool.

Public Health Implications: CRT recommendations that are implemented can have significant impact in decreasing fetal and infant mortality rates and improve the public health. Other fetal and infant mortality review departments could replicate analyzation of recommendations being generated by their respective case review teams and lead departments to implement discussion tools to optimize recommendations and implementation within their communities.

Contextualizing Mental Health Issues for MCH Populations and the Role of Title V

Authors: Lynda Krisowaty
Atyya Chaudhry
Charlotte-Luisa Cleveland
Nadia Laniyan

Category first choice: Mental/behavioral health

Data sources utilized: Other

Other data source: Title V Information Systems (TVIS), an online searchable database of the Title V MCH Service Block Grant Annual Report from the 59 state and territorial grantees.

Background: Mental health is linked to improved health outcomes for women, children, families, and communities. While numerous organizations and agencies support efforts to improve access to and quality of mental health services in the United States, few initiatives specifically target women, children, and families, leading to a gap in knowledge of what mental health issues are most salient for state maternal and child health (MCH) programs. This analysis thus aims to fill the critical practice gap that exists.

Study questions: What is the scope of mental health issues among maternal and child health populations served by the Title V MCH Services Block Grant?

Methods: The Association of Maternal & Child Health Programs (AMCHP) conducted an environmental scan of the 2016 and 2017 Title V MCH Block Grant applications as a preliminary assessment of the mental health needs of MCH populations. The scan of TVIS included all 50 states and 9 territories/jurisdictions. The technical assistance, needs assessment, and emerging issues sections of the block grant state applications and annual reports were analyzed using the following search terms: mental health, mental health screening, mental health referral, mental health treatment, depression, and suicide. Although mental health and substance use are often grouped together, issues related to substance use were not included in the scan. AMCHP then conducted phone interviews with Title V directors from 9 of the 14 states which listed mental/behavioral health as a priority need. These states included: Arkansas, Colorado, Illinois, Nebraska, New Hampshire, Ohio, Rhode Island, Utah, and Vermont. The interviews included questions about successes and challenges states have experienced in addressing mental health.

Results: The environmental scan indicated 35 states/jurisdictions identified mental health as an unmet need for MCH populations. Of these, 14 identified mental health as a priority need, which is determined by the state's five-year MCH needs assessment and identified as an issue the state will dedicate resources to address. The most prevalent need across all populations in 24 of the 35 states/jurisdictions was lack of access to mental health services, including access to providers and treatment facilities. The interviews with Title V directors revealed several common strengths and challenges. Strengths included buy-in from leadership and external partnerships. Several of the barriers or challenges experienced by Title V included data limitations, access to resources, access to providers, access to facilities, access to

funding, utilizing existing MCH workforce, and agency silos. Suggestions for how to address these challenges include standardizing mental health terminology across MCH, encouraging cross-sector collaborations and information sharing, emphasizing mental health in all programs and policies, and developing/implementing innovative funding strategies.

Conclusions: The findings from this scan and the follow-up interviews indicate many mental health needs of MCH populations remain unmet, which demonstrates the necessity for more programs, policies, and resources specifically targeting these populations.

Public Health Implications: Title V MCH programs are well-positioned to spearhead coordinated efforts to address complex public health issues, given their successful history of engaging diverse sectors for collective impact. To improve outcomes, public health agencies should connect with Title V programs to address mental health among MCH populations.

Impact of Medicaid Expansion on Prenatal Outcomes in Oregon

Authors: S. Marie Harvey
Lisa P. Oakley
Susannah Gibbs
Shyama Mahakalanda
Jeff Luck
Jangho Yoon

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: Medicaid Files; Birth/Death Certificates

Linked data file: Oregon Medicaid and Birth Certificate data were individually linked for this study.

Other data source:

Background: Prior to implementation of the Affordable Care Act (ACA), many low-income pregnant women were not eligible for Medicaid coverage until they became pregnant and likely did not have access to preconception care, making it more difficult to obtain timely prenatal care. Medicaid expansion under the ACA allowed states to expand eligibility for Medicaid coverage to adults who earn up to 133% of the federal poverty limit, regardless of pregnancy status. Oregon's Medicaid program, which finances almost 50% of deliveries in the state, was expanded in 2014.

Study questions: The aim of this study was to examine the effects of Oregon's Medicaid expansion on timely and adequate prenatal care.

Methods: The study population included all live births in Oregon during January 2012-December 2015. Birth certificate data were individually linked to Oregon Medicaid eligibility files to identify Medicaid financed births. Dependent variables included prenatal care timeliness (utilization of prenatal care in the first trimester) and adequacy (as measured by the Kotelchuck Adequacy Index). Our primary independent variables were indicators for the Medicaid expansion period and Medicaid enrollment status. Other covariates included risk factors and demographics. We estimated the overall effect of expanding Medicaid coverage on prenatal care timeliness and adequacy among all women using logistic regression models. Additionally, we assessed the impact of Medicaid expansion on prenatal care utilization via Medicaid enrollment in the first trimester of pregnancy using structural simultaneous-equation models.

Results: Women were significantly more likely to receive timely prenatal care after Medicaid expansion ($b = 0.037, p < 0.01$). More specifically, after expansion, women were more likely to have Medicaid coverage during their first trimester of pregnancy ($b = 0.270, p < 0.001$). Simultaneously, after Medicaid expansion, those with Medicaid coverage during their first trimester were significantly more likely to receive timely prenatal care ($b = 0.883, p < 0.001$). Similarly we found a significant overall improvement in prenatal care adequacy during the second year of Medicaid expansion ($b = 0.051, p < 0.001$). After

expansion, women were again more likely to have Medicaid coverage during their first trimester of pregnancy ($b = 0.272$, $p < 0.001$) and those with Medicaid coverage during the first trimester, were significantly more likely to receive adequate prenatal care ($b = 0.534$, $p < 0.001$).

Conclusions: Using two years of post-expansion data, we found that Medicaid expansion had significant and positive associations with Medicaid enrollment during the first trimester of pregnancy, which subsequently increased the likelihood of those women receiving timely and adequate prenatal care. Future research will investigate the influence of Medicaid expansion on neonatal outcomes.

Public Health Implications: Findings from this study provide evidence for the value of expanding Medicaid coverage to low-income women before they become pregnant. These findings can inform policy decisions for states considering expanding Medicaid coverage.

Racial and Ethnic Differences in Caregiver Satisfaction with Pediatric Healthcare Providers and Child Insurance Coverage

Authors: Pamela Roesch
Jackie Jacobs

Category first choice: Child/adolescent health

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: The Sinai Community Health Survey 2.0, a community health needs assessment conducted across 10 Chicago community areas. Details available at www.sinaisurvey.org.

Background: Caregiver satisfaction with child healthcare provision is associated with improved receipt of preventive services, such as immunizations. Studies assess adult healthcare provider satisfaction; however, few examine pediatric healthcare provider or insurance coverage satisfaction. Even fewer analyze racial and ethnic differences in satisfaction, particularly between Latino sub-groups.

Study questions: Are there racial and ethnic differences in caregiver satisfaction with pediatric healthcare providers and child insurance?

Methods: Sinai Community Health Survey 2.0 was a community health needs assessment conducted in English and Spanish in ten Chicago neighborhoods (2015-2016). Interviewers surveyed primary caregivers of children aged 0 to 12 years. We examined the association of race and ethnicity with three categories of healthcare variables: services access and use; provider satisfaction (past year); and insurance satisfaction. Due to a limited non-Latino White sample (n=20), we compared Latinos to non-Latino Blacks (NLB), and then conducted sub-analyses of Puerto Rican (PR) versus Mexican groups. To account for sampling design and multiple comparisons, we used Rao-Scott corrected chi-squared tests with Bonferroni adjustment.

Results: We gathered responses for 234 Latino (36 PR, 157 Mexican, 41 other) and 131 NLB children. Examining access and use, insured NLBs were more likely than Latinos to be covered by Medicaid/CHIP (95% vs. 86%, $p=0.010$), and Mexicans were more likely than PRs to be covered by Medicaid/CHIP (88% vs. 68%, $p=0.020$). Assessing provider satisfaction, Latinos were less likely than NLBs to rate care as “excellent” (42% vs. 60%, $p=0.009$) and to be “extremely satisfied” with their child’s healthcare (24% vs. 49%, $p=0.002$). Mexicans drove this difference, with lower satisfaction than PRs (“excellent”: 38% vs. 75%, $p=0.002$; “extremely satisfied”: 20% vs. 56%, $p=0.002$). Mexicans were the least likely to report that the doctor always spoke their language (74%) and less likely than PRs to report that providers spent enough time (66% vs. 89%, $p=0.010$). There were no statistically significant differences in insurance satisfaction; however, NLBs were marginally more likely than Latinos to report that the Affordable Care Act made it easier to access pediatric care (35% vs. 19%).

Conclusions: Although child receipt of preventive healthcare services was similar, caregiver satisfaction with pediatric providers differed across racial and ethnic groups. Latinos reported lower levels of satisfaction than NLBs, and Mexicans generally reported lower levels than PRs.

Public Health Implications: Beyond insurance coverage, satisfaction with providers is important to ensuring families access needed pediatric health services. Our findings suggest that Mexican caregivers have the lowest levels of satisfaction with pediatric providers. This may be linked to language barriers, cultural inconsistencies between patients and providers, or discrimination in the healthcare setting. In addition, as of 2013, only 4.1% of U.S. physicians were Black/African American and 4.4% were Latino, suggesting that one way to improve caregiver satisfaction would be to focus on diversification of the pediatric provider workforce.

The Association between Intimate Partner Violence before Pregnancy and Short Interbirth Interval in the US: The Role of Insurance Status

Authors: Sylvia Rozario
Saba Masho

Category first choice: Preconception health

Category second choice: Trauma, violence, and injury

Data sources utilized: PRAMS

Background: Short interbirth interval (SIBI) has serious adverse consequences on maternal, perinatal, and infant health. A SIBI is defined as IBI of less than 36 months. The prevalence of SIBI is about 30% in the US. Similarly, intimate partner violence (IPV) around the time of pregnancy is associated with increased risk of poor perinatal and maternal outcomes. About 5% of women experience IPV around the time of pregnancy in the US. IPV might be associated with women's compromised decision making and thus may contribute to unintended pregnancy and SIBI. Further, this association might be moderated by access to health care. These associations are under investigated. The knowledge about these associations may contribute in reduction of adverse pregnancy outcomes in relation to SIBI and IPV.

Study questions: 1) Is there an association between IPV before pregnancy and SIBI? 2) Does insurance status of women moderate this association?

Methods: 2012–2015 National Pregnancy Risk Assessment Monitoring System (PRAMS) survey (phase 7) was analyzed (N= 13,675). Only multiparous women were included in the analysis to enable the calculation of interbirth interval. IPV before pregnancy (yes; no), insurance status (private insurance; Medicaid; no insurance), and SIBI (yes; no) were examined. Insurance status was identified as an effect modifier ($p = .03$). Maternal age, maternal and paternal education, location, marital status, and drinking alcohol were identified as potential confounders and controlled for in the adjusted analysis. Multiple logistic regression analysis stratified by insurance status was conducted and adjusted odds ratios with corresponding 95% confidence intervals were calculated.

Results: Nearly 6% of women reported IPV before pregnancy and 46% reported SIBI. After adjusting for confounders, women who reported IPV before pregnancy were 148% more likely to have SIBI compared to women who did not report IPV before pregnancy (AOR=2.48, 95% CI=1.41, 4.38). Further, the odds of SIBI were significantly higher among women with no insurance and women on Medicaid who reported IPV, compared to women who did not report IPV (no insurance: AOR=3.35, 95% CI: 1.07, 6.02 & Medicaid: AOR=2.90, 95% CI=1.06, 5.85). There was no observed significant difference in odds of SIBI between abused and non-abused privately insured women.

Conclusions: Findings from this study provide evidence that women who experience IPV are significantly more likely to have SIBI than women who do not experience IPV. Further, the risk of SIBI is highest among abused women who are uninsured or on Medicaid.

Public Health Implications: This knowledge may facilitate screening and intervention for IPV in preconception care and early detection of women at risk for SIBI. Policy makers and health care providers should be aware of these findings, specifically the findings related to public insurance. Health care providers should focus on utilizing available screening tools to assess IPV in uninsured women and women on Medicaid during preconception care and guide them to proper intervention for IPV and adequate birth spacing. Screening and interventions should be tailored to community-level to ensure that uninsured women are adequately reached. The knowledge thereby may contribute in the reduction of adverse pregnancy outcomes in relation to IPV and SIBI.

Experiences of Previously Uninsured Women in the Years after the Affordable Care Act was Implemented

Authors: Cara Bergo
Arden Handler
Bethany Dominik
Abby Klemp
Kristin Rankin

Category first choice: Women's/maternal health

Other category first choice: Women's

Category second choice: Chronic disease/smoking

Other category second choice: Possible Cancer or effects of the ACA section

Data sources utilized: Linked Data File

Linked data file: The Illinois Breast and Cervical Cancer Program Cornerstone Database linked to the 2015, 2016, 2017 Women's Health Survey.

Background: Due to changes brought on by the Affordable Care Act (ACA), the Illinois Breast and Cervical Cancer Program (IBCCP) evaluation team at UIC conducted Women's Health Surveys in 2015, 2016, and 2017 of IBCCP enrollees to determine the experiences of low-income women in the changing health care environment.

Study questions: The objective of this study was to examine the experiences of women who were uninsured and served by a safety net program (IBCCP) after they left the program in 2014-2016 (former women) and gained insurance through Medicaid or the Illinois Health Exchange.

Methods: A stratified random sample of participants using the IBCCP database (1600-2015 & 2016, and 1471-2017) based on enrollee group (current, former, new) and Lead Agency geography (Cook/ Collar Counties vs. Other) was generated. The team conducted telephone surveys with 400 women each year and entered them into a secure, web-based database. Women's qualitative responses to open-ended questions were also recorded. Data were weighted according to sampling methods. Women who were formerly enrolled, reported insurance, and were not loss to follow up were included (N=360). Analyses were conducted using SAS 9.2 (Cary, NC). This analysis focuses on women on Medicaid (n=179) or the IL Exchange (n=69). Chi square tests were used to examine differences by insurance.

Results: Of women formerly enrolled, after leaving IBCCP, 18.5% were on the IL Exchange, 56.7% obtained Medicaid, 13.3% had employer insurance, and 11.4% remained uninsured. The majority of women were 50-59 years old (57.4%), white (64.3%), had a high school education (47.5%), had an income less than 138% of the federal poverty line (FPL) (74.8%), and spoke English (91.7%). Women on Medicaid were more likely to be black (27.8%), have less than a high school education (19.1%), and have an income of less than 138% FPL (81.8%) compared to the IL Exchange (15.2%, 11.4%, and 64.0% respectively, $p < 0.05$). Women on Medicaid were less likely to delay sick care (10.4%) compared to those

on the Exchange (11.0%, $p < 0.05$) and more likely to have had a recent mammogram (38.6%) compared to those on the Exchange (27.0%, $p < 0.05$). Of women with a major medical cost, women on Medicaid were more likely to have it covered (77.3%) compared to those on the Exchange (42.7%, $p < 0.01$). Qualitative responses revealed higher satisfaction with Medicaid and more issues with the IL Exchange.

Conclusions: Women who were formerly uninsured and enrolled in IBCCP differ in demographic and health care access characteristics according to their insurance status (Medicaid versus the IL Exchange). Women on Medicaid were less likely to delay care and more likely to have their medical costs covered compared to women on the IL Exchange.

Public Health Implications: Women who gained insurance through Medicaid and the IL Exchange after the ACA had different experiences with the health care system. These data suggest that women who transitioned to Medicaid were better able to access services than women who transitioned to the IL Exchange possibly due to barriers such as co-pays and high deductibles associated with the latter.

Increasing Parent-clinician Engagement and Clinical Outcomes Using Mobile Apps

Author: Jin Lee

Category first choice: Child/adolescent health

Category second choice: Birth defects/developmental disabilities

Data sources utilized: Child Health Survey; Other

Other data source: Qidza foundation and partner clinic and community health center data

Background: CDC reports that 1 in 4 children under age 5 has developmental and behavioral problems, resulting in 1 million kids entering school with undiagnosed disability every year. In June 2017, the Silicon Valley Community Foundation and other nonprofits conducted a survey that consisted of hundreds of California pediatricians. They found that although 95% of pediatricians agreed that it is important to use a formal tool at recommended intervals, only 37% of CA pediatricians used a validated tool.

Study questions: How can a mobile app increase parent-clinician engagement and improve clinical outcomes in developmental screening and detection?

Methods: To test if mobile apps can help pediatricians screen kids in less time, Qidza Foundation partnered with two private clinics and one community health center to measure parent-pediatrician engagement and clinical outcome and see if parents are interested in screening their own children's development at home.

Results: Among the 1071 app downloads, 95% of parents and pediatricians reported an increase in parent-pediatrician engagement and higher physician stratification. 96% completed at least one developmental screening. Of the 96% of parents who completed a developmental screening, 16% of kids screened were at risk and 85% followed up with their pediatricians. On average, leveraging the mobile app can save clinics 18 minutes when screening.

Conclusions: Clinics were pleased to catch delays earlier and in most cases, be reimbursed for the screenings. This study further demonstrated that well designed mobile apps that are closely linked to clinical practice can help pediatricians save time while achieving better clinical outcomes.

Public Health Implications: This study further demonstrated that well designed mobile apps that are closely linked to clinical practice can help pediatricians save time while achieving better clinical outcomes.

The effectiveness of “Push to Web” as an option for a survey of new mothers

Authors: Rachel Tumin
Kurt Johnson
Reena Oza-Frank

Category first choice: Other

Other category first choice: Data collection methodology for population-based survey

Category second choice: Reproductive health/family planning

Data sources utilized: Birth/Death Certificates; Other

Linked data file: This study uses the Ohio Pregnancy Assessment Survey (OPAS), which is Ohio's version of PRAMS. These OPAS data are linked to Ohio birth certificate data

Other data source: This study uses the Ohio Pregnancy Assessment Survey (OPS), which is Ohio's version of PRAMS.

Background: The Tailored Design Method (Dillman, Smyth, Christian, 2014) is a well-established methodology for maximizing response for self-administered mail surveys. Current prevailing adaptations call for a mode first design where the primary mode (mail survey) is used for the first three contacts with the addition of the option mode (web survey) as the fourth contact, and finally a non-response follow-up call attempt. As survey demographics change to those who are more accustomed to digital communications, it is important to reevaluate the value of including a web option as an alternative approach to data collection.

Study questions: How does an invitation to participate in a survey via the web, as an alternative to completing the survey on paper or by phone, affect the response rate of a statewide survey? How do demographic characteristics of web respondents compare to characteristics of paper or phone respondents?

Methods: We analyzed data from the 2016 Ohio Pregnancy Assessment Survey (OPAS), a population-based survey of new mothers in Ohio approximately 2-4 months after the birth of their child. The OPAS closely replicated the Centers for Disease Control and Prevention Pregnancy Risk Assessment Monitoring System (PRAMS) methodology, apart from incorporating a digital focus. An invitation to participate in the web version of the survey was randomly included across the four primary contact points: prenotification, and the first, second, and final survey mailings. We examined response rates and demographic characteristics by survey mode. Demographic characteristics were compared using chi-square.

Results: Overall, those offered the traditional mail survey had an unweighted 27% response rate, whereas those offered the push to web had a unweighted 24% response rate. We observed a mode first response pattern: when the initial mode of invitation was a traditional mail survey, 86% of respondents completed by mail rather than web or phone. For those first offered the survey by web, 91% used that

mode to complete. Demographically, there were few significant differences between web and mail respondents. Those who opted for web completion when given a push to web were slightly younger (web 75% 18-34 years-old vs. mail 68%; $p < .05$) and had more education (web 83.5% with more than a high school education vs. mail 77.1%; $p < .01$). Additionally, those mothers who had Medicaid coverage during their prenatal period were more likely to complete the survey by mail (25.8% vs. 21.8%, $p < .05$).

Conclusions: Mode preference in this survey of recent mothers follows a mode first pattern with few differences in demographic characteristics across survey mode. The minor demographic differences observed follow closely with access and tendency to use digital media. Finally, the “push to web” approach may have slightly reduced participation compared with traditional mail. Future research offering a web option to all participants would allow a more thorough assessment of the impact survey mode may have on response rates.

Public Health Implications: A “push to web” methodology often has significant cost savings compared to the tailored design method. Thus, researchers may want to consider alternative methodologies for cost benefit without biasing respondent characteristics.

Evaluation of Mother's Own Milk (MOM) Initiative's Impact on Racial Disparities

Authors: Fiorella Gonzales
William Sappenfield
Ivonne Hernandez

Category first choice: Perinatal outcomes

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: Participating Florida hospitals (25) were asked to collect and submit data on program measures. Data collection was due monthly. A data collection form was provided to facilitate data submission on each VLBW infant that is 1) eligible to receive mothers own milk AND 2) where mother intends to provide mothers own milk. Hospitals were asked quarterly to submit the total number of infants in the NICU who were VLBW and eligible to receive breast milk, whether or not the mother intended to provide MOM. Baseline data was collected for infants discharged prior to June 2016. Initiative data collected from July 1, 2016 to December 31, 2017.

Background: Breastmilk uniquely meets an infant's nutritional needs, and has properties that protect both the mother and child. Mother's own milk (MOM) is especially important among very low birth weight (VLBW: <1,500 grams) infants, reducing infection risk and length of stay in a Neonatal Intensive Care Unit (NICU). Nationally, racial/ethnic disparities persist in breastfeeding rates. Disparities in MOM use in NICUs is poorly understood and further investigation is needed. The Florida Perinatal Quality Collaborative (FPQC) has implemented a quality improvement initiative to increase MOM use, providing infant-level data.

Study questions: Are there racial/ethnic disparities in Mom use among VLBW infants in Florida NICUs? What impact does the MOM initiative have on racial/ethnic disparities among VLBW infants?

Methods: This is a secondary data analysis of data collected from 25 participating Florida NICUs. The study population consists of 2,246 VLBW infants discharged with no contraindication to receiving MOM. Baseline data was collected for infants discharged prior to June 2016. Initiative data collected from July 1, 2016 to December 31, 2017 was divided into 6 month periods. Main study variables were the MOM initiative's process and outcome measures and race/ethnicity (non-Hispanic white, non-Hispanic black, and Hispanic). Multivariate analyses are being conducted.

Results: The study's racial/ethnic composition is 28.6% non-Hispanic white, 44.1% non-Hispanic black, and 27.3% Hispanic. At baseline, a higher percentage of non-Hispanic white infants met MOM process measures than non-Hispanic blacks and Hispanics: first pumping session by the 6th hour of life (HOL) (37.9%, 21.8%, and 21.1%, respectively [$p=0.01$]), had MOM available within 72 HOL (69.2%, 52.5%, and 65.8% [$p=0.03$]), had a non-nutritive breastfeeding documented (22.6%, 5.9%, and 16.2% [$p=0.01$]), and had skin to skin care within 10th day of life (DOL) (40.4%, 27.7%, and 16.0% [$p=0.002$]). By the last period, non-Hispanic white, non-Hispanic black, and Hispanic infants improved significantly with the largest improvement observed most frequently among non-Hispanic black: first pumping session by the

6th HOL (57.7%, 49.4%, and 51.1%, respectively), had MOM available within 72 HOL (83.8%, 79.1%, and 82.4%), had a non-nutritive breastfeeding documented (32.4%, 26.7%, and 36.6%), and had skin to skin care within 10 DOL (68.0%, 54.5%, and 56.7%). Regarding outcomes, at baseline, a higher percentage of non-Hispanic white infant feedings at 28 DOL were comprised of >50% MOM, than non-Hispanic black and Hispanic feedings (68.0%, 57.3%, and 48.6%, respectively). By the final period, only Hispanics had notably improved (66.4%, 57.8%, and 72.2%). Study limitations include small sample size for some process measures and limited number of study variables to explore the disparities or improvements.

Conclusions: MOM initiative is associated with improved process measures for supporting MOM use in the NICU among VLBW infants. Racial/ethnic disparities in these measures narrowed, but some remained. MOM use by 28 DOL only notably improved among Hispanics. Multivariate analyses are needed to explore the effects of gestational age, birth weight and other factors on these results.

Public Health Implications: The MOM initiative appears to improve efforts to reduce racial disparities in promoting the use of mother's milk and appears to impact MOM use among Hispanic mothers. Further study is needed.

Does peer counselor support influence breastfeeding initiation and duration in an upstate New York WIC population?

Authors: Ann Dozier
Vanessa Assibey-Mensah
Kelly Thevenet-Morrison
Holly Widanka
Jackson Sekhobo
Lynn Edmunds

Category first choice: Other

Other category first choice: Breastfeeding

Category second choice: Nutrition and physical activity

Data sources utilized: Linked Data File

Linked data file: Linked data file specifically created for this project; it links individual WIC data with individual peer counselor data from a large WIC program

Other data source:

Background: The Special Supplemental Nutrition Program for Women, Infants, and Children uses breastfeeding peer counseling (BFPC) to provide prenatal/postnatal support to low-income women. Although BFPC programs have demonstrated efficacy in improving outcomes, the evaluation of its impact is limited due to heterogeneity in its implementation across sites. Therefore, effectiveness studies of current programs as implemented are warranted.

Study questions: To evaluate the effectiveness of a Breastfeeding Peer Counselor (BFPC) program on breastfeeding initiation and duration in WIC-enrolled mothers receiving different quantities and types of BFPC support (telephone; face-to-face; mailings).

Methods: Secondary data analysis using 2 years of BFPC data from an upstate New York county (2009-2011) linked with New York State Department of Health WIC data. Outcome measures were self-reported breastfeeding initiation and duration at 30 days from the Pediatric Nutrition Surveillance System. Possible confounders or predictors of breastfeeding initiation and duration were selected based on published literature. Covariates associated ($p < .15$) with both BFPC contact and breastfeeding initiation or duration, or only the outcomes were included in the multivariable analyses of the association between BFPC contact and breastfeeding outcomes. The same covariates were included in the models examining the association between type of BFPC contact (telephone; face-to-face; or mailing) and BF outcomes. Covariates associated with only the outcomes were included to improve the precision of the effect estimates. Model fit was tested with the likelihood ratio test with p -values < 0.05 indicating adequate fit.

Results: Our final dataset contained 4,097 singleton births. Women with BFPC contact were generally ≤ 18 years old with <high school education. Most were non-Hispanic black, non-smokers, and primiparous. In adjusted models, any peer counselor contact was significantly associated with increased odds of breastfeeding initiation as compared with no BFPC contact. Mothers with any BFPC contact had 301% (OR=4.01; 95%CI=3.46, 4.66) and 90% (Odds Ratio (OR)=1.90; 95%CI=1.59, 2.27) increased odds of initiating breastfeeding and continuing breastfeeding at 30 days, respectively, vs. mothers with no BFPC contact, after adjusting for maternal age, maternal education, maternal race, smoking status, gestational age, pregnancy interval, inner city residence. Mothers with any BFPC contact had increased relative odds of breastfeeding initiation (OR=4.01; 95%CI=3.46, 4.66) and duration (OR=1.90; 95%CI=1.59, 2.27), after adjustment. At least one telephone or face-to-face contact was associated with increased odds of breastfeeding outcomes. Mailings were not associated with better outcomes.

Conclusions: Our study demonstrated the effectiveness of BFPC program components on the impact of breastfeeding outcomes. Findings also demonstrated the importance of face-to-face or phone contact in improving breastfeeding outcomes in local WIC-enrolled women. The increase in the relative odds of BF initiation and duration also increased with quantity of BFPC contacts, which was consistent with a linear dose-response. Mailings were not associated with improving breastfeeding outcomes in our study population.

Public Health Implications: While BFPC programs can impact breastfeeding outcomes, assumptions this impact must account for how program components are implemented. What may work in one program may not translate to other programs. Given the different ways in which BFPC programs are implemented, additional research/evaluation at the local/program level is warranted to better understand the differences across programs.

Association between Self-Reported Breastfeeding and Postpartum Depressive Symptoms: Results from the 2012-2015 Michigan Pregnancy Risk Assessment Monitoring System (MI PRAMS)

Authors: Yan Tian
Peterson Haak
Chris Fussman

Category first choice: Women's/maternal health

Data sources utilized: PRAMS

Background: Previous literature shows some associations between breastfeeding and postpartum depressive symptoms (PDS). However, little information is available on the associations between self-reported breastfeeding initiation and duration and the prevalence of PDS by maternal race/ethnicity among Michigan mothers.

Study questions: What is the prevalence of self-reported breastfeeding initiation, breastfeeding duration, PDS among Michigan mothers? Is self-reported breastfeeding initiation or duration associated with the prevalence of PDS among Michigan mothers?

Methods: The study included 6,744 mothers from the 2012-2015 Michigan Pregnancy Risk Assessment Monitoring System (MI PRAMS). Breastfeeding initiation was based on mothers' report of ever breastfeeding or not. Breastfeeding duration was based on whether or not mothers reported breastfeeding for at least 4 weeks, 8 weeks, or 12 weeks, respectively. The PDS group included mothers who reported no pre-pregnancy depression, but did report being either "always" or "often" down, depressed, or hopeless, little interest or little pleasure in doing things during the postpartum period. Associations between PDS and potential covariates (maternal age, race/ethnicity, education, marital status, Medicaid insurance, physical abuse, stressful life events) were assessed with Wald chi-square tests. Propensity scores (PS) were calculated by determining the probability of the exposure variable based on all potential confounding variables. PS-adjusted weighted log-binomial regression analyses were conducted to assess the associations between breastfeeding initiation and duration and the prevalence of PDS among Michigan mothers overall and by race/ethnicity.

Results: Approximately 9.4% (95% Confidence Interval [CI]: 8.4-10.3) of mothers reported PDS. 83.0% (95% CI: 81.8-84.2) of mothers ever breastfed their new infants, and 69.5% (95% CI: 68.0-70.9), 58.1% (95% CI: 56.5-59.7), 50.6% (95% CI: 48.9-52.2) breastfed for at least 4, 8, or 12 weeks, respectively. The prevalence of PDS among mothers who breastfed for at least 12 weeks was 7.3% (95% CI: 6.1-8.5) compared with 12.1% (95% CI: 10.6-13.6) among mothers who didn't breastfeed for 12 weeks. Compared to their counterparts, mothers who breastfed ever, at least 4, 8, or 12 weeks, respectively, were less likely to report PDS after adjusting for the PS (ever: Prevalence Ratio [PR]=0.91, 95% CI=0.89-0.93; 4 weeks: PR=0.78, 95% CI=0.77-0.80; 8 weeks: PR=0.78, 95% CI=0.76-0.80; 12 weeks: PR=0.68, 95%

CI=0.67-0.70). Similar associations between breastfeeding initiation and duration and the prevalence of PDS were found among White non-Hispanic and Black non-Hispanic mothers.

Conclusions: This study utilized the method of PS-adjusted weighted log-binomial regression analysis to provide accurate and precise estimates for the associations between breastfeeding initiation and duration and the prevalence of PDS among Michigan mothers. Due to the cross-sectional nature of this study, we were unable to determine if breastfeeding is protective against PDS or if mothers with PDS are less likely to breastfeed.

Public Health Implications: This study highlights a possible association between breastfeeding and the prevalence of PDS among Michigan mothers. Since the direction of this association has not been established, public health programs should focus their efforts on both the education of pregnant women on the benefits of breastfeeding and promoting the awareness and treatment of PDS among this population.

Impact of Cultural and Economic Differences on Disability Labeling

Author: Irina Cain

Category first choice: Racism, equity, and social justice

Category second choice: Children and youth with special health care needs

Data sources utilized: Other

Linked data file: Special Education Elementary Longitudinal Study (SEELS)

Background: Disproportionality in identification and access to services for racially, ethnically, and socioeconomically diverse children have been well documented in the literature, but little research explored differences in diagnostic once a child has been identified. Educational and other related services are based on the diagnosis received within the school system, where a multidisciplinary team conducts testing and applies guidelines to establish a diagnosis. Out of the 13 federally identified disability categories in the Individuals with Disabilities Education Act of 2004, four have some overlapping criteria (i.e. learning disabilities, LD; autism spectrum disorders, ASD; intellectual disability, ID; and emotional disability, ED).

Study questions: This study investigates whether there is bias depending on children's racial/ethnic, and socioeconomic background in receiving specific disability labels (LD, ID, ASD, and ED). Analyses were performed on data from the Special Education Elementary Longitudinal Study (SEELS), a nationally representative dataset created to assess the effectiveness of federal policy.

Methods: The entire database sample, which includes 12,000 participants who received special education was used for this study. Participants are children between the ages of 6 and 13 in 2000, at the time of the first data collection point, and have developmental disabilities. This age range is representative of when most children with disabilities either have or receive a diagnosis. Analyses were performed using complex sampling procedures and multiple regression models for predicting disability label based on ethnicity, family's income level, and parents' level of education, while controlling for skills levels (i.e. functional, social, daily living, and self-care), age, and gender.

Results: Findings suggest there is evidence for bias in labeling disabilities that have overlapping characteristics (learning disability, intellectual disability, autism spectrum disorders, and emotional disorder). An increased income was associated with receiving an autism label, and decrease in the likelihood of being diagnosed with other disabilities. African American children were more likely than Whites to be labeled with emotional disturbance, while Hispanic children were less likely to be labeled with any disability when compared to Whites and African Americans. These findings are impactful because of the differences in access to services (health, behavioral, and mental health) that are associated with the disability label and offer further evidence of inequity in access to services depending on a child's background factors. Results are used to propose changes in diagnosing practice and policies to reduce this bias.

Conclusions: Findings confirm that family factors, including income, parent's education, and race/ethnicity are predictive of differences in disability diagnosis.

Public Health Implications: The diagnosis received in school has implications for the number and type of services the child is qualified for, at school and in the community. For example, with an ASD diagnosis children are entitled to receive free of charge behavioral services through their school or community provider in most localities, whereas with a LD diagnosis they would have to qualify for those services separately and receive them at the family's expense. When transitioning to adult services, youth most often use school diagnosis to apply for eligibility, and certain disabilities, such as LD, do not qualify for adult services.

Does structural racism drive higher rates of preterm birth for Black and Latinx babies in Massachusetts?

Author: Candice Belanoff

Category first choice: Racism, equity, and social justice

Category second choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates; Linked Data File

Linked data file: Child Opportunity Index (a multi-dimensional, census-tract-level index of social opportunity).

Background: Racial inequities in preterm birth (PTB), or delivery before 37 completed weeks of gestation, persist in the United States and PTB is the most important contributor to the racial and ethnic gap in infant mortality. Previous research has sought to delineate underlying contributors to the PTB gap, pointing to socio-economic indicators and even individual experiences of discrimination. More recently, attention has turned to indicators of structural racism, such as segregation and concentrated disadvantage, as potential explanatory factors. We tested the ability of a multi-dimensional indicator of area-level social opportunity to explain racial and ethnic gaps in PTB among Massachusetts (MA) babies.

Study questions: 1) Is a measure of area-level social disadvantage associated with the risk of preterm birth? 2) Does a measure of area-level social disadvantage explain any of the observed difference in PTB by race/ethnicity among infants born in Massachusetts born between 2011-2015?

Methods: We linked the Massachusetts birth certificate for live-born singleton infants between February 2011 through December 2015 in the three state metro areas ($n = 280,495$), to the Child Opportunity Index, a multi-dimensional, composite measure of social opportunity at the census tract level. Infant gestational age at birth was dichotomized as preterm (<37 weeks) or full term. Child Opportunity Index (COI) scores, based on maternal address at the time of delivery were categorized into five levels ranging from Very Low to Very High. We modeled the log odds of preterm birth dependent on COI and adjusted for individual level indicators of race/ethnicity, education, marital status, age and pre-pregnancy Body Mass Index. Generalized estimating equations accounted for clustering at the census tract level. Because the COI only covers large metropolitan areas, our study did not include MA infants from areas located far from urban centers.

Results: Hispanic and non-Hispanic-Black infants in MA were more than four times as likely to live in "very low opportunity" areas as were non-Hispanic white infants (54.5% and 54.3% versus 11.8%, respectively). In the fully adjusted model, the odds ratio (OR) for PTB comparing Very Low to Very High Opportunity areas was significant at 1.17 (95% CI: 1.10 – 1.24). Unadjusted ORs comparing risk of PTB for Hispanic and non-Hispanic-Black to white infants were 1.27, (95% CI: 1.22 – 1.32) and 1.46, (95% CI: 1.39 – 1.54) respectively. Hispanic and non-Hispanic-Black ORs were attenuated with the inclusion of the COI, to 1.18 (95% CI: 1.13 – 1.23) and 1.37 (95% CI: 1.29 – 1.44), respectively, and further with the inclusion of individual-level indicators, to 1.08 (95% CI: 1.04 – 1.13) and 1.24 (95% CI: 1.18 – 1.31), respectively.

Conclusions: Preterm birth is significantly more likely among infants born into lower opportunity areas, even after controlling for individual characteristics. The inequitable distribution of area-level social advantage by race/ethnicity may explain some, though not all of racial/ethnic gaps in preterm birth.

Public Health Implications: Policies and interventions seeking to close the preterm delivery gap should attend to area-level social disadvantage and its inequitable distribution by race/ethnicity.

Favorable preterm birth (PTB) rates among African-born Black women suggest social not genetic factors in the Black-White disparity in PTB

Authors: Paula Braveman
Kristen Marchi
Katherine Heck
Chuncui Fan
Christine Rinki
Jennifer Troyon

Category first choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates

Background: Preterm birth (PTB) is a major cause of infant mortality, childhood disability, and chronic disease in adulthood. The causes of the large and persistent disparity in preterm birth among U.S.-born Black women compared with U.S.-born White women are unknown. Some clinicians and researchers have assumed that the disparity reflects underlying genetic differences. Collins and David, however, found in statewide Illinois data that African-born Black immigrants have birthweight outcomes similar to those of U.S.-born White women, contrasting with the adverse birthweight outcomes of U.S.-born Black women. We have not found similar studies of PTB.

Study questions: How do PTB rates among African-born Black women compare to those of U.S.-born White women in population-based California data?

Methods: California birth certificate data were analyzed to compare PTB rates (with 95% confidence intervals, CI) among all 453,702 Black and White women with singleton births during 2014-2016, according to race and nativity (African-born Black, Caribbean-born Black, U.S.-born White, non-U.S.-born White). We compared these different race-nativity groups on demographic, social, healthcare, and health characteristics described in birth certificate data (age, parity, maternal education, paternal education, delivery payer, first-trimester initiation of prenatal care, pre-pregnancy BMI). Next we constructed logistic regression models examining the likelihood of PTB among each race-nativity group, unadjusted and then adjusting for the above characteristics.

Results: Rates of PTB were: 6.2% (CI 5.6-6.8), 8.3% (CI 6.5-10.0), and 10.3% (CI 10.0-10.5) among African-born, Caribbean-born, and U.S.-born Black women, respectively, and 5.7% (CI 5.6-5.8) and 4.9% (CI 4.7-5.1) among U.S.-born and non-U.S.-born White women, respectively. The race-nativity groups differed on many characteristics. In models adjusting for all characteristics, the odds of PTB were similar for African-born Black and U.S.-born White women (OR 1.04 [CI 0.94-1.16] with U.S.-born Whites as reference). The adjusted odds of PTB were significantly higher (1.67, CI 1.62-1.73) among U.S.-born Black women and intermediate (1.40, CI 1.10-1.77) among Caribbean-born Black women. (Patterns were similar in unadjusted data.)

Conclusions: These findings add to evidence casting doubt on underlying genetic differences among Black women and White women to explain the racial disparity in PTB. If the Black-White disparity in PTB

were due to underlying genetic differences, one would expect PTB rates among African-born women to be at least as high as those among U.S.-born Black women. While gene-environment interactions cannot be ruled out, similar PTB rates among African-born Black and U.S.-born White women with intermediate rates among Caribbean-born Black women strongly suggest a major role for the social environment; in particular, the observed patterns are consistent with chronic stress related to experiences of racism as a biologically plausible major contributor to the racial disparity in PTB.

Public Health Implications: Assuming that underlying genetic differences explain racial disparities in PTB removes public health responsibility to address the disparities. This study casts doubt on that assumption. Although gene-environment interactions are plausible, the implication would be to address the social environment conditions responsible for gene expression/suppression.



Scientific Research Track

Poster Abstracts



Pregnancy-related deaths among Hispanics, United States, 1998-2013

Authors: Wilda Parker-Collins
Jeani Chang
David Goodman
William Callaghan

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: Birth/Death Certificates

Background: The latest reported pregnancy-related mortality ratio (PRMR) in Hispanic women in the United States, covering 2011-2013, was 11.0 deaths per 100,000 live births. This PRMR is lower than the PRMR for non-Hispanic white women (12.7). However, there have not been reports of these deaths according to the Hispanic origin. The purpose of this study is to describe the PRMR by Hispanic origins from 1998-2013 as well as distribution by maternal demographic and pregnancy characteristics. We also describe cause of maternal death by Hispanic origins.

Study questions: 1. What are the PRMRs by Hispanic origins? 2. What is the distribution of maternal characteristics among pregnancy-related deaths by Hispanic origins? 3. How do the causes of death vary by Hispanic origins?

Methods: We used data from the Centers for Disease Control and Prevention's Pregnancy Mortality Surveillance System (PMSS) to examine all reported pregnancy-related deaths (deaths during or within 1 year of pregnancy that were caused by pregnancy, its complications, or treatment) among women of Hispanic origins (Mexican, Puerto Rican, Central/South American, and other/unknown). The pregnancy-related mortality ratio (PRMR) is defined as the number of pregnancy-related deaths per 100,000 live births. We examined the PRMR, distribution of selected characteristics (maternal age, nativity, maternal education, marital status, and cause of death by Hispanic origin according to traditional PMSS cause of death categories.

Results: A total of 1,673 pregnancy-related deaths among Hispanics were reported to PMSS during 1998-2013. The distribution by Hispanic origin was 67% Mexican, 19% Central/South American, 8% Puerto Rican and 6% other/unknown. While the majority of Mexican women were foreign born, the majority classified as other/unknown were U.S. born (61.2% and 77.1% respectively). The PRMR during this time period was 14.4 for Central/South American, followed by 13.5 for Puerto Rican, 11.2 for Mexican, and 6.9 for Other/Unknown Hispanic women. Except for other/unknown Hispanics, the PRMR increased as the women aged for all Hispanic origins; women >39 years are twice as likely to experience from pregnancy-related death as compared to that of 35-39 years. Mothers who had greater than high school education had lower PRMR than those with ≤ 12 year of education, with the exception of Mexicans. Among all Hispanic maternal deaths, the leading causes were hemorrhage and hypertensive disorders. In general, cause of death categories were distributed equivalently across all Hispanic origins except that Puerto Ricans were disproportionately affected by deaths classified as 'other'.

Conclusions: While the majority of pregnancy-related deaths among Hispanics were of Mexican origin, the overall PRMR were higher among the Central/South American and Puerto Rican women. Although there was some variation in cause of death according to origin, the overall leading causes for Hispanic maternal deaths were hypertensive disorders and hemorrhage.

Public Health Implications: Findings from this study suggest that describing maternal deaths among Hispanic women by country of origin may be important to identify opportunities for prevention.

Maternal Tetanus, Diphtheria, Acellular, Pertussis Vaccination Coverage in Los Angeles County:

Author: Margaret Chao

Category first choice: Immunization/Infectious disease

Category second choice: Women's/maternal health

Other data source: The 2016 Los Angeles Mommy and Baby Project

Background: Pregnant women are recommended to receive Tdap vaccine to prevent disease and complications among mothers and newborns. Since October 2012, the Advisory Committee on Immunization Practices (ACIP) has recommended pregnant women to be vaccinated with tetanus-diphtheria-acellular pertussis (Tdap) vaccine early in the third trimester of each pregnancy to provide maternal antibodies for infants too young to be immunized. Monitoring maternal Tdap vaccination coverage is important in order to evaluate the implementation of these recommendations and to identify who is failing to be vaccinated and why.

Study questions: What is the Tdap vaccination rate for pregnant women in Los Angeles County (LAC)? Why do women fail to get the Tdap vaccine? Does provider's recommendation about getting Tdap during pregnancy raise Tdap rate?

Methods: The LAMB project is a biennial population-based survey conducted by the LAC Department of Public Health. Approximately 5,600 mothers responded to the 2016 survey (response rate= 50[CH1] %). The LAMB survey includes several questions regarding Tdap vaccination: 1) whether mothers got a Tdap shot during their pregnancy or at the delivery hospital; 2) reasons for not getting the vaccine at all or not until delivery; 3) whether their providers talked about getting a Tdap vaccine during their prenatal care visit. Analyses were conducted using SAS 9.3 and include sampling weights to account for the complex sampling scheme.

Results: In 2016, 76% of women giving birth in LAC received a Tdap shot during pregnancy or at the delivery hospital (63% during pregnancy and 13% at the delivery hospital). African American women, women who were less than 25 years old, or women who had less than or equal to 12 years of education had the lowest vaccination coverage (71%, 68.3%, and 68.4% respectively). Tdap vaccination coverage was also low among Medi-Cal or WIC recipients (66.5% and 69.2%, respectively). The most frequently reported reasons for not receiving a Tdap vaccine during pregnancy were: (1) she does not normally get the shot (46.7%); (2) her doctor did not mention it (46.2%); (3) she worried about side effects (36.9%). Pregnant women whose prenatal health care providers discussed Tdap vaccine were about 7 times more likely to be vaccinated than women whose providers did not (aOR=6.7, 95% CI=5.7-8.0), taking into account mother's race, age, education, and insurance status.

Conclusions: In 2016, 76% of women giving a live birth in LAC received a Tdap vaccine and socio-demographic disparities existed. These number can serve as a baseline for monitoring the overall coverage of maternal Tdap vaccination in LAC

Public Health Implications: Because there are socio-demographic disparities and missed opportunities to vaccinate, continuous efforts to promote and educate the public on the importance and safety of Tdap vaccination during pregnancy are needed to increase coverage of Tdap vaccination among pregnant women. Health care providers should counsel and educate all pregnant women on the importance of Tdap vaccination during pregnancy - regardless of their race/ethnicity, education level, and health insurance type - and make a strong recommendation to receive Tdap.

Ohio Primary Care Providers' Practices to Prevent Type 2 Diabetes in Women with a History of Gestational Diabetes, 2010/2015

Authors: Andrea Arendt
Reena Oza - Frank
Elizabeth Conrey
Cynthia Shellhaas

Category first choice: Women's/maternal health

Category second choice: Life course perspective

Data sources utilized: Other

Other data source: State-collected data. Survey of licensed family practice and internal medicine physicians.

Background: Research has shown that among women with a history of gestational diabetes cumulative incidence of type 2 diabetes (T2D) ranges from 20-60% within 10 years of a gestational diabetes mellitus (GDM) diagnosis. In a 2010 Ohio survey of primary care providers (PCPs), slightly over 50% reported that all new female patients in their practice are asked if they have a history of GDM. Providers who asked about GDM history were more likely to adhere to T2D screening guidelines for these patients.

Study questions: Has screening for GDM history changed over time? Is screening for history of GDM associated with clinical practices to prevent type 2 diabetes?

Methods: A survey was sent to random samples of licensed family practice and internal medicine physicians (collectively referred to as PCPs) throughout Ohio in 2010 and again in 2015. The survey's purpose was to assess clinical practices for women with a history of GDM. PCPs were asked about screening for GDM history and T2D and care provided to women with a history of GDM. Responses were weighted by specialty and differences were assessed by chi-square tests.

Results: In 2010, the response rate was 36% (N = 250) for family practice physicians and 26% (N = 183) for internal medicine/general practice. Response rates in 2015 were similar with 35% (N = 205) and 25% (N = 214), respectively. From 2010 to 2015, there was no significant change in the proportion of providers who reported all new female patients in their practice are asked about a history of GDM (43.0% and 46.5%, $p = 0.4$), but there was a significant decrease (61.9% to 47.9%, $p < 0.01$) in the number of providers who reported they screened women under 45 with a history of GDM for T2D every 1-3 years. In 2015, providers who reported that their practice always asks about GDM history were significantly more likely to say that women with a history of GDM are screened every 1-3 years (56.6% vs. 42.6%, $p < 0.001$). They are also more likely to report providing the following care for women with a history of GDM: counsel them about nutrition/diet (92.6% vs 83.8%, $p=0.03$), counsel them to exercise (90.9% vs 81.7%, $p=0.03$), refer them to diet support group (32.8% vs. 16.8%, $p < 0.01$), refer them to community resources to increase activity (24.05 vs. 14.2%, $p = 0.04$) advise healthy weight (91.6 vs 78.1%, $p < 0.01$), and advise against smoking (87.6% vs. 69.1%, $p < 0.001$).

Conclusions: Screening non-pregnant woman for history of GDM is positively associated with screening for T2D and other practices aimed at preventing T2D. However, screening for GDM history remains suboptimal among PCPs in Ohio and screening for T2D decreased over the 5 year time period.

Public Health Implications: Additional research is needed to understand the decrease among Ohio PCPs in screening women with a history of GDM for T2D. Increasing awareness among PCP's about the risk for T2D among women with a history of GDM and improving screening practices is important for optimizing a women's health throughout her life.

Opioid prescription claims among women aged 15-44 years – United States, 2013-2016

Authors: April Summers
Elizabeth Ailes
Michele Bohm
Cheryl Broussard
Meghan Frey
Suzanne Gilboa
Jean Ko
Jennifer Lind Emmy Tran
Margaret Honein

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Medicaid Files; Other

Other data source: MarketScan Commercial Claims and Encounters and MarketScan Medicaid

Background: Opioid use during pregnancy is associated with an increased risk of adverse pregnancy outcomes, including neonatal abstinence syndrome, preterm birth, and potentially birth defects. Because many pregnancies are not recognized until after the first few weeks, women who take these medications and become pregnant might be at risk of unplanned opioid exposure during pregnancy. Therefore, understanding trends in opioid use among reproductive-aged women is important. A previous study found that, during 2008-2012, an average of 28% of privately-insured and 39% of Medicaid-enrolled reproductive-aged women filled an opioid prescription each year.

Study questions: What proportion of women aged 15-44 years filled prescriptions for an opioid from an outpatient pharmacy, during 2013-2016?

Methods: We used MarketScan Commercial Claims and Encounters (CCE) and Medicaid data from 2013-2016 to identify prescription drug claims for opioid-containing medications among women aged 15-44 years. CCE data include a convenience sample of individuals with private employer-sponsored health insurance and their dependents. MarketScan Medicaid data include an annual sample of 10-12 states, which may vary each year. We included women who were enrolled in an insurance plan that included prescription drug coverage for at least eleven months in the calendar year under study. Opioid prescription claims were identified by searching outpatient pharmacy claims using national drug codes. We estimated the annual proportion of women with opioid prescription claims by insurance type, specific opioid type, age group, U.S. Census division (available for privately-insured women only), and race/ethnicity (available for Medicaid-enrolled women only).

Results: Among privately-insured women, the proportion of women who filled a prescription for an opioid decreased from 25.0% in 2013 to 22.4% in 2016; the most commonly filled medications were hydrocodone, oxycodone, and codeine. Among Medicaid-enrolled women, the proportion decreased from 36.0% in 2013 to 28.0% in 2016; the most commonly filled medications were hydrocodone,

oxycodone, and tramadol. For most years under study, privately-insured women between the ages of 30-34 and Medicaid-enrolled women ages 40-44 were most likely to fill an opioid prescription. In 2013, the West South Central and East South Central divisions had the highest proportion of privately-insured women with at least one prescription claim for an opioid (31.6% and 31.3%, respectively), with the lowest in the Middle Atlantic region (18.8%). Consistent with the overall decrease, there was a decrease in all Census divisions except West North Central, East North Central, and Middle Atlantic. Among Medicaid-enrolled women, white women were most likely to fill an opioid prescription, and Hispanic women were least likely to fill an opioid prescription.

Conclusions: Opioids are commonly prescribed to women of reproductive age among both privately-insured and Medicaid-enrolled women. Opioid prescription claims varied by age, geographic location, and race/ethnicity, and appeared to be decreasing over time relative to 2008-2012. However, these decreases should be interpreted with caution due to changes in the underlying population, particularly in these Medicaid data.

Public Health Implications: Although opioid prescription claims appear to be decreasing, use remains common. Prior to prescribing, providers should counsel reproductive-aged women on risks and benefits of starting an opioid medication.

Differences in Formal and Parental Sex Education in Young Women with Disabilities in the United States

Authors: Anne Valentine
Ilhom Akobirshoev
Monika Mitra

Category first choice: Reproductive health/family planning

Category second choice: Other

Other category second choice: Disability policy

Data sources utilized: Other

Other data source: National Survey of Family Growth (NSFG)

Background: Women with disabilities are often deemed ‘asexual’ and may not have access to formal or informal sex education including information about how to prevent pregnancy or protect against sexually transmitted infections. Only a handful of studies have examined the association between disability and sex education in young women.

Study questions: Using nationally representative data, we examine two sets of questions to evaluate the associations between formal sex education or sex education by parents among young women, ages 15 to 24 years, with a self-reported disability. To our knowledge, this is the first study examining this association using a nationally representative sample.

Methods: Cross-sectional analysis of 3,960 women aged 15-24 years who participated in the 2011-2015 National Survey of Family Growth. We assessed 6 outcomes including: having (1) any formal sex education; (2) formal contraceptive education; (3) formal sexually transmitted infection (STI) education; (4) any sex education by parents; (5) contraceptive education by parents; and (6) STI education by parents. The primary independent variable was self-reported disability status, as ascertained in the NSFG through a series of six questions first adopted by the American Community Survey.

Results: Among young women with disability, 93.6% reported any formal sex education, 66.8% reported formal contraceptive education, and 91.7% reported formal STI education as compared to their peers without disability of whom 95.5% reported any formal sex education, 70.9% reported formal contraceptive education, and 93.2% reported formal STI education. Further, among young women with disability, 83.7% reported any sex education by parents and 69.1% and 65.8% reported contraceptive and STI education by parents, respectively compared to their peers without disability of whom 84.5% reported of having any sex education by parents and 69.1% and 65.8% of having contraceptive and STI education by parents. Unadjusted odds ratios suggest that young women with disability were less likely to report receipt of any formal sex education (OR=0.65; 95% CI: 0.50 - 0.94) or formal contraceptive education (OR=0.76; 95% CI: 0.71 – 0.96) but more likely to report receipt of STI education by parents (OR=1.19; 95% CI: 1.01 - 1.41). However, after adjustment for a number of covariates, these associations become insignificant.

Conclusions: There were few differences in formal sex education and sex education by parents among young women with and without disability. Further research needs to explore differences by type of disability.

Public Health Implications: Research examining the sexual and reproductive healthcare needs of women with physical and cognitive disabilities is an emerging area of inquiry. Sex education is a topic that may not be adequately addressed in young women with disabilities. Data is needed to better inform public health planning and policy development.

When the bough breaks: Exploring the reasons behind persistently higher U.S. state infant mortality rates among African Americans

Authors: Tarilate Aroriode
William Sappenfield
Janice Zgibor

Category first choice: Perinatal outcomes

Data sources utilized: Linked Data File

Linked data file: Linked birth/infant death data for the years 2012 – 2014 from the Centers for Disease Control and Prevention (CDC)

Background: United States (U.S.) infant mortality rates have decreased over time, but racial disparities continue with Black infants having higher rates than White infants. However, Black infant mortality rates have also varied persistently across U.S. states.

Study questions: 1) How do the states with the highest and lowest Black infant mortality rates differ in terms of maternal/infant risk factors? 2) How much do these risk factors contribute to this state disparity?

Methods: The study used linked U.S. birth/infant death certificate data for the years 2012–2014 and was restricted to infants with birthweights of 500g or more, states with 60 black infant deaths, and states using the 2003 National Center for Health Statistics (NCHS) revised birth certificate. Three states with the lowest Black rates were compared to the three with the highest Black rates. Prevalence of maternal risk factors—Hispanic, marital status, age, education, Body Mass Index (BMI), smoking, participation in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), and delivery payment source, and their respective infant mortality rates were compared for both groups of states. Multivariate logistic regression was performed using the Statistical Analysis System (SAS) version 9.4 software to assess the contribution of these risk factors. Separate analyses with and without birthweight were performed to assess its role separately.

Results: Infant mortality rates for high rate states were 1.5 times the rate for low rate states: Indiana – 9.3, Louisiana – 9.0, and Oklahoma – 8.8, and Massachusetts – 4.9, Washington – 5.9, and New York – 6.0, respectively. Prevalences of adverse maternal/infant risk factors and the infant mortality rates for all risk factor strata were significantly higher for high rate states compared to low rate states. The odds ratio for state disparity decreased when adjusting for maternal risk factors: crude OR=1.52, 95% CI (1.39-1.65) and adjusted OR=1.26 (1.14-1.39). Adding infant birthweight to the model further reduced this disparity (OR=1.16 (1.05-1.29). Tests for interactions are being performed.

Conclusions: In this study, individual-level social determinants explained half of the state disparity in Black infant mortality rates. Differences in birthweight further explained some of this disparity. Study limitations include studying only states with high and low mortality rates, examining only individual-level risk factors, and missing some individual risk factors.

Public Health Implications: Finding effective ways of addressing social determinants of health and their ill effects will be essential to reducing state disparity in Black infant mortality rates. Further study of other risk factors contributing to this disparity is needed.

Big Disparities in a Small Town: Utilizing Perinatal Periods of Risk (PPOR) in a Rural County

Authors: Matthew Maurer
Marie Peoples
Chelsey Donohoo

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: Birth/Death Certificates

Background: Infant mortality rates are a window into a community's health, revealing socio-economic disparities, healthcare access barriers, and behavioral risks that increase risk to life and health. The Perinatal Periods of Risk (PPOR) approach is a comprehensive method to isolate problem areas contributing to fetο-infant mortality as well as identify populations that are disproportionately affected by these problems. However, a majority of published PPOR studies are set in large urban settings despite infant mortality rates being consistently higher in rural and small/medium urban communities as compared to urban areas. As a rural county, Coconino, with an infant mortality rate of 6.3 deaths/1,000 live births, follows this trend. The two most populous Arizona counties, Pima and Maricopa, have infant mortality rates are 4.2 and 5.3 deaths/1,000 live births respectively. To positively impact this trend, the Coconino County Public Health Services District (CCPHSD) conducted a PPOR analysis to identify areas to focus prevention efforts.

Study questions: How can a PPOR analysis be adapted to serve a county with a population density of 7 people per square mile? What perinatal periods of risk are the biggest factor impacting fetο-infant mortality in Coconino County and are there socioeconomic disparities?

Methods: Use of the Perinatal Periods of Risk (PPOR) method developed by CityMatCH to isolate problem areas leading to fetο-infant mortality: maternal health & prematurity, maternal care, newborn care, and infant health. Coconino County fetο/infant death records from 2011–2015 were utilized as the retrospective cohort and the reference group was white non-Hispanic mothers with 13 years or more years of education in Arizona from 2011-15.

Results: Among all births, excess mortality of 3.81 deaths per 1,000 births was linked to the PPOR defined category, maternal care and newborn care. Native Americans experienced an especially high excess mortality with 6.93 excess deaths per 1,000 births with problem areas distributed among all four PPOR categories. Hispanics/Latinos also experienced a higher excess mortality of 6.0 deaths per 1,000 births with deaths primarily contributed to maternal health/prematurity.

Conclusions: The PPOR analysis revealed that Coconino County experiences an excess infant mortality that can primarily be contributed to maternal care and newborn care. Native Americans and Hispanics/Latinos experience higher levels of excess infant mortality. Although the small sample size does not produce statistically significant results, the disparities between racial/ethnic groups identifies vulnerable populations to focus interventions.

Public Health Implications: While a smaller population makes it difficult to produce statistically significant results, PPOR analysis can be utilized in a rural setting to not only identify areas contributing to feto-infant deaths but also identify socioeconomic disparities that reveal pockets of the community that carry a heavy burden of infant mortality. Detecting these trends are the first step in impacting infant mortality rates, improving community outcomes, and protecting vulnerable populations. As smaller communities, like those found in Coconino County, experience higher infant mortality rates it is crucial that PPOR studies expand beyond the metropolitan areas and reach those most at risk.

AAP Nutrition and Physical Activity Recommendations for Preschoolers: Are racially/ethnically diverse families adhering to guidelines?

Authors: Cynthia Lebron
Ruby Natale
Krystal Sardinias
Catherina Chang
Sunil Mathew
Rhoda Moise
Sarah Messiah

Category first choice: Nutrition and physical activity

Data sources utilized: Other

Other data source: The Healthy Caregivers, Healthy Children (HC) RCT

Background: One in four children in the United States under 5 years of age are either overweight or obese with ethnic minority children being disproportionately affected. The American Academy of Pediatrics (AAP) recognizes the best way to approach this public health problem is to address it with parents as early as possible by providing recommendations to guide a number of desired behaviors that have been identified as critical risk and protective factors of obesity. The majority of these behaviors are specific to parent feeding practices and their food and physical activity choices for their young children. Few studies have investigated how behaviors vary by race/ethnicity. Those that have indicated that Hispanic and black populations are at a higher risk of almost every obesity related risk factor than non-Hispanic whites.

Study questions: Examine adherence to AAP nutrition and physical activity recommendations for families with preschool age children by self-identified race/ethnicity.

Methods: We utilized baseline data from an ongoing randomized clinical trial evaluating the efficacy of a child care center-based obesity preventive intervention. The study sample (N=993) was comprised of children ages 2-to-5 years from 28 subsidized childcare centers in Miami-Dade County, FL. Adherence to AAP recommendations was measured using the Healthy Kids Checklist (HKC), a 45-item scale that assesses determinants of obesity using parental responses on behalf of their preschool-aged children. Each AAP recommendation was matched with corresponding HKC items. Responses were dichotomized into recommendation 'met' or 'not met'. Unadjusted association between race/ethnicity and AAP recommendation adherence was assessed via Pearson χ^2 tests.

Results: In this large sample of racially/ethnically diverse [42% Hispanic (non-Cuban), 16% Cuban, 14%, black (non-Hispanic, non-Haitian), 14% Haitian, 3% white (non-Hispanic), and 11% other] low-income preschoolers, we discovered a low adherence to AAP nutrition and physical activity recommendations that may protect children's risk for obesity. The physical activity recommendation had the highest adherence (77.4%) while the screen time recommendation had the lowest adherence (19.4%) across all

groups. Protective factors of parent modeling (32.5%, $p=.004$), providing healthy foods (50.8%, $p<.001$), and providing choice (31.7%, $p=.002$) were highest in black children. Haitian families reported the highest prevalence of playing time inside not watching TV (30.1%, $p=.001$) but conversely also reported the highest rate of playing video games for over an hour per day (36.6%, $p=.003$). While Non-Cuban Hispanics reported high rates of sugar-sweetened beverage (SSB) consumption (59.8%), Cuban families reported the lowest rates of SSB consumption (34.8%, $p<.001$).

Conclusions: Although we found that overall rates of AAP nutrition and physical activity recommendation(s) adherence are poor in our sample, adherence levels vary substantially by race/ethnicity. This suggest that large racial/ethnic categories may veil subgroup obesity risk and protective behaviors. These findings can contribute to the growing body of literature that supports the need for early life obesity prevention efforts, but also the need for culturally sensitive strategies that recognize interracial differences in obesogenic risk and protective behaviors.

Public Health Implications: Our findings provide insight for the gaps in actionable recommendations of the AAP and rationale for testing culturally sensitive interventions in early life to reduce disparities in obesity prevalence.

Youth transitional support differs by race/ethnicity and functioning: Data from the National Survey of Children with Special Health Care Needs

Authors: Michael Argenyi
Candice Belanoff

Category first choice: Children and youth with special health care needs

Category second choice: Racism, equity, and social justice

Data sources utilized: CSHCN Survey

Linked data file: 2009/2010 NS-CSHCN

Background: Children with special health care needs often require additional support for transitioning to adult care providers successfully. Little in the literature has analyzed the number of functional disabilities as a proxy of complexity, but healthcare professionals readily acknowledge that increased complexity is an articulated barrier to transition. One article on racial/ethnic disparities based on the 2005/2006 National Survey of Children with Special Health Care Needs found that Black and Hispanic youth with special needs were less likely to receive transition support.

Study questions: What is the relationship between the number of functional difficulties and provision of clinical support for transition? Are there racial/ethnic inequities in receiving clinical support?

Methods: We used the National Survey of Children with Special Health Care Needs in 2009/10, subsetting the data to ages 12-17 who did not have a pediatric health care provider who could also provide adult care. Using SAS 9.4, the authors conducted logistic regression models to explore relationships between meeting all three survey items of receiving clinical support toward transition and number of functional difficulties as well as race/ethnicity. Data are limited by recall bias as a retrospective survey, bias through parent perspective, non-response bias and non-random bias. Validation with medical records or health care providers is not available.

Results: We found that only 44% of youth ages 12-17 ($n = 16,222$) met all clinical support benchmarks. Preliminary results showed that children with 4 or more functional difficulties were 3.2 times less likely as those with no difficulties to receive comprehensive transition support. The overall relationship between the number of difficulties and transition is inverse and linear. However, Black and Hispanic children were less likely (2.0 and 2.3 times less likely, respectively) than non-Hispanic white children to receive transition support, regardless of number of functional difficulties. Results do not account for all potential mechanisms or causes of differing experience based on race/ethnicity, nor does it stratify by specific functional difficulty.

Conclusions: Preliminary conclusions reveal that youth with special health care needs are less likely to receive clinical support for transition to adult health care if they have an increasing number of functional difficulties, with outcomes worse for 4 or more difficulties. Youth with special health care needs who are Black or Hispanic are also less likely to receive clinical support for transition, regardless of other factors.

There seems to be an additive relationship, revealing that both functional status and race/ethnicity independently impact whether the health care team provides counseling on transition to adult care.

Public Health Implications: These disparities in adequate transition support from clinical providers warrant a closer look at sources of gaps in our systems of care for youth with special healthcare needs transitioning to adult care, with a special emphasis toward those with more functional difficulties or from racial/ethnic minority groups.

Maternal and Infant Vulnerability in Relation to Congenital Anomalies and Infant Mortality

Authors: Chelsea Abshire
Joan Ehrhardt
Glenn Copeland
Lorrie Simmons
Chris Fussman

Category first choice: Birth defects/developmental disabilities

Category second choice: Perinatal outcomes

Data sources utilized: Birth Defects Registry/Surveillance; Birth/Death Certificates; Linked Data File

Linked data file: Two linked files were used in this analysis. The first is a file that contains Michigan birth certificates that are linked to their corresponding death certificates (if applicable), and the second was the birth-death linked file subsequently linked to the Michigan Birth Defects Registry.

Background: Congenital anomalies are the leading cause of infant mortality in the United States. Although the cause of congenital anomalies is often unknown, a mother's vulnerability, as measured by the number of concurrent risk factors she experiences, may play a role. Likewise, adverse birth outcomes frequently accompany congenital anomalies leading to greater infant vulnerability. Therefore, infants born with congenital anomalies to vulnerable mothers, as well as infants born with congenital anomalies who are at increased vulnerability due to adverse birth outcomes may be at greater risk for infant death.

Study questions: The purpose of this study is two-fold: (1) to identify maternal and infant risk factors associated with congenital anomalies and infant deaths, and (2) to assess the impact of maternal and infant vulnerability on infant deaths in those reported with a congenital anomaly.

Methods: We conducted a retrospective cohort study of infants born in Michigan between January 2004 and December 2013. The Michigan Resident Live Birth linked to infant death file was deterministically linked to the Michigan Birth Defects Registry to create a dataset spanning the study period. Selected risk factors, identified through bivariate analyses, were used to create two propensity scores to estimate vulnerability. The first propensity score was based on maternal risk factors (i.e. chronic diabetes, chronic hypertension, smoking, minority race, low level of education, etc.) and the second was based on infant risk factors (preterm birth, low birth weight, NICU admission). Generalized Estimating Equation (GEE) regression models were used to assess the impact of maternal and infant vulnerability on the risk of infant death among infants with a reported congenital anomaly.

Results: During the study period, 8,631 of the 1,204,642 infants born in Michigan died before their first birthday. Congenital anomalies were reported in 133,929 infants and of these 3,439 experienced an infant death. Bivariate analyses revealed that among infants reported with a congenital anomaly, all maternal risk factors except for maternal race and chronic diabetes were statistically different by infant death status. Additionally, among infants reported with a congenital anomaly all infant risk factors were statistically different by infant death status. GEE regression models revealed that among infants with a

reported congenital anomaly, the risk of infant death increased with increasing maternal (RR 4.37; 95% CI 4.18-4.58) and infant (RR 2.37; 95% CI 2.25-2.49) vulnerability.

Conclusions: Maternal and infant vulnerability place infants with a reported congenital anomaly at a greater risk for infant death.

Public Health Implications: These findings demonstrate the need for continued focus on programs to support our most vulnerable populations.

Association of maternal characteristics with delivery <32 weeks in a non-level III NICU and subsequent infant transfer among Colorado mothers

Authors: Stephanie Bourque
Blair Weikel
Kristin Crispe
Suhong Tong
Sunah Hwang

Category first choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates; Other

Other data source: Colorado Rural Health Center county designation data

Background: The American Academy of Pediatrics recommends infants <32 weeks gestational age (GA) deliver in level III NICUs. Very low birthweight (VLBW) infants born in non-level III NICUs have increased risk of morbidity and mortality. Regional data regarding deliveries of infants in inappropriate levels of neonatal care is lacking.

Study questions: 1) Determine incidence of births <32 weeks GA and/or BW <1500g in non-level III NICUs in Colorado; 2) Evaluate maternal characteristics associated with <32 week GA delivery in non-level III NICUs; 3) Among infants born in non-level III NICUs, determine the prevalence and characteristics of <32 week GA infants who are transferred within 24 hours (h).

Methods: Colorado birth certificate data (2007-2016) for <32 week GA births was linked to Colorado Rural Health Center county designation data (urban, rural or frontier). Bivariate associations of maternal characteristics with non-level III NICU delivery were estimated using chi-square tests. Multivariable logistic regression was used to assess the independent relationship between maternal characteristics and non-level III NICU delivery as well as infant transfer within 24h, controlling for previous preterm births and maternal comorbidities of hypertension and gestational diabetes.

Results: 736 (10.1%) of the 7308 <32 week GA births occurred in non-level III NICUs. In the adjusted analysis, significant maternal characteristics associated with non-level III NICU delivery included no insurance vs. private insurance (AOR 1.54, 95%CI 1.12, 2.14) and residence in rural (AOR 1.66; 95%CI 1.37, 2.02) or frontier (AOR 3.44; 95%CI 2.23, 5.32) vs. urban counties. Among infants born in a non-level III NICUs, 333 (45.2%) infants were transferred within 24h; these infants were more likely to be born to mothers who reside in rural (AOR 3.49, 95%CI 2.23, 5.46) or frontier (AOR 9.71, 95%CI 2.79, 33.84) vs. urban counties and to have public (AOR 2.59, 95%CI 1.74, 3.86) or no insurance (AOR 2.14, 95%CI 1.05, 4.39) vs. private insurance.

Conclusions: Mothers living in rural and frontier counties are at greater risk for delivering <32 week GA infants in a non-level III NICU. Among <32 week GA infants born at non-level III NICUs, maternal insurance and place of residence are significant factors for transfer within 24h of birth. Ongoing research is needed to optimize risk appropriate care for premature infants within Colorado.

Public Health Implications: The results of this study may be used for provider education within the region regarding high-risk mothers who are appropriate for antenatal transfer as well a policy implications regarding classification of neonatal levels of care within the state of Colorado.

The Evidence Base for Maternal and Infant Health: Moving Down the Health Impact Pyramid

Authors: Amy Williamson
Deborah Ehrenthal
Robin Lankton

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: Cochrane Reviews, What Works for Health, PubMed systematic reviews, US Preventive Services Task Force Recommendations, American College of Obstetricians and Gynecologists Committee Opinions, American Academy of Pediatrics Policy Statements

Background: The United States has profound disparities in infant and maternal outcomes based on race, ethnicity, socioeconomic status, geography and other characteristics. The evidence base contains a myriad of evidence-based strategies that states, communities, health care systems and programs can use to improve birth outcomes for moms and babies. While strategies cross multiple levels of intervention, where they fit on Frieden's Health Impact Pyramid (AJPB 2010) – and thus how impactful they are on a population level – has not been systematically studied.

Study questions: We have two study questions. First, which interventions to improve infant and maternal outcomes are scientifically supported (rigorously tested with consistently positive results)? Second, at what level of Frieden's Health Impact Pyramid (AJPB 2010) do these evidence-based operate?

Methods: Using keywords customized to each source, we identified systematic reviews of strategies to improve infant and maternal outcomes in the Cochrane Library, What Works for Health, PubMed, US Preventive Services Task Force, American Congress of Obstetricians and Gynecologists Committee Opinions, and American Academy of Pediatrics Policy Statements. These "hits" were then reviewed for scientific rigor (based on multiple robust studies) and outcomes (consistently positive impact on birth outcomes for infant or mother). This resulted in a compendium of evidence-based strategies which we then coded by intervention type according to Frieden's Health Impact Pyramid (socioeconomic, changing the context, long-lasting protective, clinical, and counseling/educational).

Results: We identified 65 evidence-based strategies. The majority were at the top of the Health Impact Pyramid (15% counseling/education, 49% clinical) and require extensive individual-level intervention. 26% were long-lasting protective interventions. Only 9% of evidence-based strategies addressed changing the context (3%) or socioeconomic factors (6%). Of those strategies for which there was insufficient evidence, the vast majority (73%) were clinical.

Conclusions: There is no silver bullet to improve maternal and infant outcomes. States, communities, healthcare providers and programs can have the most impact on birth outcomes if they use strategies which address each of the levels of the Health Impact Pyramid, including the complex and politically

more difficult socioeconomic factors at the base. This analysis indicates that evidence-based strategies exist at each level. However there are fewer strategies at the more impactful (lower) levels which reach broader segments of society and require less individual effort. There is a need for more research on strategies which can reach more people and have greater impact.

Public Health Implications: There is broad support for improving maternal and infant health in the United States and a history of investment in individual level interventions. However, there are few scientifically supported strategies which address the lower levels of the Health Impact Pyramid, that is, strategies which have broad population impact and require less individual effort. This study highlights the need to expand the evidence base of population level strategies in order to empower states, communities, healthcare providers and policy makers to more effectively improve birth outcomes for populations at greatest risk.

Violence Against Youth with Disabilities: Residual Physical and Mental Health Symptoms

Authors: Robbie Dembo
Monika Mitra
Eliana Rosenthal
Ilhom Akobirshoev

Category first choice: Children and youth with special health care needs

Category second choice: Trauma, violence, and injury

Data sources utilized: Other

Other data source: National Crime Victimization Survey

Background: Adolescents and youth with disabilities are more likely to experience violence compared to their peers. The elevated risk of victimization extends across many types of crimes and maltreatment, and has been observed among youth with physical, intellectual, developmental, and learning disabilities. Research has also identified significant health disparities between people with and without disabilities – including children and youth. The aim of this study was to examine the physical and mental health consequences of violence against youth with disabilities, and the extent to which these consequences differed from those experienced by youth without disabilities.

Study questions: Do youth with and without disabilities experience different physical and mental health consequences following violence victimization?

Methods: We pooled waves from 2008 to 2014 from the National Crime Victimization Survey, a nationally representative survey on the prevalence, characteristics, and impact of crime in the U.S. We limited our sample to respondents between the ages of 12 and 19 who experienced sexual or non-sexual assault, robbery, or a threat of violence. Youth with disabilities were identified as having a vision, hearing, cognitive, physical, or self-care disability. The sample was comprised of 728 youth, 16% of whom had a disability. Logistic regressions were estimated to examine the adjusted odds of experiencing select physical and mental health symptoms in the aftermath of a violent incident.

Results: After controlling for potentially confounding variables, youth with disabilities who were victims of violence had significantly higher odds of experiencing difficulty sleeping (aOR: 2.0, $p < 0.01$), a change in eating or drinking (aOR: 2.5, $p < 0.001$), fatigue (aOR: 2.6, $p < 0.001$), high blood pressure (aOR: 4.0, $p < 0.01$), muscle pain (aOR: 3.2, $p < 0.001$), and severe distress (aOR: 2.1, $p < 0.01$) as compared to youth without disabilities. Youth with disabilities were also marginally more likely to experience depression (aOR: 1.5, $p = .07$). No differences were observed in the odds of experiencing an upset stomach ($p = .61$) or anxiety ($p = .50$).

Conclusions: Youth with disabilities, who are exposed to higher rates of physical maltreatment, also experience adverse physical and mental health symptoms following violent incidents. This suggests that individuals with greater medical vulnerability may be particularly susceptible to developing secondary ailments as a consequence of violence victimization.

Public Health Implications: Public health researchers and policymakers interested in closing adolescent health disparities should focus on the heightened risk of violence against youth with disabilities, as well as the unequal health impacts of violent crime. Violence prevention and intervention efforts can play a larger role in health policy, specifically with respect to people with disabilities. This study's results also suggest the need for health care providers and agencies that serve youth with disabilities to include items about violence victimization during routine screenings and assessments. Finally, it is important that people who experience violence have adequate access to physical and mental health care. To that end, attention should be directed toward removing barriers to health services for people with disabilities and victims of violence.

Health behaviors associated with oral health status and practices in second grade children in Texas, SPAN 2015-2016

Authors: Debra Saxton
Rhonda Stokley
Keisha Jones
Natalie Archer
Deanna Hoelscher

Category first choice: Child/adolescent health

Category second choice: Nutrition and physical activity

Data sources utilized: Other

Other data source: Texas School Physical Activity and Nutrition (SPAN) survey

Background: A healthy mouth is good for your body. Without proper oral hygiene, bacteria may increase and lead to tooth decay and gum disease. Starchy, refined carbohydrates, or foods such as chips, bread, or pasta can be harmful to teeth. Foods high in carbohydrates, sugars, and starches greatly contribute to the production of plaque acids that attack the enamel. Eventually, these acids can cause tooth enamel to break down, forming a cavity. Preliminary research has also suggested an association of sleep deprivation with severity of periodontal disease. Taking good care of your mouth, teeth, and gums at any age is a great investment in overall health.

Study questions: What behaviors are associated with oral health status and practices in second grade children in Texas

Methods: The School Physical Activity and Nutrition (SPAN) survey, a cross-sectional statewide survey, was carried out on a sample of 2,317 second graders attending public schools, representing 320,800 2nd graders in Texas. Parents of study participants completed a self-administered questionnaire to assess health behaviors and oral health. Weighted logistic, ordinal, and multinomial regression were used to determine associations between health behaviors and oral health status or practices. Covariates included gender, race-ethnicity, and highest household education level.

Results: SPAN survey results indicated that nearly 40% of all second graders in Texas had consumed sweet/savory snacks (chips, frozen desserts, donuts, or gummy/hard candy) at least 3 times the day prior to their parents' answering the survey. Second graders who had sweet/savory snacks at least 3 times during the previous day had 2.3 times higher odds of having a sore mouth or teeth at least twice in the past year, compared with 2nd graders who did not have any sweet/savory snacks during the previous day. Almost one-third (31.6%) of second graders did not meet Centers for Disease Control and Preventions sleep recommendations (9 or more hours/night). Second graders who had less than 9 hours of sleep on an average school night were significantly more likely to have never seen a dentist for a check-up, teeth cleaning, or other dental work during the past year, compared with 2nd grade students who slept 9 or more hours a night. Second graders who had a sore mouth or teeth at least twice in the

past year had a 5.8 times higher odds of having at least one dental absence from school because of problems with their teeth or mouth in the past year, compared with 2nd graders who did not have a sore mouth or teeth in the past year.

Conclusions: Young children who eat sweet/savory snacks and get less than the recommended hours of sleep on an average school night are more likely to partake in inadequate oral health practices; these practices can lead to absences from school.

Public Health Implications: Good nutrition, recommended sleep, and oral health promotion need to be priorities for early elementary school children.

Maternal pregnancy complications in women with a history of bariatric surgery

Authors: Kara Christopher
Betelihem Tobo
Eric Adjei Boakye
Pamela Xaverius

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: Maternal obesity

Data sources utilized: Other

Other data source: National Inpatient Sample

Background: Obesity in pregnancy is a major public health concern in the United States, with the CDC reporting that 33-39% of women aged 20 to 44 have a BMI greater than 30 kg/m². Bariatric surgery (BS) is a weight loss solution recommended for those with Type III obesity (BMI \geq 40 kg/m²) or Type II obesity (BMI 35 kg/m² to 39.9 kg/m²) with comorbidities. However, the impact of BS on maternal pregnancy complications is not clear. We examined the effect of BS on maternal pregnancy complications, including pregnancy induced hypertension, pre-eclampsia or eclampsia, gestational diabetes, preterm birth, and cesarean delivery.

Study questions: Are women who had BS prior to pregnancy more likely to have maternal complications than women who did not have BS?

Methods: Data from the 2014 National Inpatient Sample, a publicly available dataset that contains information from inpatient hospital stays, sampling approximately 20% of hospital discharges, were analyzed. Women (aged 20-44) with maternal/neonatal admission code, bariatric surgery, and maternal complications were identified using the International Classification of Diseases, ninth edition. Weighted logistic regressions were conducted to examine the association between BS and maternal complications, adjusting for age, race, insurance status, history of diabetes, history of hypertension, and obesity.

Results: A weighted total of 4,032,870 women had a maternal or neonatal admission code, of whom 6,855 women (0.20%) had a history of BS. Among women who had BS, 65% did not have obesity as a comorbidity. Compared to women without a history of BS, women with a history of BS were older (mean age=32.70, SD=4.99 vs. mean age=28.50, SD=5.69, $p<.001$), more likely to have obesity (cOR=6.75, 95%CI: 6.42-7.09) or diabetes (cOR=3.27, 95%CI: 2.91-3.67). In the adjusted models, a history of BS was associated with increased odds of pregnancy induced hypertension (aOR=1.19, 95%CI: 1.10-1.30), preterm birth (aOR=1.33, 95%CI: 1.22-1.46), and cesarean delivery (aOR=2.18, 95%CI: 1.78-2.67). However, BS was associated with decreased odds of pre-eclampsia or eclampsia (aOR= 0.88, 95%CI: 0.80-0.97). There was not a significant association between gestational diabetes and BS. Limitations include the relatively small sample (0.2%) of women who had an ICD-9 code for pregnancy complications due to BS and possible other diagnoses that are not included in the discharge data.

Conclusions: Women who have had BS may be at increased risk for maternal pregnancy complications when compared to women without a history of BS. This study suggests that, while helpful for weight loss, BS can present maternal complications at a rate higher than the general population, even after successful weight loss.

Public Health Implications: BS is viewed as the only curative treatment for obesity. However, in this study not only was there an increased risk of some maternal pregnancy complications, women who had a history of BS were also nearly 7 times more likely to still be obese than those who did not have BS. We need to continue to monitor women who have had BS and make sure they get adequate care to manage their weight and these potential pregnancy complications.

Area poverty and the Leading Causes of Term Infant Death: United States 2012-2013

Authors: Yousra Mohamoud
Deborah Ehrenthal

Category first choice: Environment place and health

Category second choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates; Other

Other data source: linked birth/death certificates with US census data on poverty and urban-rural classification at the county level

Background: Despite recent declines, infant mortality in the US is among the highest compared to other developed countries. Recent studies suggest that these cross-country disparities are mostly driven by higher term death rates in the US. Still, there is a dearth of studies investigating drivers of term infant mortality. Evidence suggests that cross-country disparities are influenced by socioeconomic disparities. No research, however, has examined if mortality rates from the leading causes of term infant death differ by area poverty level.

Study questions: What are the leading causes of term infant deaths in the US? Are there differences in the rates of the leading causes of term infant deaths among different poverty level areas?

Methods: We merged geocoded period linked birth and infant death files for the years 2012-2013 from the National Center for Health Statistics, with US Census county-level estimates of percent of children <18 years old living in poverty defined by county maternal residence. To focus on term births, we excluded births at <37 weeks gestation. Counties were assigned to one of three poverty groups: <10% (low poverty), 10.0-19.9% (medium poverty), and $\geq 20.0\%$ (high poverty). Rates for specific causes of death were based solely on the underlying cause of death. Out of 130 selected ICD-10 causes of infant death we assigned 1 of 71 rankable causes of infant death as defined by NCHS.

Results: Infant mortality rate among term births was 2.1 per 1,000 live births. Two-thirds of these occurred in the postneonatal period. The three leading causes of term deaths were: birth defects (29.5%), sudden infant death syndrome (15.6%), and complications during the perinatal period-including complications during pregnancy, labor and delivery (14.7%). This pattern in the leading cause of term deaths was maintained in low poverty (birth defects 33%, sudden infant death (SIDS) 15.5%, and complications during the perinatal period 14.6%) and medium poverty counties (birth defects 30.4%, SIDS 16.9%, and complication during the perinatal period 13.0%). In high poverty counties, however, accidents rose up as the third leading causes of term deaths (13.1%), after birth defects (29.3%) and SIDS (17.1%). Additionally, the cause-specific mortality rate in high poverty counties was almost twice as high for every leading cause of death compared to low poverty counties, and almost three times as high for accidents and assaults.

Conclusions: High poverty counties not only have a much higher cause-specific term infant mortality rate than counties with lower poverty, but the ranking of leading causes of death is different. The higher

ranking of accidents and assaults in high poverty counties highlights the importance of context on term infant mortality.

Public Health Implications: These results are part of a larger study investigating the effect of area socioeconomic status on term infant mortality independent of individual maternal risk factors. Findings suggest that interventions targeted at reducing term infant mortality in the US need to adopt a social determinants of health framework and focus on context, in particular place safety, in addition to individual behavior and risk factors.

Examining prenatal care initiation and barriers for women with pre-existing conditions in Virginia

Authors: Meagan Robinson
Kenesha Smith

Category first choice: Women's/maternal health

Category second choice: Life course perspective

Data sources utilized: PRAMS; Birth/Death Certificates

Background: Inadequate prenatal care (PNC) is associated with morbidity and mortality in pregnancies complicated by chronic conditions, including mental illness. In the United States, over 12% of women of reproductive age (18-44 years) suffer from a chronic medical condition, especially diabetes and hypertension. In Virginia, 31% of adult women reported ever being told they have high blood pressure (2015), 20% depression (2016), and 10% diabetes (2016). Chronic diseases significantly increase the odds for poor maternal and newborn outcomes among pregnant women.

Study questions: What PNC barriers are reported by mothers of reproductive age with pre-existing conditions in Virginia?

Methods: Virginia PRAMS data (2012-2015) were analyzed for this cross-sectional study. The study group included women of reproductive age who responded to the question stating, "Before you got pregnant with your new baby, did a doctor, nurse, or other health care worker tell you that you had any of the following health conditions?" (n=2,035). Participants may choose from type 1 or type 2 diabetes, hypertension, or depression. PNC initiation by trimester, PNC barriers, and demographic factors were calculated for pre-existing conditions vs. those without. Analyses were conducted in SAS 9.4/SUDAAN and weighted to produce unbiased estimates.

Results: Fourteen percent of women in the study years reported pre-existing conditions: 2.7% diabetes, 4.7% hypertension, and 9.9% depression. The percentage of women with vs. without hypertension who initiated PNC were: 1st trimester (73.4% vs. 84.4%), 2nd trimester (24.6% vs. 14.4%), 3rd trimester (0.1% vs. 0.4 %), and no prenatal care (1.9% vs. 0.8%) (p=0.04). Approximately 23.8% of women with pre-existing conditions did not receive PNC as early as desired (p= 0.0077), where: depression vs. non-depression were 23.3% and 15.2% (p= 0.04) respectively and hypertension vs. non-hypertension were 33.6% and 15.1% (p= 0.0009). Common barriers among women with pre-existing conditions included: no appointment when wanted (59.7%), not enough money (14.9%), and not aware of pregnancy (14.3%).

Conclusions: Women with pre-existing conditions, diabetes, hypertension, or depression, initiated PNC later than those without pre-existing conditions did. Differences were observed in PNC initiation among women who reported having hypertension. Women with pre-existing conditions did not receive PNC as early as desired, including women with depression and those with hypertension. A number of barriers to PNC were observed among women with pre-existing conditions.

Public Health Implications: Health care providers, women's health programs, chronic disease programs, and health policy leaders could collaborate to eliminate barriers and support early PNC among women

with chronic conditions including mental health diseases. Further study is needed to understand maternal characteristics associated with PNC initiation and barriers, and whether the existence of multiple conditions is associated.

Medical home and impact on health care experiences and family functioning among children with and without special health care needs

Authors: Ilhom Akobirshoev
Susan Parish
Monika Mitra
Robbie Dembo

Category first choice: Medical home

Category second choice: Children and youth with special health care needs

Data sources utilized: Child Health Survey

Background: To our knowledge, no studies have used the most recent 2016 National Survey of Children's Health (NSCH) to examine differences in access to a medical home and its impact on health care experiences and a family among children with and without special health care needs (SHCN). We describe the characteristics associated with access to medical homes among children with special health care needs (CSHCN) and those without SHCN, and assess the relationship between medical home access and select child health and family functioning outcomes

Study questions: Are there differences in access to a medical home and its components according to SHCN status and select demographic, socioeconomic, and health characteristics among children in the United States? What is the medical home impact on health care utilization, unmet care, family functioning among children with and without SHCN?

Methods: We analyzed new data from the 2016 NSCH, which was recently integrated with the National Survey of Children with Special Health Care Needs (NSCSHCN). Access to a medical home was a composite measure based on five key constructs: having a personal doctor or nurse; having a usual source of care; receiving family-centered care; having no problem receiving referrals; and having effective care coordination. We modeled logistic and multinomial logistic regressions to assess both the predictors and impacts of medical home access for 38,820 children without SHCN and 11,392 CSHCN.

Results: Fewer CSHCN had access to a medical home (43%) compared to children without SHCN (50%). There were disparities in access across several sociodemographic and health-related characteristics. Both CSHCN and children without SHCN who did not have access to a medical home were more likely to have unmet health care needs and have visited the emergency room. Parents of CSHCN without medical home access reported worse overall health than those with access. Lack of access to a medical home was also associated with more work absences and more time arranging child care among parents of children with and without SHCN.

Conclusions: Medical homes are associated with several positive health and family functioning outcomes, but CSHCN have less access than children without SHCN.

Public Health Implications: These findings reinforce the need not only to continue expanding the medical home model, but to ensure that it reaches vulnerable children for whom well-coordinated and care is a priority.

Risk factors associated with inadequate gestational weight gain among recent mothers in Maryland, 2004-2015

Authors: Kate Schneider
Lawrence Reid

Category first choice: Women's/maternal health

Category second choice: Preconception health

Data sources utilized: PRAMS; Linked Data File

Linked data file: Maryland Vital Statistics Administration Birth Certificate Files

Background: A mother's weight gain during pregnancy, or gestational weight gain (GWG), can impact the health of both the mother and the infant. Inadequate GWG is associated with increased risks of preterm birth, low birth weight, and infants born small-for-gestational age. Perinatal Periods of Risk (PPOR) analyses suggest that body mass index (BMI) and inadequate GWG contribute to racial disparities in infant mortality and other adverse birth outcomes in Maryland.

Study questions: The purpose of this study was to understand the characteristics and risk factors associated with inadequate GWG among recent mothers in Maryland.

Methods: Data was obtained from the Maryland Pregnancy Risk Assessment Monitoring System (PRAMS) survey, which are linked to birth certificate files. All data were weighted to account for 1s1u1r1v1e1y1 1d1e1s1i1g1n1 1a1n1d1 1r1e1s1p1o1n1s1e1 1r1a1t1e1 1t1o1 1b1e1 1r1e1p1r1e1s1e1n1t1a1t1i1v1e1 1o1f1 1a1l1l1 1t1h1e1 1b1i1r1t1h1s1 1i1n1 1t1h1e1 1s1t1a1t1e1.1A1n1a1l1y1s1i1s1 1w1a1s1 1l1i1m1i1t1e1d1 1t1o1 1M1a1r1y1l1a1n1d1 1w1o1m1e1n1 1w1h1o1 1p1a1r1t1i1c1i1p1a1t1e1d1 1i1n1 1t1h1e1 1P1R1A1M1S1 1s1u1r1v1e1y1 1f1r1o1m1 121010141-121011151 1w1i1t1h1 1a1 1s1i1n1g1l1e1t1o1n1 1g1e1s1t1a1t1i1o1n1 1a1n1d1 1d1e1l1i1v1e1r1e1d1 1f1u1l1l1-1t1e1r1m1 1(13171-14121 1w1e1e1k1s1)1.1 1P1r1e1-1p1r1e1g1n1a1n1c1y1 1B1M1l1 1a1n1d1 1G1W1G1 1w1e1r1e1 1c1a1l1c1u1l1a1t1e1d1 1f1r1o1m1 1t1h1e1 1m1o1t1h1e1r1s1 1p1r1e1-1p1r1e1g1n1a1n1c1y1 1h1e1i1g1h1t1

Results: Nineteen percent of the mothers had inadequate GWG. Factors associated with increased unadjusted odds of inadequate GWG include third trimester initiation or no prenatal care, smoking during pregnancy, unintended pregnancy, obesity, experiencing three or more stressors during pregnancy, and a diagnosis of hypertension, asthma, anemia, gestational diabetes, or epilepsy. After adjusting for demographic confounders, factors associated with inadequate GWG included obesity (AOR 2.16, 95% CI 1.80-2.60), high blood pressure (AOR 1.85, 95% CI 1.29-2.66), asthma (AOR 1.42, 95% CI 1.11-1.82), anemia (AOR 1.26, 95% CI 1.02-1.54), gestational diabetes (AOR 1.36, 95% CI 1.01-1.83) and epilepsy (AOR 3.98, 95% CI 1.52-10.4). Results varied significantly by race and BMI status such that Black non-Hispanic (NH) mothers (43%) with normal BMIs had inadequate GWG rates that were 60% higher than White NH mothers (27%), but no difference was observed in other BMI categories. Stratified by race, obesity was associated with inadequate GWG for all races (White NH: AOR 3.02, 95% CI 2.29-3.99,

Black NH: AOR 1.50, 95% CI 1.09-2.06, other races: AOR 1.92, 95% CI 1.27-2.91). Other factors associated with inadequate GWG include Medicaid or other non-private insurance, being underweight, and epilepsy among White NH mothers; and gestational diabetes among mothers of other races.

Conclusions: Multiple demographic, behavioral, and preconception health factors were associated with inadequate GWG among Maryland mothers who gave birth from 2004-2015, and these factors varied across races.

Public Health Implications: Understanding the patterns and behavioral and health characteristics associated with inadequate GWG may identify at-risk women and inform interventions, with the long-term effects of reductions in infant mortality and other adverse birth outcomes.

Trends in HIV testing among men and women attending Title X-funded family planning clinics, 2005–2016

Author: Emily Decker

Category first choice: Immunization/Infectious disease

Category second choice: Reproductive health/family planning

Data sources utilized: Other

Other data source: Title X Family Planning Annual Report 2005 - 2016 data

Background: HIV testing is an important preconception health service that can help promote the health of women of reproductive age before conception, thereby helping to reduce pregnancy-related adverse outcomes. The federal Title X Family Planning Program provides accessible and low-cost family planning services, including HIV testing, to family planning clients in the 50 states, District of Columbia, U.S. Territories, and Pacific Basin Jurisdictions. Trends in HIV testing and test positivity among Title X family planning clients have not previously been examined.

Study questions: What are the trends in HIV testing for family planning clients who received services from a Title X clinic from 2005 through 2016?

Methods: Administrative data from the Title X Family Planning Annual Report (FPAR) data system were used to describe HIV testing trends among clients who had at least one clinical encounter during 2005 – 2016. HIV testing rates were calculated as number of tests performed per 10 clients served for males and females, separately. HIV test positivity was calculated as number of positive tests per 1,000 total tests performed.

Results: From 2005–2016, the number of HIV tests performed by Title X-funded clinics rose 91%, from 607,974 (2005) to 1,163,883 (2016), while the number of clients seen annually decreased from approximately 5 to 4 million. The number of tests per 10 female clients increased from 1.1 (2005) to 2.5 (2016), while the number of tests per 10 male clients increased from 3.4 (2005) to 5.7 (2016). The positivity rate for all tests performed increased from 1.8 (2005; n=1,114) to 2.4 (2016; n=2,824) positive tests per 1,000 tests performed.

Conclusions: During 2005 – 2016 the number of HIV tests performed by the Title X program has almost doubled, despite a decline in overall client volume. Although testing rates for both female and male clients increased during this period, in all years the testing rate for males was two to three times higher than the rate for females. The increase in HIV test positivity suggests that Title X providers are helping persons living with HIV know their serostatus, allowing for timely linkage for HIV care and treatment services.

Public Health Implications: Title X clinics have played an increasingly important role in HIV prevention through identification of individuals at risk or infected with HIV.

An Examination of Newborn Screening Specimen Collection and Transit Time in Mississippi, 2012-2017

Authors: Ninglong Han
Beryl Polk
Alyce Stewart
Lei Zhang

Category first choice: Newborn screening

Data sources utilized: Other

Other data source: The data was obtained from the PerKinElmer Genetics, Laboratory database, which is contract Laboratory of Mississippi newborn screening program.

Background: Newborn screening provides early detection of numerous disorders so that timely treatment can be initiated and long term sequelae minimized. In 2015, the U.S. Department of Health and Human Services Advisory Committee (DHHSAC) recommended time-frame goals for newborn screening. A baby's blood sample should be collected within 24-48 hours of birth and the blood samples should arrive at the lab within 24 hours of collection. The committee recommended that 95% of specimens should meet each time-frame goal.

Study questions: This study examined the times for specimen collection and specimen transit, and to identify hospital performance over the past 6 years.

Methods: The study used newborn screening data from 2012 to 2017. A total of 45 birthing facilities were selected as the study samples, accounting for about 99.9% of Mississippi births during 2012-2017. A total of 237,213 specimens were used in the study. The collection times were divided into three levels: 0-23 hours, 24-48 hours, and more than 48 hours. The transit times were divided into three levels: 0-24 hours, 25-72 hours, and more than 72 hours. The frequencies of those levels were calculated by year and hospital. The Chi-Square test was used to analyze collection and transit time levels.

Results: The percent of collection time between 24-48 hours significantly increased from 88.7% in 2012 to 93.3% in 2017 ($p < 0.0001$). The percent of collection time more than 48 hours significantly decreased from 10.2% in 2012 to 5.8% in 2017 ($p < 0.0001$). Eight birthing facilities had equal or more than 95% samples collected within 24-48 hours during 2012-2017. Twenty-three birthing facilities' specimen collection times within 24-48 hours ranged from 90%-94% during the same time period. Meanwhile, the percent of transit time equal or less than 24 hours fluctuated between 2.3% and 3.1%; the percent of transit time 25-72 hours significantly increased from 64.1% in 2012 to 73.6% in 2016 ($p < 0.0001$), but significantly decreased to 71.5% in 2017 ($p < 0.0001$). There were 20 birthing facilities with more than 30% of samples taking more than 72 hours to reach the laboratory. The mean transit time decreased from 2.5 days in 2012 to 2.2 days in 2014, but increased to 2.33 days in 2017.

Conclusions: The time for specimen collection during 24-48 hours for Mississippi newborn screening has improved significantly during 2012-2017. In 2017, 93.3% of specimen met the goal of 24-48 hours. However, for the goal of 95% specimen transit time within 24 hours, only 2.3% -3.1% specimens met the

criteria during the same time period, whereas the percent of transit time 72 hours or less improved from 66.3% in 2012 to 74.0% in 2017.

Public Health Implications: In order to meet the goals of DHHSAC recommended in 2015, the Mississippi State Department of Health's Newborn Screening Program can use this study as a baseline to identify ways to implement continuous quality improvement within the birthing facilities and the contract laboratory to address issues expeditiously.

Effect of question changes on reported pregnancy intentions: Findings from a natural experiment in the United States

Authors: Isaac Maddow-Zimet
Kathryn Kost

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: PRAMS

Background: The Pregnancy Risk Assessment Monitoring System (PRAMS), conducted by the Centers for Disease for Control in collaboration with state health departments, is the largest state-level surveillance system that includes a question on the intention status of pregnancies leading to live births. Data from these surveys are widely used, both to calculate state-level unintended pregnancy rates as well as in analyses investigating the relationship between pregnancy intentions and maternal health behaviors and infant outcomes.

Study questions: In 2012, the annual PRAMS surveys changed the wording of their question measuring pregnancy intention, adding a response option describing uncertainty in pregnancy desire prior to the pregnancy. Our study investigates how this additional response category affected women's responses to the pregnancy intention question. Understanding the effects of this question change is critical because changes in the proportion of women who select each response category could affect estimated levels and trends of the proportion of births in the state that are identified as intended, mistimed or unwanted. This is of special concern given the wide use of these surveys in both tracking descriptive statistics over time and in measuring associations between pregnancy intention and other maternal health behaviors and infant outcomes.

Methods: We use the 2012 change in the pregnancy intention question as a natural experiment, taking advantage of the fact that overall levels of pregnancy intentions among births have been fairly stable over short periods of time within states. Using PRAMS data from 2009-2014 (N=218,278), we employ a regression discontinuity design to test for differences in the proportion of women choosing each response option in the periods pre- and post-question change. We then examine whether the addition of the new response option had differential effects across demographic subgroups.

Results: After the question change was introduced in 2012, women were significantly less likely to respond that at the time they became pregnant they wanted to become pregnant "later" ($b = -.30$), or "sooner" ($b = -.33$). They also were significantly less likely to respond that they "did not want to become pregnant then or at any time in the future" ($b = -.43$). There was no significant change in women's likelihood of selecting the option "I wanted to become pregnant then." We find evidence that the question change had differential effects by age, race and parity, as well as state.

Conclusions: We find that the addition of a new answer option had a substantial impact on women's characterization of their pregnancy intention, drawing responses away from all answer choices except

for “I wanted to become pregnant then.” The question wording effects we identify likely impact estimated levels and trends of the proportion of births that are characterized as intended, mistimed or unwanted, as well as estimates of disparities between demographic groups.

Public Health Implications: These findings suggest that researchers using the pregnancy intention question in PRAMS should not pool PRAMS surveys across the year in which the question wording occurred (2012) and that PRAMS estimates of pregnancy intentions at the state-level are not comparable pre and post-2012.

Classifying children with ASD by service utilization and treatment type: A cluster analysis

Authors: Anne Brisendine
Sarah O'Kelley
Julie Preskitt
Bisakha Sen
Martha Wingate

Category first choice: Birth defects/developmental disabilities

Category second choice: Mental/behavioral health

Data sources utilized: CSHCN Survey; Other

Other data source: Survey of Pathways to Diagnosis and Services

Background: Research consistently shows that disparities in autism spectrum disorder (ASD) identification are significant, but because little evidence exists regarding inherent biological or genetic variation, researchers should also investigate whether the context in which an individual exists raises or lowers the likelihood of gaining a diagnosis and being connected to services.

Study questions: Are there clusters of children with ASD based on service utilization or treatment type, and how do they differ?

Methods: A cluster analysis and follow-up multinomial regression were performed to understand the patterns of service provision in the 2011 Pathways to Services and Diagnosis Survey. A cluster analysis was performed to determine if groups of children with ASD use services similarly. This cluster analysis was performed following a principal components analysis which used 37 variables from the Pathways survey to reduce dimensionality and represent certain aspects of the service and treatment experience of children with ASD. These components were summarized as variables related to medications, private/non-school-based services, school-based services, and services not covered by insurance. A multinomial logistic regression was performed to examine the differences in the groups identified in the cluster analysis. This analysis focused on variables that may be related to disparities in access and use of treatments/services. Analyses were weighted to account for the complex study design of the survey. Limitations of this analysis were related to the secondary, cross-sectional nature of the dataset and availability of relevant variables, as well as the generalizability to an uninsured population.

Results: Six groups were identified through the cluster analysis: High School-Based Service Users, Low Non-School-Based Service Users, High Service and Medication Users, High Service Users (School and Non-School Based), High Medication Users, Low Users (Services and Medications), and Low Coverage. Relative to the High Medication and Service User group, those in the High Service Users and Low Users clusters were less likely to have been reported definite or severe functional limitations compared to mild limitations [adjusted relative risk ratio (aRRR): 0.23, 95%CI= 0.09, 0.56; aRRR: 0.29, 95%CI= 0.12, 0.72, respectively]. Relative to the High Medication and Service User group, those in the High Service Users and Low Coverage clusters less likely to have been diagnosed later (between ages 6 and 17 vs.

between the ages of 0 and 2) when all other variables were held constant (aRRR: 0.10, 95%CI= 0.03, 0.32; aRRR: 0.06, 95%CI= 0.02, 0.24, respectively).

Conclusions: While we cannot determine whether the level of service provision is meeting this population's needs, among those with insurance, children with ASD appear to be receiving an intensity of care relative to their level of disability. The clusters of service usage and coverage offer a new, unique classification scheme separate from phenotypic and symptomatic clustering.

Public Health Implications: By understanding the patterns and disparities in service utilization among children with ASD, we can gain a greater understanding of where to target focused interventions. Better measurement and understanding of the state, regional, and local systems and contexts in which individuals with ASD access services is needed.

Closing the Gap? Assessing Racial/Ethnic Disparities in Breastfeeding Initiation and Duration

Authors: Shanda Vereen
Stephanie Marhefka
Russell Kirby

Category first choice: Other

Other category first choice: Breastfeeding

Category second choice: Nutrition and physical activity

Data sources utilized: Child Health Survey

Background: Breastfeeding rates in the U.S. have been increasing. Historically, Black children have not kept pace with other racial/ethnic groups in improving breastfeeding rates. Up-to-date data as to whether gaps in racial/ethnic disparities in breastfeeding have decreased is hard to obtain because breastfeeding data from large, nationally representative samples have a publication lag-time.

Study questions: To assess whether gaps in racial/ethnic disparities in breastfeeding have decreased, the association between race/ethnicity and breastfeeding initiation and 6-month exclusive duration was measured using data from the 2011-2012 and 2016 National Survey of Children's Health (NSCH).

Methods: Parent/guardian report of child breastfeeding history was assessed for children ≤ 5 years old (2011-2012: N=29,829; 2016: N=14,324) in NSCH using four items: whether the child was ever breastfed or fed breastmilk, age at which breastfeeding stopped, age at which formula was introduced, and age at which anything other than breastmilk was introduced. Breastfeeding initiation was coded as ever breastfed vs. never breastfed and 6-month exclusivity was dichotomized as exclusively breastfed < 6 months vs. exclusively breastfed ≥ 6 months. Child race/ethnicity was categorized as Hispanic, non-Hispanic Black, non-Hispanic White, and non-Hispanic Other. Multivariable logistic regression was used to measure the association between race/ethnicity and breastfeeding initiation and 6-month exclusivity (assessed as separate outcomes). Sensitivity analyses for 6-month breastfeeding exclusivity were conducted for children who were ever breastfed. Children missing outcome data were excluded for all analyses. Models were adjusted for child sex, prematurity, birthweight, insurance, parental education, maternal age at birth, household income, family structure, and household primary language.

Results: In 2011-2012, 79% of children were ever breastfed. Compared to non-Hispanic White children, non-Hispanic Black children were 25% less likely (OR 0.75, 95% CI: 0.61-0.91) to ever be breastfed and Hispanic children were 49% more likely to ever be breastfed (OR 1.49, 95% CI: 1.11-1.99). Additionally, 16% of children were exclusively breastfed for ≥ 6 months. Race/ethnicity was not associated with 6-month breastfeeding exclusivity in the 2011-2012 NSCH dataset. In 2016, 85% of children were ever breastfed. Compared to non-Hispanic White children, non-Hispanic Black children were 47% less likely to ever be breastfed (OR 0.53, 95% CI: 0.39-0.73). In 2016, 7% of children were exclusively breastfed for ≥ 6 months. Race/ethnicity was not associated with 6-month exclusivity in the 2016 NSCH dataset. Sensitivity analyses for 6-month exclusivity showed no association with race/ethnicity in both datasets.

Conclusions: Recent data from the NSCH suggest that breastfeeding initiation is increasing, yet 6-month breastfeeding exclusivity may be decreasing. Additionally, the widening gap in racial/ethnic disparities for breastfeeding initiation may not be apparent for 6-month exclusivity due to the smaller number of children that are breastfeed exclusively for ≥ 6 months. Future work will examine racial/ethnic disparities in breastfeeding by geographic region and how breastfeeding legislation may affect these disparities.

Public Health Implications: Breastfeeding promotion programs and providers should continue to focus on culturally sensitive breastfeeding strategies that address cultural norms preventing initiation. Additionally, programs and providers should focus on social and structural barriers (support, social norms, breastfeeding policies and enforcement) that interfere with breastfeeding exclusivity.

The Effects of Prenatal Cannabis Exposure on Child Development: A Review of the Literature

Author: Kenneth Rosenberg

Category first choice: Child/adolescent health

Category second choice: Other

Other category second choice: Child Development

Data sources utilized: Other

Other data source: Pub Med for literature review

Background: Recent state-based legalizations of medical and recreational cannabis have raised the question of whether the use of cannabis by pregnant women has long term effects on the development of exposed children. The purpose of this review was to explore what we know and what further research is needed to understand what advice providers should give to pregnant women regarding their prenatal use of cannabis.

Study questions: What do we know about the effect of prenatal cannabis exposure on children development?

Methods: Literature about the effect of prenatal cannabis exposure on child development was systematically reviewed. Literature review revealed 48 peer reviewed articles about the effects of prenatal cannabis exposure on child development. However, all of these publications came from only 7 studies. This included 2 studies with follow-up for more than 20 years (and many publications each) -- and 5 studies with shorter follow-up (and one publication each). All of the studies had methodologic problems – especially in their choice of control groups and the use of multiple comparisons.

Results: All of these studies contained one or more serious methodologic flaws. The main strength of this literature is that similar methods have been used in several research studies. The most robust conclusions come from a study that followed children for 22 years and used low-income mothers as controls. Many psychologic tests were administered to the children over that time. They reported that children were more likely to be depressed, had lower IQ and had executive function deficits after prenatal cannabis exposure.

Conclusions: This review’s findings were similar to those of the National Academy of Sciences’ 2017 report on the health effects of cannabis which concluded that “The relationship between smoking cannabis during pregnancy and other pregnancy and childhood outcomes is unclear.” Because of the difficulty in creating a randomized control trial, it seems likely that the best methods for future study would use a prospective, double-blinded, matched pairs method (including some way to control for maternal mental health issues) with long term follow up.

Public Health Implications: In the past few years, several public health agencies have claimed that scientific evidence indicates that women should not use cannabis during pregnancy because of adverse effects on children. Such claims undermine public confidence in public health agencies. A more

appropriate message would identify the paucity of high quality scientific evidence and note that more research is required before public health agencies can provide scientific advice to pregnant women.

Maltreatment Related Outpatient Visits among Children Ages 17 Years and Younger in New York State, 2011-2013.

Author: Lusine Ghazaryan

Category first choice: Child/adolescent health

Category second choice: Trauma, violence, and injury

Data sources utilized: Other

Other data source: New York Statewide Planning and Research Cooperative System (SPARCS) outpatient visit dataset was used for this analysis, which is in the same family of administrative datasets as hospital discharge.

Background: Child maltreatment is an important societal and public health issue. In New York State (NYS), the rate of maltreatment related hospitalizations among children ages 17 years and younger was 6.7 per 100,000 children, which is lower than the nationally reported rate of 9.1 hospitalizations per 100,000 children. However, there are limited data on the epidemiology of outpatient visits related to child maltreatment in NYS.

Study questions: What are the sociodemographic and clinical characteristics of maltreatment related outpatient visits among children ages 17 years and younger in NYS, 2011-2013?

Methods: Using the New York Statewide Planning and Research Cooperative System (SPARCS) outpatient visit dataset, a population-based cross-sectional study was conducted among children ages 17 years and younger in NYS, 2011-2013. To identify maltreated children, International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnostic and external cause of injury codes for maltreatment (995.5-995.59, 995.80-995.85, E967.0–E967.9, E968.4) and a V-code for observation for suspected abuse and neglect (V71.81) were used. Maltreatment related outpatient visit rates were calculated by age, sex, race/ethnicity, region, insurance and disposition. The association of these socio-demographic characteristics with maltreatment related outpatient visits was described using distributions in bivariate and adjusted odds ratios (aOR) in multivariable logistic regression analyses, stratified by age groups (<1, 1-4, 5-9, 10-14, 15-17 year olds).

Results: During 2011-2013, a total of 14,127 maltreatment related outpatient visits among 12,475 children were reported in NYS, yielding an average annual rate of 110.4 visits per 100,000 children. The study found that 0.4% of children with outpatient visits had a diagnosis meeting the maltreatment definition. The average annual rates of maltreatment related outpatient visits per 100,000 population within age groups were 93.4/100,000 in infants <1, 115.2/100,000 in 1-4, 94.6/100,000 in 5-9, 87.5/100,000 in 10-14, and 97.3/100,000 in 15-17 year olds. Based on the results of multivariable analysis, females had higher adjusted odds (aOR=1.7 [1.6-1.8] for 1-4, aOR=1.3 [1.3-1.4] for 5-9, aOR=2.3 [2.1-2.5] for 10-14, aOR=3.7 [3.4-4.1] for 15-17 year olds) of having maltreatment related outpatient visits compared with males. Also, non-Hispanic black children had higher adjusted odds (aOR=1.4 [1.1-1.7] for <1, aOR=1.1 [1.0-1.3] for 1-4, aOR=1.5 [1.3-1.6] for 5-9, aOR=2.4 [2.1-2.7] for 10-14, aOR=2.1 [1.8-2.4] for 15-17 year olds) of having maltreatment related outpatient visits compared with children of all other race/ethnicities. Children on Medicaid, other publicly funded insurance, and whose parents

self-paid had higher odds of having maltreatment related outpatient visits compared with children whose parents had private insurance.

Conclusions: The findings documented the highest rate of maltreatment related outpatient visits among children in the 1-4 year old age group. Additionally, a higher burden of these visits was reported among females, non-Hispanic black children and those on publicly funded insurance.

Public Health Implications: This is the first study to describe maltreatment related outpatient visits among children in NYS. This study establishes the epidemiologic baseline for maltreatment related outpatient visits among children 17 years of age and younger in NYS. Furthermore, this study illustrates the opportunity for using administrative data as a resource to determine the epidemiology of maltreatment related outpatient visits.

Assessing Implementation of Safe Sleep Education in Illinois Hospitals, an Illinois Infant Mortality CoIIN Initiative

Authors: Keriann Uesugi
Amanda Bennett
Yao Xu
Andrea Palmer
Nancy Maruyama

Category first choice: Other

Other category first choice: Safe Sleep/SUID/SIDS

Data sources utilized: Other

Other data source: Original survey

Background: There were 3,700 sudden unexpected infant deaths (SUID) in the United States in 2015. Illinois state law mandates that hospitals educate all parents of infants about safe sleep. The Illinois Infant Mortality Collaborative Improvement & Innovation Network (CoIIN) administered an online survey to understand Illinois hospitals' policies on infant sleep and their practices related to safe sleep education.

Study questions: How do different hospital departments that care for infants (i.e. mother/baby, Neonatal Intensive Care Unit (NICU)/nursery, pediatrics, and emergency) implement safe sleep education?

Methods: An online survey was developed to ascertain the awareness of the law, methods, frequency, and documentation of safe sleep education for parents, the methods and frequency of staff training on safe sleep, and the use of written policies/guidelines on safe sleep education. All maternity hospitals, children's hospitals or pediatric departments, and hospitals with emergency departments that treat infants were eligible to participate. Data were analyzed using simple frequencies by hospital department.

Results: There were 161 unique responses to the survey, with the highest response rate from mother/baby units (67%) and the lowest response rate from pediatric units (10%). Awareness of the law was greater than 85% for all departments except emergency (53%). In-person bedside teaching was the most common method for educating parents with 87% of mother/baby and NICU/nursery departments and 57% of pediatric departments reporting using it "almost always". Informational packets and brochures were also commonly used. Only 13% of emergency departments reported "almost always" using in-person bedside teaching and even fewer reported using informational packets or brochures. Departments mostly documented safe sleep education in nurses' notes, and most departments reported never auditing that documentation (57-74% of departments). Pediatric (57%) and NICU/nursery (45%) departments were most likely to have a written policy related to safe sleep practice. Thirty-seven percent of mother/baby departments had a policy and 22% had written

guidelines. Of those without a policy, 59% intended to write one. Emergency departments were the least likely to have a policy (5%) or written guidelines (5%), and few (14% of those without a policy) intended to write one. In all departments, nurses were the most commonly trained staff (37-94% of departments) on safe sleep and physicians were the least common (5-32% of departments).

Conclusions: Implementation of the Illinois law varied across hospital departments that care for infants. Mother/baby and NICU/nursery departments more frequently provide safe sleep education, have written policies or guidelines in place, and train nursing and other staff on safe sleep compared to pediatric and emergency departments. Overall, emergency departments were the least likely to have safe sleep policies or provide safe sleep education for families of infants.

Public Health Implications: Providing education on safe sleep is more widely implemented in departments that focus on newborn care. There are opportunities to improve implementation in pediatric and emergency departments and reach at-risk infants after the newborn period. Training materials and activities should devote sufficient space and time for educating hospitals on key time points, departments, and scenarios where staff may interact with at-risk infants.

Smoking during pregnancy modifies the effect of 17P on subsequent preterm birth: a 2012-2015 Pregnancy Risk Assessment Monitoring System analysis

Authors: Chelsea Lynes
Kristin Simpson
Harley Davis

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: PRAMS

Background: 17 Alpha-Hydroxyprogesterone Caproate (17P) is prescribed to pregnant women with a history of preterm birth (PTB) to prevent a subsequent PTB. Previous studies have identified a modifying effect of smoking during pregnancy on the effectiveness of 17P in reducing subsequent PTB. These studies were done retrospectively from a randomized control trial on 17P effectiveness. In South Carolina (SC), data on 17P receipt was collected from 2012-2015 via the Pregnancy Risk Assessment Monitoring System (PRAMS), which is a multi-mode survey of new mothers. These data are weighted to mirror the population of moms who gave birth from 2012-2015.

Study questions: Does population-based survey data reflect the modifying effect of smoking during pregnancy on the effectiveness of 17P on reducing subsequent PTB in SC?

Methods: Data were obtained from SC PRAMS Phase 7 (2012-2015), which were linked to birth certificate data (n = 3,191; weighted n = 211,383). The study sample was restricted to those who had a previous PTB self-reported on their PRAMS survey or reported on the birth certificate (final n = 485; weighted n = 19,868). 17P receipt was obtained from the response to the question, "During your most recent pregnancy, did a doctor, nurse, or other health care worker try to keep your new baby from being born too early by giving you a series of weekly shots of a medicine called Progesterone, Makena®, or 17P (17 alphahydroxyprogesterone)?" This response was dichotomized (yes/no); those who responded "I don't know" were set to missing. Smoking during pregnancy (last 3 months) was obtained from the PRAMS survey, as well. Finally, subsequent PTB was obtained from the birth certificate and was defined as gestational age <37 weeks. Survey analysis procedures were utilized in SAS 9.4 to obtain overall and stratum-specific prevalence estimates, 95% confidence intervals (CIs), p-values via chi-square tests.

Results: Overall, approximately 25.8% (95% CI: 17.5-34.0) of women with a previous PTB reported receiving 17P during their most recent pregnancy. Among those who received 17P, approximately 4.1% (95% CI: 1.3-6.9) of them reported smoking during pregnancy; while, among those who did not receive 17P, approximately 14.6% (95% CI: 6.6-22.5) of them reported smoking during pregnancy. Among those who did not receive 17P, smoking during pregnancy was not associated with subsequent PTB (p-value: 0.8052). Among those who did receive 17P, smoking during pregnancy was associated with subsequent PTB (p-value: <0.0001).

Conclusions: Smoking during pregnancy was significantly associated with subsequent PTB among those who received 17P, but not among those who did not receive 17P. This finding suggests that smoking during pregnancy is an effect modifier of the association between 17P and subsequent PTB. Limitations to this analysis include: small sample sizes and lack of adjustment for potential confounders, as well as self-reported 17P receipt and smoking during pregnancy.

Public Health Implications: These findings reveal that further investigation into the effectiveness of 17P is needed. Also, they demonstrate the importance of incorporating smoking cessation programs into the family planning and prenatal care settings.

Impact of new racial and ethnic categories from the birth certificate on disparities in preterm birth.

Authors: Melissa Gambatese
Trevor Christensen
Rebecca Russell
Caroline Alter
Katie Sellers

Category first choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates

Background: Racial and ethnic disparities in U.S. preterm birth rates (PTBR, <37 weeks gestation) are well documented, yet disparity estimates have previously been based on a system of categorizing race (referred to as bridged race) that did not allow for the analysis of multiracial women. With the release of the 2016 National Center for Health Statistics (NCHS) natality data, national data for multiracial women, separated from single race women, are now available for the first time.

Study questions: What is the impact of new racial/ethnic categories from the birth certificate on our understanding of disparities in the risk of preterm birth?

Methods: Using NCHS natality data, we calculated 2016 U.S. PTBR for new and bridged maternal race/ethnicity categories. Bridged categories are non-Hispanic (NH) white, NH black, NH American Indian/Alaska Native (AIAN), NH Asian/Pacific Islander, and Hispanic. Within the bridged structure, multiracial women are forced into one of the four racial categories. New race categories (referred to as “single race” by NCHS) include women who selected only one race/ethnicity on the birth certificate. Single categories are NH white only; NH black only; NH AIAN only; NH Asian only; NH Native Hawaiian/Other Pacific Islander (NHOPi) only, and Hispanic. Women who report more than one race are now categorized separately. We also calculated Healthy People 2020 (HP2020) disparity measures (summary rate ratio, maximal rate difference, and maximal rate ratio) for the U.S. for 2016 using bridged and single race categories. Significance of HP2020 measures was assessed using a one-sided z-score, and differences between single and bridged HP2020 measures were assessed using a two-sided z-score ($\alpha=0.05$).

Results: In 2016, NH NHOPi and multiracial women accounted for 0.2% and 2.1% of U.S. births and 0.3% and 2.2% of preterm births, respectively. Single race PTBR were: 13.8% among NH black women, 11.5% among NH NHOPi women, 11.4% among NH AIAN women, 10.2% among multiracial women, 9.4% among Hispanic women, 9.0% among NH white women, and 8.6% among NH Asian women. The disparity between the highest and lowest risk groups (NH black and NH Asian), measured by the HP2020 maximal rate ratio and rate difference, was significantly greater using single race data than bridged (rate ratio: 5.1 vs. 4.9; rate difference: 1.60 vs. 1.56). The HP2020 summary rate ratio, which compares the lowest rate to average of other rates, did not differ significantly with the use of single race.

Conclusions: PTBR based on new race categories demonstrate an increased risk among NH black women and a decreased risk among NH Asian women when compared to bridged estimates, resulting in an even

greater disparity than previously understood. Rates among NH NHOPI and multiracial women, categories not available with bridged race, rank second and fourth highest among all racial/ethnic groups.

Public Health Implications: New race/ethnicity data from birth certificates allow for greater granularity in the calculation of preterm birth risk among racial/ethnic groups. Programs and policies aimed at promoting health equity in birth outcomes should consider using new race categories when identifying and targeting high risk populations.

In-Hospital Mortality Among Adults with Autism Spectrum Disorder in the United States: A Retrospective Analysis of U.S. Hospital Discharge Data

Authors: Ilhom Akobirshoev
Monika Mitra
Robbie Dembo

Category first choice: Life course perspective

Data sources utilized: Hospital Discharge

Background: The number of people with Autism Spectrum Disorder (ASD) diagnoses has increased in the past two decades. ASD has detrimental effects on adaptive functioning throughout life. Prior research indicate that the risk of premature mortality is significantly higher among individuals with ASD, compared with the general population. To our knowledge, no previous studies have examined inpatient hospital mortality among adults with ASD in the United States using a large nationally representative database. We aimed to examine all-cause and cause-specific inpatient hospital mortality among adults with ASD in comparison with the general hospital population, as well as investigate moderating role of gender.

Study questions: Are there differences in an in-hospital mortality, including all cause and cause-specific mortality between adults with and without ASD? Does gender moderate in-hospital mortality among adults with ASD?

Methods: We conducted a retrospective analysis using the 2004-2014 Healthcare Cost and Utilization Project-Nationwide Inpatient Sample (HCUP-NIS). We modeled logistic regressions to assess all-cause and cause-specific inpatient hospital mortality. ASD hospitalizations ("cases") (n=34,267) were identified using ICD-9-CM codes. Non-ASD hospitalizations ("non-cases") (n=102,801) were age matched and sex matched in a 1:3 ratio to cases.

Results: Adults with ASD had higher inpatient hospital mortality than adults without ASD (OR=1.7, 95% CI: 1.3-2.1). This risk remained high even after adjustment for age, gender, race/ethnicity, median household income for patient's zip code, comorbidity, hospital region, and hospitalization year (OR=1.4, 95% CI: 1.1-1.9). Cause-specific analyses indicated elevated inpatient hospital mortality in adults with ASD for infectious and parasitic diseases (OR=1.4, 95% CI: 1.1-1.9), diseases of the nervous system and sense organs (OR=2.7, 95% CI: 1.5-4.9), diseases of the respiratory system (OR=2.0, 95% CI: 1.5-2.6), and diseases of the digestive system (OR=3.2, 95% CI: 2.0-5.4). Inpatient hospital mortality was moderated by gender.

Conclusions: Inpatient hospital mortality among adults with ASD is markedly elevated in comparison with the general hospital population.

Public Health Implications: ASD-related mortality differences suggest the need to improve access to, and quality of preventive, primary and hospital care among people with ASD.

The Impact of Prenatal Stress on Breastfeeding Outcomes: Comparing WIC and non-WIC Enrollees in Wyoming, 2012-2015

Authors: Lorie Chesnut
Lisa Caldwell

Category first choice: Mental/behavioral health

Category second choice: Women's/maternal health

Data sources utilized: PRAMS

Background: The Wyoming Pregnancy Risk Assessment Monitoring Survey (PRAMS) collects state-level population-based information about maternal behaviors, attitudes, and experiences before, during, and after pregnancy. Breastfeeding, which offers many health benefits for women and infants, is a priority of the federal Women, Infants, and Children (WIC) program, serving half of the infants born in the United States and over one-third of Wyoming births. Understanding barriers to breastfeeding, particularly the impact of stress, is an important part of the WIC program.

Study questions: What is the association between stress and breastfeeding outcomes in the Wyoming WIC and non-WIC population? Are observed differences retained after adjustment for maternal characteristics and risk factors?

Methods: Four years of Wyoming PRAMS data (2012-2015; n=2441) were combined for this study with WIC enrollment status self-reported (n=849). Breastfeeding outcomes included initiation and duration (to at least 4 weeks, and to at least 8 weeks). Prenatal stress was also self-reported and categorized into 4 types: financial, partner-related, emotional, and traumatic. Maternal characteristics and risk factors were used to examine the association between stress and breastfeeding outcomes. Three models were created in SAS-callable SUDAAN (Version 11) including Wald Chi Square, bivariable, and multivariable logistic regression. The resulting adjusted odds ratios (AOR) are provided below.

Results: Wyoming WIC enrollees were significantly less likely to initiate (85.0% vs. 92.4%) breastfeeding or to continue until at least 4 weeks (69.4% vs. 84.5%) or until at least 8 weeks (55.1% vs. 78.0%) as compared to non-WIC women. WIC enrollees also reported significantly more partner-related (41.2% vs. 20.7%), financial (67.6% vs. 44.8%), and traumatic stress (24.2% vs. 13.0%) in the prenatal period than non-WIC women. Among non-WIC women who reported traumatic stress, rates of breastfeeding initiation were significantly lower (AOR 0.49 [95% CI 0.26-0.93, p-value=0.0294]), and new moms were less likely to breastfeed to at least 4 weeks (AOR 0.55 [95% CI (0.33-0.94, p-value=0.0277)] or to at least 8 weeks (AOR 0.51 [95% CI 0.32-0.79, p-value=0.0029]) as compared to women who did not experience traumatic stress. In contrast, no significant difference was observed for WIC enrollees who reported traumatic stress for breastfeeding initiation (AOR 1.18 [95% CI 0.65-2.12]), duration until at least 4 weeks (AOR 1.16 [95% CI 0.68-1.96]) or until at least 8 weeks (AOR 1.43 [95% CI 0.87-2.36]).

Conclusions: Women who were not enrolled in Wyoming WIC, and who reported traumatic stress before delivery, were significantly less likely to ever breastfeed or to breastfeed until at least 4 or at least 8 weeks. No similar association between stress and breastfeeding was observed in WIC enrollees.

Public Health Implications: The Wyoming WIC program provides medical and community resource referrals, supplemental foods, nutrition, and breastfeeding education to enrollees. This support during the prenatal and postpartum period may provide additional benefits to help low-income women cope with stress that could otherwise impact breastfeeding outcomes. Understanding the effect of stress on breastfeeding outcomes underscores the importance of breastfeeding support and assistance for all new mothers.

Screening for Illicit Drug Use in Pregnancy: Focus Group Findings from Prenatal Clinic Staff

Authors: Victoria Coleman-Cowger
Nicole Weinstein
Kathleen Trocin
Emmanuel Oga
Katrina Mark

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: Clinic-based care

Data sources utilized: Other

Other data source: Focus groups were conducted with staff from two prenatal clinics associated with University of Maryland Medical Systems in Baltimore in 2017, as part of a NIDA-funded R01 grant project.

Background: Prescription drug misuse and other illicit drug use during pregnancy can lead to significant maternal and neonatal problems. According to 2012-2013 National Survey on Drug Use and Health data, rates of current illicit drug use (inclusive of non-medical use of prescription drugs) were 8.6% among pregnant young adults (ages 18 to 25), and 3.2% among pregnant adults (ages 26 to 44). Over the last 3 decades, use of prescription drugs increased by more than 60%, and use of 4 or more medications during pregnancy more than tripled. The first step in identifying prescription drug misuse and other illicit drug use during pregnancy is screening. Prenatal care medical staff are in a unique position to screen for and intervene with substance use. The American Congress of Obstetricians and Gynecologists strongly recommends substance use screening; yet no specific substance use screener has been recommended for use with pregnant women to identify illicit drug use. It is important to identify a substance use screener that will work well with all pregnant women, but particularly important to ensure that it is acceptable with clinic staff.

Study questions: This study aims to determine prenatal clinic staff perceptions of and opinions related to three existing screeners for illicit drug use during pregnancy: 1) the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST), 2) the 4 P's Plus, and 3) the Substance Use Risk Profile – Pregnancy (SURP-P).

Methods: Eight focus groups with 40 total participants were conducted in two urban obstetric clinics in Fall 2017 to better understand obstetric clinic staff perceptions of the screeners' effectiveness, acceptability, and usability in identifying substance use among pregnant women in the clinical setting. The focus groups were recorded, transcribed, coded, and analyzed using thematic analysis in Nvivo 11 software. Limitations to this study include that it was conducted in one geographic area with a relatively small sample, all participants were women, and no participants were medical doctors. Also, supervisees and supervisors sometimes participated in the same focus group.

Results: Results revealed that length, tone of language, comprehensiveness, subjectivity of the questions, time frame of the questions, scoring and clinician instructions, and ease of implementation were factors considered important by participants. Most participants preferred the 4 P's Plus screener because it is brief, comprehensive, easy to understand for providers and patients, and excludes judgmental language and subjective questions. Focus group participants found that implementing a standardized screener in their practice would be beneficial by identifying substance use in a methodical way and preventing patients from "falling through the cracks" in terms of identifying potential substance abuse concerns during pregnancy.

Conclusions: Providers represented in the focus groups preferred the 4 P's Plus screener for identifying substance use among pregnant patients. They felt that using a standardized screener would improve their ability to identify substance use and subsequently provide intervention.

Public Health Implications: The dissemination of a clear recommendation for a clinically useful prescription and illicit drug screening tool for pregnant women is relevant for public health and will likely increase screening, providing greater opportunity to intervene.

Neighborhood Gun Violence and Birth Outcomes in Chicago

Authors: Nana Matoba
Margarita Reina
Nik Prachand
Matthew Davis
James Collins

Category first choice: Environment place and health

Category second choice: Perinatal outcomes

Other category second choice: Gun violence

Data sources utilized: Birth/Death Certificates; Linked Data File

Linked data file: To Chicago Police Department data, and US Census Bureau data

Background: Low birth weight, preterm birth, and small-for-gestational-age are major determinants of infant mortality in the US. Individual-level risk factors such as maternal socioeconomic status and prenatal care utilization fail to explain why African American race is a risk for poor birth outcomes. An infrequently measured ecologic variable, such as chronic exposure to gun violence, may play a key role in explaining some component of racial disparity. To date, however, there are limited data on the association of maternal exposure to gun violence and subsequent birth outcomes in a large city like Chicago.

Study questions: To examine the association between neighborhood-level gun violence and birth outcomes among women in Chicago and its effects by race/ethnicity.

Methods: A 5-year set of birth files (2011-2015) from Chicago was merged with census and police report data. Preterm birth (PTB, GA <37 wks), low birth weight (LBW, <2500 g), and small-for-gestational-age (SGA, BW for GA <10th %) were examined. Gun violence (gun-related homicides, robbery, battery, sexual or aggravated assault) rates were calculated for each census tract and categorized into tertiles (low, medium, high). Multilevel multivariate logistic regression was performed, adjusting for individual- and neighborhood-level factors and considering potential effect modification of gun violence and maternal race/ethnicity.

Results: Of 175,065 singleton births during the study period, 8.1% of all births occurred in areas in the highest tertile of gun violence; 10.6% of LBW, 10.6% of PTB, and 9.1% of SGA occurred in areas in the highest tertile. Using Non-Hispanic (NH) white women in the lowest violence areas as a reference group, the adjusted odds of LBW births among NH black women ranged 1.9-2.1 across all violence tertiles, and 0.8-1.2 among Hispanic women. Similarly, adjusted odds of PTB for NH black women were 1.6-1.7 and 1.0-1.2 for Hispanic women, and adjusted odds of SGA for NH black women were 1.7-1.8 and for Hispanic women 1.0, compared to NH white women in low violence areas. Importantly, births were asymmetrically distributed by neighborhood-level gun violence exposure across race/ethnicity: more

than 50% of births to NH black women occurred in medium and high gun violence areas, compared with only 27% of births to Hispanic women and 12% of births to NH white women.

Conclusions: Across all gun violence tertiles, risks of poor birth outcomes are higher for NH black women compared to NH white women in low violence areas. How race/ethnicity mediates this gun violence-birth outcomes relationship, remains unclear.

Public Health Implications: The findings of this study may lead to a better understanding of the persistent reproductive disadvantage of NH black women in this country, by highlighting the impact of neighborhood-level stressors such as violence and structural racism.

Relationship of Bullying and Parental Concerns with Child's Weight and Difficulty Making Friends on Physical Activity Participation among Children

Authors: Emmanuel Ngui
Meredith Williams

Category first choice: Children and youth with special health care needs

Category second choice: Child/adolescent health

Data sources utilized: Child Health Survey

Background: Increasing physical activity and reducing bullying victimization among children are major Healthy People 2020 public health goals. Although bullying can decrease physical activity participation among children, it is not clear whether the effect differs between children with and without special health care needs, or parental concerns about child's weight and difficulties making friends.

Study questions: To examine the 1) relationship between bullying and physical activity participation among children with (CSHCN) and without special health care needs (CWSHCN) and; 2) whether parental concern regarding child's weight and difficulties making friends mitigate the effects of bullying on physical activity.

Methods: Bivariate and multivariate logistic regression analyses of data on 50,212 children with and without special health care needs participating in the 2016 National Survey of Children's Health data. The main outcome was participation in physical activity. Main independent variables included whether the child had been bullied (yes/no), special needs status, parent's concerns with child's weight, and difficulty making friends. Covariates included demographic, poverty level, maternal age, child's health status, and TV screen time. Analyses included models stratified by special needs status and combined.

Results: The overall sample consisted of 11,392 children with and 38,820 without special health care needs. Children with special health care needs were less likely to be physically active (46% vs. 54%) and more likely to be bullied (39.7% vs. 17.4%) than those without special needs. Difficulty making friends was significantly associated with greater unadjusted odds of being bullied among children with (OR 6.5; 95%CI 5.23-8.03) and without special health care needs (5.7; 4.81-6.91). In multivariate analysis, the adjusted odds of being physically active were significantly lower for bullied children (0.71; 0.61-0.81). Differences in physical activity between children with and without special needs were almost entirely explained by overall health status. Parental concern with increased child weight was associated with lower odds of physical activity (0.35; 0.29-0.44) but did not attenuate the effect of bullying. Children who had a little (0.65; 0.45-0.76) or a lot (0.36; 0.29-0.67) of difficulty making friends had significantly lower odds of physical activity than those with no difficulties. Making friends attenuated the effect of bullying on physical activity, however a significant three-way interaction was found with odds of physical activity being 68% greater for male CSHCN with no problem making friends (1.68; 1.13-2.50).

Conclusions: Results suggest that friendship-building strategies can help mitigate the effects of bullying on participation in physical activity among children. Difficulties making friends may increase the risk of bullying and reduce participation in physical activity, especially among CSHCN.

Public Health Implications: Policies aimed at increasing physical activity and reducing bullying among children need to also target CSHCN. Strategies are needed to help children, especially those with special health care needs develop skills in building and maintaining friendship with peers which may have a buffering effect on being bullied.

Adverse Childhood Experiences (ACEs) and Chronic Health Conditions Among Different Adult and Racial Groups in TN, WI, NC, and IA

Author: Jillian Duke

Category first choice: Trauma, violence, and injury

Data sources utilized: Other

Other data source: 2012 Behavioral Risk Factor Surveillance System (BRFSS)

Background: Studies have shown that Adverse Childhood Experience (ACEs) play a major role in adulthood mental and physical health. Currently, there is no literature describing the relationship between ACEs and chronic health conditions based on different stages in adulthood and different racial groups.

Study questions: Do ACEs vary between adult age groups, racial groups, individual chronic health conditions, and total number of chronic health conditions?

Methods: Descriptive statistics for sex, BMI, education status, and employment status were produced. An ACE score (ACEtot) was calculated by summing the ACE items for respondents of the four states included in the 2012 BRFSS Survey (Iowa, North Carolina, Tennessee, and Wisconsin). Age groups in this study were 18-24, 25-34, 35-60, 61-73, and 74-99 (reference group). Racial groups in the study were White only (reference group), Black only, and other minorities. The individual chronic health conditions used in this study were skin cancer, other types of cancer, diabetes, depression, coronary heart disease, and chronic obstructive pulmonary disease (COPD). The total number of chronic health conditions (chronictot) was calculated by summing the individual chronic health conditions. Logistic regression was used to determine if ACE score was different among age groups, racial groups, and individual chronic health conditions, and total number of chronic health conditions.

Results: Adults in the age groups 18-24, 25-34, 35-60, and 61-73 had 89%, 87%, 81%, and 59% lower odds of having a low ACE score compared to the 74-99 age groups {{OR: 0.11; 95% CI: 0.095-0.137), (OR: 0.13; 95% CI: 0.108-0.148), (OR: 0.19; 95 % CI: 0.165-0.214), (OR: 0.41; 95 % CI: 0.354-0.464)}. The odds of having a low ACE score were 20% lower for Blacks compared to Whites (OR: 0.80; 95% CI: 0.72-0.89). The odds of having a low ACE score were 19% lower for other minorities compared to Whites (OR: 0.81; 95% CI: 0.72-0.89). Adults who didn't have coronary heart disease, cancers (except skin), COPD, and depression had 1.16, 1.20, 1.74, and 3.48 higher odds of having a low ACE score {{OR: 1.16; 95% CI: 1.01-1.34), (OR: 1.20; 95% CI: 1.06-1.35), (OR: 1.74; 95%CI: 1.54-1.95), (OR: 3.48; 95% CI: 3.21-3.77)}. Adults who had low number of chronic health conditions had a 2.84 higher odds of having a low ACE score compared to adults who did not (OR: 2.84; 95% CI: 1.28-6.28).

Conclusions: Adults in the younger age groups (18-24; 25-34) had more ACEs compared to the oldest age group (74-99). Blacks and other minorities had more ACEs compared to Whites. Adults who had coronary heart disease, COPD, depression, and cancers (except for skin cancer) had more ACEs

compared to adults who don't have those diseases. Adults with multiple ACEs tend to have more chronic health conditions.

Public Health Implications: This study can be used to innovate and promote programs that target ACEs in certain age groups and races to prevent chronic health conditions and sustain healthier lifestyles.

Maternal pregnancy complications in women with a history of bariatric surgery compared to obese women without bariatric surgery.

Authors: Kara Christopher
Betelihem Tobo
Eric Adjei Boakye
Pamela Xaverius

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: maternal obesity

Data sources utilized: Other

Other data source: National Inpatient Sample

Background: Maternal obesity continues to be a major public health concern, with the CDC reporting 33% to 39% of women of reproductive age (ages 20-44[KC1]) as having a BMI greater than 30. Bariatric surgery is a weight loss solution recommended for those with Type III obesity (BMI ≥ 40 kg/m²) or Type II obesity (BMI 35 kg/m² to 39.9 kg/m²) with comorbidities such as heart disease or type 2 diabetes. However, the impact of bariatric surgery on maternal pregnancy complications is not clear. In this study, we examined the effect of obesity and bariatric surgery on maternal pregnancy complications, including pregnancy induced hypertension, pre-eclampsia or eclampsia, gestational diabetes, preterm birth, and cesarean section delivery.

Study questions: Among women with a history of obesity, what is the effect of bariatric surgery on maternal complications?

Methods: Data from the 2014 National Inpatient Sample, a publicly available dataset from the Healthcare Cost and Utilization Project (HCUP) that contains information from inpatient hospital stays, sampling approximately 20% of hospital discharges, were analyzed. Women (aged 18-44) with maternal/neonatal admission code, obesity, bariatric surgery, and maternal complications were identified using the International Classification of Diseases, ninth edition. Covariates were age, race, insurance status, history of diabetes, and history of hypertension. Weighted logistic regression analyses were conducted to examine the association between bariatric surgery and maternal complications, adjusting for covariates using SPSS version 24.

Results: A weighted total of 296,615 women had a maternal or neonatal admission code with obesity and/or a history of bariatric surgery. The sample was primarily white (47.6%), on Medicaid (50.7%) or privately insured (44.0%). Compared to women who did not have bariatric surgery, women who had bariatric surgery were older (mean age=32.7 years, SD=4.99 vs 29.0, SD=5.68, $p<.001$). After controlling for age, race, insurance status, history of diabetes and hypertension, a history of bariatric surgery was associated with decreased odds of pregnancy induced hypertension (aOR=0.76, 95% CI=0.70-0.82), pre-

eclampsia or eclampsia (aOR=0.60, 95% CI=0.54-0.66), and gestational diabetes (aOR=0.55, 95% CI=0.31-0.96) when compared obese women without bariatric surgery. In contrast, a history of bariatric surgery was associated with increased odds of preterm birth (aOR=1.25, 95% CI=1.14-1.38) and cesarean delivery (aOR=1.99, 95%CI=1.61-2.46) in comparison to obese women without bariatric surgery. Limitations include the relatively small sample (2.3%) of women who had an ICD-9 code for pregnancy complications due to bariatric surgery.

Conclusions: This study suggests that, when compared to obese women without bariatric surgery, those who have a history of bariatric surgery may have a decreased risk of some maternal pregnancy complications, though an increased risk of preterm birth or cesarean delivery.

Public Health Implications: In this study, we show that even among women who had surgery and remained obese, there was a decrease in the risk of several maternal pregnancy complications compared to obese women without bariatric surgery. It may be beneficial to have an education and surgery referral system for women of reproductive age who are obese and planning pregnancy to reduce the risk of potential pregnancy complications.

Social, Demographic, and Situational Characteristics of Fire Deaths Among US Children

Authors: Patricia Schnitzer
Heather Dykstra
Esther Shaw
Erik Buczkowski
Abby Collier

Category first choice: Trauma, violence, and injury

Category second choice: Child/adolescent health

Data sources utilized: Other

Other data source: Child Death Review Case Reporting System (CDR-CRS) data were used for this research. The CDR-CRS is a web-based application available through the National Center for Fatality Review and Prevention (NCFRP); it is currently used by 44 states. Users enter data on each child death reviewed in their jurisdiction. Data include information on the child, parents, circumstances of death, death investigation, as well as risk factors for major causes of injury death. Data can be aggregated nationally for programmatic and research purposes. Data used for this study were the state approved data downloaded 3/24/2017.

Background: Children age 0-4 are at highest risk of death in a residential fire. Other risk factors include smoking, low income, and residence in mobile home or apartment. Approximately 40% of residential fires are the result of fireplay, that is, children playing with matches/lighters. Research suggests that smoke alarms may not be effective in preventing deaths in fires started by fireplay and perhaps more vigilant supervision and limiting access to sources of ignition should also be emphasized. Fires remain a leading cause of unintentional injury death among children up to age 14 in the US, yet little research has been published on this topic in the past 10 years.

Study questions: What do Child Death Review data tell us about the circumstances of fire deaths among children? How do the social and demographic characteristics of these children compare to children who died of other unintentional injuries?

Methods: This descriptive epidemiologic study used data from 2004-2016 in 37 states recorded in the Child Death Review Case Reporting System (CDR-CRS). The CDR-CRS includes parent and child information, circumstances of the death, and known risk factors for specific types of fatal injury. Descriptive analyses of unintentional fire deaths were conducted. Then, social and demographic variables for children age 1-14 who died in fires were compared to same age children who died of other unintentional injuries. Significant differences were determined using Chi-squared statistic. CDR-CRS data are limited in that not all states participate and not all participating states review all child deaths; additionally, some variables have a high proportion of missing data.

Results: Of 106,827 deaths available for study, 26,824 (25%) were due to unintentional injury; of these, 1,344 (5%) were fire-related. The children who died in fires were predominantly male (53%), 1-14 years old (84%), and white (60%); 15% were Hispanic. Over half (57%) had supervision but 34% of supervisors

were asleep, distracted, or impaired by drugs/alcohol at the time of the fire. Fires occurred in the child's home (78%), most were single-family (52%) or mobile homes/apartments (29%). Fire sources were smoking paraphernalia (21%), heating sources (13%), electrical (13%). Smoke detectors were not present in 28% of homes. Information on fireplay is not specifically documented in the CDR-CRS. Compared to children ages 1-14 who died of other unintentional injuries, children who died in fires were more likely to be: low income, African-American, female, on Medicaid, and have an impaired supervisor, a history of child maltreatment, and an open child protective services (CPS) case at the time of death (all χ^2 , $p < 0.001$).

Conclusions: A significantly higher proportion of children who die in fires are low income, have a history of past maltreatment and/or current CPS report, and have an impaired supervisor at the time of death.

Public Health Implications: Although these data cannot answer the question of how to prevent fire deaths, they provide important clues on the nature of supervision and other social and demographic characteristics, crucial for future research and prevention.

Electronic Cigarette Use among Women of Reproductive Age

Authors: Anjel Vahratian
Lindsey Black

Category first choice: Chronic disease/smoking

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: National Health Interview Survey

Background: Electronic cigarettes are battery-powered devices that heat a solution typically containing nicotine to create an aerosol that is inhaled by the user. These devices are currently widely available and often less expensive than conventional cigarettes. The percentage of adults aged ≥ 18 years who had ever tried an electronic cigarette increased from 12.6% in 2014 to 15.4% in 2016. The American College of Obstetricians and Gynecologists stated that nicotine in any form has known adverse effects on fetal brain and lung tissue. As nearly one in two pregnancies are unintended, it is important to monitor the use of these devices among women of reproductive age.

Study questions: What is the prevalence of electronic cigarette use among women of reproductive age? What are the characteristics of current electronic cigarette users and how might they differ from non-users?

Methods: Data from the 2014-2016 National Health Interview Survey (NHIS), a nationally representative in-person survey of the civilian, noninstitutionalized U.S. population, were used. Current electronic cigarette use was based on a positive response to the question "Have you ever used an e-cigarette even one time?" and a response of "every day" or "some days" to the follow-up question "Do you now use e-cigarettes every day, some days, or not at all?" The analysis was limited to non-pregnant women aged 18-49 ($n=26,306$). Bivariate and multivariate associations between selected characteristics of the population and electronic cigarette use were assessed using odds ratios with 95% confidence intervals (CI). All analyses were conducted using SAS callable SUDAAN to account for the complex survey design of the NHIS.

Results: Three percent of non-pregnant women aged 18-49 currently use electronic cigarettes. Electronic cigarette use increased with advancing age and decreased with higher educational attainment and family income. Hispanic, non-Hispanic Black, and non-Hispanic Asian women were less likely to be current electronic cigarette users compared with non-Hispanic white women. Sixty-three percent of current electronic cigarette users were also current cigarette smokers compared with 14% of non-users. Eleven percent of current electronic cigarette users experienced serious psychological distress in the past 30 days compared with 3.8% of non-users. In multivariate regression models, race and Hispanic origin, educational attainment, current cigarette smoking status, and serious psychological distress in the past 30 days remained significant predictors of current electronic cigarette use among non-pregnant women of reproductive age. Current (AOR: 24.60; 95% CI: 17.34, 34.90) or former (AOR: 14.38, 95% CI:

9.84, 21.00) cigarette smoking was the strongest predictor of current electronic cigarette use among this group.

Conclusions: Overall, the prevalence of current electronic cigarette use among women of reproductive age is lower than that of traditional cigarette use. However, particular subgroups are more likely to be current users, such as current or former cigarette smokers, women who have experienced serious psychological distress in the past 30 days, non-Hispanic white women, and women with a high school degree or less.

Public Health Implications: Data from the NHIS provide national estimates of the prevalence of electronic cigarette use. This information is helpful in monitoring the health of the nation.

Age differences in women's use of contraception

Authors: Christine McWilliams
Deborah Ehrenthal

Category first choice: Reproductive health/family planning

Category second choice: Life course perspective

Data sources utilized: Other

Other data source: National Survey of Family Growth (NSFG)

Background: Contraceptive use among women 35 and older is woefully understudied, despite their unique needs and experiences with contraception. Unintended pregnancy, although less common than in younger age groups, still occurs at a rate of 19 per 1000, and the abortion ratio is high, second only to girls under 15. Contraceptive use is often thought to be the concern of younger women, leaving stakeholders with little information on contraception in this age group, especially differences by sociodemographic characteristics. Indeed, demographic changes such as delayed childbearing, make this group particularly important for reproductive health researchers.

Study questions: How does contraceptive use differ by age, especially among those not using sterilization as their primary method?

Methods: We used publicly available data from the National Survey of Family Growth (NSFG) 2013-2015 cohort. Our analysis was restricted to women at risk of unintended pregnancy – those who are sexually active and are not seeking a pregnancy. Within age groups, we calculated proportions of women using common contraceptive methods or no method. Then, because studies about contraceptive use by age often focus heavily on sterilization in women 35 and older, we removed those who use male or female sterilization as their contraceptive method and calculated proportions using highly effective methods, minimally effective methods, and no method.

Results: Contraceptive method differs by age. As described elsewhere, oral contraceptive pill use decreases and sterilization increases in older age groups. Surprisingly, proportion of women not using any contraception does not drop dramatically as women age. Among women age 15-19, this number is 15%, and it only decreases to 10% among those age 40-44. Condom use patterns are similarly surprising, about 15% of sexually active women age 15-19 use condoms, that proportion increases slightly to 18% in the 25-29 age group and then decreases to 8% in women 40-44, a value very similar to their teenage peers. After restricting the analysis to women who are not using sterilization as their contraceptive method, use of highly effective methods decreases as age increases, from 66% in women 15-19 to 45% in women 40-44. Use of minimally effective methods increases as age increases, rising from 19% in teenagers to 32% in women in their late 20s, leveling out at 32% through age 44. Finally, those not using any method increases from 15% to 22% from the youngest to oldest age group.

Conclusions: This research represents the first step in a detailed understanding of contraceptive use and age. Previously described trends were seen in our results, such as differences in oral contraceptive pills and sterilization. We also found surprising results, such as little difference between the youngest and oldest age groups in both condom use and no contraceptive use. These findings demonstrate the need

for further study of differences in the experiences of women 35 and older with unintended childbearing and contraceptive use.

Public Health Implications: This research can be developed to better understand use of contraception by women at the older end of the fertility spectrum. It could also be used to inform both clinician and public education around contraception recommendations.

Decline in California's maternal mortality ratio: The role of mothers' age and race/ethnicity

Authors: Marina Chabot
Dan Sun
Mike Curtis
David Reynen

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: maternal mortality

Data sources utilized: Birth/Death Certificates

Linked data file: Birth-Death vital statistics records

Background: The maternal mortality ratio (MMR, deaths per 100,000 live births) has dropped in California. While various factors (e.g., public policies, social, cultural and economic factors) have potentially contributed to the decline, we focus on the contribution of mothers' demographic characteristics –age and race/ethnicity– to the MMR decline.

Study questions: What is the contribution of each population subgroup, age group and race/ethnicity, to MMR decline between time period 1 (i.e., 2004-2008) and time period 2 (i.e., 2009-2013)?

Methods: We used California's vital statistics (birth and death records) for two periods, aggregated 2004-2008 and aggregated 2009-2013, to provide stable estimates of MMR. The Kitagawa decomposition analysis was conducted to identify the contribution of the shifting population composition (specifically, in terms of age and race/ethnicity) to the overall observed MMR difference between the two time periods. First, the contribution of age was partitioned into two components: 1) age distribution of births; and 2) age-specific MMR. Maternal age was categorized as ≤ 19 , 20-24, 25-29, 30-34, 35-39, and ≥ 40 years. Second, the contribution of race and Hispanic ethnicity was partitioned into two components: 1) race and Hispanic ethnicity distribution of births; and 2) race and Hispanic ethnicity MMR. The Kitagawa decomposition method breaks down the total change over time, partitioning changes in the population composition (component 1) and population-specific MMR (component 2), to determine the contribution attributable to a given population subgroup.

Results: California's overall absolute MMR decline was -4.8 per 100,000 live births between 2004-2008 (13.1 per 100,000 live births) and 2009-2013 (8.3 per 100,000 live births). The decomposition analysis showed that the change in age distribution (component 1) contributed to the MMR decline only among adolescent (<19 years of age) and young mothers aged 20-24 years. In contrast, the age distribution component for mothers aged ≥ 25 years, specifically for mothers aged 30-34 years, offset this decline. The change in age-specific MMR (component 2) contributed to the MMR decline across all age groups, except for adolescents. Mothers aged 20-29 years contributed 52.3%, while mothers aged 30 and above contributed 50.0% to the MMR decline but was offset by 2.3% among adolescent mothers. Considering the contribution of race/ethnicity group components, the results showed that Hispanic, White, and

Black contributed 63.1%, 17.1%, and 15.3%, respectively to the MMR decline. The remaining racial group (American Indian/Alaska Native, Asian/Pacific Islander, and multiple race) components contributed 4.5%.

Conclusions: The overall MMR decline between 2004-2008 and 2009-2013 is related in part to the shifting maternal age distribution, mostly contributed by younger mothers. Although Black mothers contributed to the decline, they remain the group with the highest MMR. Sustaining the current efforts in MMR reduction and tailoring services to specific population subgroups will help narrow the disparity in MMR.

Public Health Implications: Kitagawa decomposition analysis helps identify and quantify the relative contribution of changes in the components or population subgroups wherein differences in health outcomes exist. The results facilitates development of a more nuanced set of potential intervention strategies specific to a target population.

Ohio's Gestational Diabetes Postpartum Care Learning Collaborative: demonstration of improved postpartum care among Medicaid-insured women

Authors: Elizabeth Conrey
Allison Lorenz
Cynthia Shellhaas
Reena Oza-Frank

Category first choice: Women's/maternal health

Category second choice: Chronic disease/smoking

Data sources utilized: Medicaid Files; Birth/Death Certificates; Linked Data File

Linked data file: We linked Medicaid claims files to birth certificate records.

Other data source:

Background: Up to 70% of women with gestational diabetes mellitus (GDM) will develop type 2 diabetes (T2DM). Women with GDM are recommended to breastfeed, receive a postpartum visit, and complete postpartum diabetes screening. Waiting ≥ 18 months after delivery before conceiving a new pregnancy is recommended for all women and long-acting reversible contraceptives (LARC) are the most effective reversible methods of pregnancy prevention. In 2013, Ohio launched a GDM quality improvement (QI) learning collaborative to improve prenatal education and postpartum care. We developed provider and patient toolkits with educational and clinical practice resources. Subject-matter experts facilitated a learning network to train sites and promote discussion and shared learning. Thirteen clinical sites participated, with special focus on Medicaid-insured women, who are known to have lower postpartum visit and breastfeeding rates. We previously demonstrated that prenatal education and care improved among a non-representative sample of patients within participating sites, however impacts on all Medicaid-insured patients were unknown.

Study questions: Did postpartum care improve among Medicaid patients with GDM receiving prenatal care within clinical sites participating in the QI collaborative?

Methods: We used Medicaid identifiers of providers at participating sites to identify women within Medicaid administrative records who received ≥ 4 prenatal care visits at those sites from 2012–2016. We matched records to birth certificates using an exact match on name and birth date and a probabilistic match on other variables. (LinkKing). Three postpartum care outcomes (postpartum visit, postpartum diabetes screening, and receipt of a LARC within 75 days postpartum) were assessed from Medicaid data and breastfeeding initiation was assessed from birth certificates. The proportion of patients achieving each outcome was calculated at three time-periods: pre-implementation, during QI implementation, and 0–11months post-implementation. Adjusted odds ratios (aOR) for differences from pre-implementation to the other time periods were estimated with logistic regression models controlling for maternal age and clinical characteristics.

Results: The proportion of women achieving each outcome during pre-implementation (n=970), implementation (n=918), and post-implementation (n=752) respectively, was: postpartum visit (65.7%, 71.3%, and 79.0%), postpartum diabetes screening (36.2%, 35.5%, and 36.2%), receiving a LARC (9.6%, 14.9%, and 14.2%) and breastfeeding (63.8%, 68.7%, and 64.2%). In multivariate models, the odds were greater for breastfeeding (aOR 1.25, 95% CI 1.01-1.49], postpartum visits (aOR 1.29, 95% CI 1.04-1.54], and LARC receipt (aOR 1.77, 95% CI 1.27-2.27] at post-implementation versus pre-implementation, but not postpartum diabetes screen (aOR 1.09, 95% CI 0.89-1.29).

Conclusions: Medicaid-insured women with GDM who received prenatal care from a provider that participated in a GDM postpartum care QI learning collaborative improved in most postpartum outcomes when compared with women who received care from the same providers before participation in the collaborative. Measurable improvements in receipt of a postpartum diabetes screen were not seen, but may be hampered by poor documentation of screening in administrative data that bundles payment for screening within other services.

Public Health Implications: Preventative care for Medicaid patients can be improved through QI methodology supported by provider and patient toolkits. Future work should focus on replicability in other populations, and producing measurable changes in postpartum diabetes screening.

Geographic variation in very preterm birth risk among Hispanic women as indicator of spatially varying risk environments

Authors: Kaitlyn Stanhope
Michael Kramer

Category first choice: Environment place and health

Category second choice: Racism, equity, and social justice

Data sources utilized: Birth/Death Certificates

Background: A growing proportion of births in the US are to Hispanic mothers (23.2% in 2015). Hispanic women are a diverse and geographically disperse population, facing unique contextual stressors, including immigration policy climate, limited access to health care and linguistic and cultural stress. Previous research supports a positive association between a more restrictive immigration policy climate and poor mental health among both US and foreign-born Hispanics. Geographically varying social and regulatory contexts may produce spatial variation in experienced stress. These stressful experiences may then result in geographic variation in very preterm birth (VPTB) risk among Hispanic women. However, research on the impact of contextual stressors on perinatal health among Hispanic women is limited and generally focused in a few geographic areas. Estimating the proportion of variance in VPTB risk not explained by individual risk determinants will allow us to make inference about the possible role of place-based social and regulatory contexts, including immigration policy climate.

Study questions: Does the risk of very preterm birth to Hispanic mothers vary across US states and counties? Does this variation remain after controlling for individual level risk determinants?

Methods: Data from the 2004, 2005 and 2011-2014 US natality file were used to fit a series of multilevel, generalized linear models with random effects for state and county. From each model, the pseudo-intraclass correlation coefficient (pseudo-ICC) quantifies the unexplained within- and between-state variation in risk. County/year combinations with less than 100 eligible births were excluded.

Results: 3,429,004 births to Hispanic women in 627 counties and 40 states were included. 1.5% (51,009) were very preterm and 10.3% (355,307) were preterm. Across states, VPTB rates ranged from 1.0% to 2.7% (median:1.6 IQR: 1.5-1.8). For the empty model, the pseudo ICC was 0.0117 for state and 0.0556 for county. After including a full set of individual predictors (age, parity, marital status, education, year, US/foreign born), the pseudo-ICC declined less than one percent for county (to 0.0544) and did not decline for state (0.0131).

Conclusions: Significant residual variation in Hispanic women's VPTB risk in counties and states above and beyond individual factors supports the hypothesis that geographic context is a determinant of very preterm birth risk for Hispanic women. Further research to explore specific contextual factors associated with elevated risk at the state and county level should be explored.

Public Health Implications: This analysis supports the hypothesis that contextual factors matter for Hispanic mothers and may be opportunities for future intervention. State and federal contextual factors including immigration policies, health outreach programs and resources targeted towards Hispanic women may promote or depress perinatal health for Hispanic mothers. Quantifying unexplained variation in VPTB risk after controlling for individual risk determinants informs our understanding of the role of place, and possibly place-based immigration policy climate, as a social determinant of health.

Common Risk Factors Associated with Cesarean Delivery in Hawaii, PRAMS 2012-2015

Authors: Carlotta Ching Ting Fok
Donald Hayes
Wendy Nihoa
Matthew Shim

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: PRAMS; Birth/Death Certificates

Background: Cesarean delivery is the most common major surgery performed in the United States and results in higher costs, longer hospitalization, and increased risks of maternal morbidity compared to women who deliver vaginally. The general literature shows association between cesarean delivery and maternal race and age, obesity, complicated pregnancy, preterm birth, previous cesarean deliveries and first-time mothers. Although the rate of cesarean delivery in Hawaii has declined recently from about one-third of births, it still accounts for a large proportion of deliveries. Identifying the risk factors for cesarean delivery can help plan to reduce the rate and improve women's health.

Study questions: Is previous cesarean delivery associated with a subsequent cesarean delivery for women in Hawaii, and do disparities by race/ethnicity exist?

Methods: Data from a total of 5,572 respondents were analyzed from the 2012-2015 Hawaii's Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based surveillance system for maternal behaviors before, during, and after pregnancy. A cesarean delivery was defined from the birth certificate variable listing the occurrence of a repeat or primary cesarean delivery, with consideration that all other births are considered a vaginal delivery. Obesity was defined as body mass index (BMI) greater than 30, normal BMI as 18.5-24.9, and underweight as BMI<18.5. Early preterm birth was defined as gestation age of 15-31 weeks, mid-late preterm birth as 31-36 weeks, and term infants as 37-42 weeks. A logistic regression model for complex survey procedure was created, using predicted marginals to estimate prevalence ratios for cesarean delivery. The primary variables of interest were previous cesarean delivery and maternal race, with the final model adjusting for maternal age, BMI before pregnancy, and preterm birth.

Results: In Hawaii, about 24.4% of women with a recent live birth had a cesarean delivery. Mothers with a previous cesarean delivery (Adjusted Prevalence Ratio (APR)=8.06; 95%CI=6.97-9.31) and first-time mothers (APR=2.30; 95%CI=1.91-2.76) were more likely to have cesarean delivery after adjustment. Mothers 20-29 years of age (APR=1.57; 95%CI=1.17-2.11), and 30-52 (APR =1.75; 95%CI=1.29-2.37) were more likely to have cesarean delivery compared to those under 20. Women who were obese had a higher risk (APR=1.32; 95%CI=1.15-1.51), whereas those who were underweight had a lower risk in cesarean delivery (APR=0.73; 95%CI=0.54-0.98) compared to women with normal BMI. Women with an early preterm birth (APR=2.12; 95%CI=1.81-2.48) and those with a mid-late preterm birth (APR=1.40;

95%CI=1.23-1.59) had a higher risk for cesarean delivery compared to those with a term birth. No significant race differences were found in the risk for cesarean delivery.

Conclusions: In Hawaii, almost 1 in 4 women had a cesarean delivery. Although maternal age, obesity, and preterm birth were risk factors, having a previous cesarean delivery had the most prominent effect.

Public Health Implications: Preventing a first cesarean delivery when possible and encouraging providers to also focus on mitigating traditional risk factors such as obesity and maternal age may help reduce morbidity in women.

The effects and inequalities of the death of family members in young adults

Authors: Naomi Thyden
Nicole Schmidt
Theresa Osypuk

Category first choice: Life course perspective

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: National Longitudinal Survey of Youth 1997

Background: The death of a parent or sibling early in life is a devastating event that may disrupt healthy development. Because people of color die earlier than white individuals, young people of color may be more likely to experience the death of a close family member. However, little research has investigated whether the experience of nuclear family death varies by race, or affects subsequent social determinants of health.

Study questions: What is the racial distribution of adolescents and young adults who have experienced a family death? What are the long term effects of losing a parent or sibling at different ages of adolescence and young adulthood, specifically on attaining a college degree?

Methods: We used 17 years of longitudinal data from the National Longitudinal Survey of Youth 1997 for respondents who answered questions about family deaths and education (n=6,737). Data collection began in 1997 when respondents were 13 to 17 years old and we examined waves of data through 2013 (age 29 to 33 years). In 2002, 2007 and 2013, respondents reported if a sibling or parent had died (nuclear family death) in the past 5 years, which provided a complete history between 1997 and 2013. The outcome was whether respondents had obtained a Bachelor's degree by 2013. We estimated the effect of age of first family death using logistic regression adjusted for baseline self-reported health, household income, parent education, urban/rural, census region, race/ethnicity, sex, and number of days absent from school (as a measure of baseline educational risk).

Results: Overall, 20.9% of the young adult NLSY sample experienced a family death during the past 15 years, by 2013. White respondents were less likely to have nuclear family death (14.5%) than those who were Black (22.3%) or American Indian (26.2%), and had a similar likelihood as Hispanics (14.2%) and Asian/Pacific Islanders (15.2%) (race/ethnicity joint test $p = .0001$). Respondents who experienced a family death when 18-22 years old (which is the age window during which college education is typically undertaken) were significantly less likely to have a Bachelor's degree by 2013. (Odds Ratio: 0.51, 95% Confidence Interval: 0.36-0.73) as were respondents who were 27-30 years old (OR: 0.72, 95% CI: 0.53-0.97), in covariate adjusted models. Obtaining a Bachelor's degree was not significantly associated with family death when respondents were in age categories 13-17, 23-26, or 31-34.

Conclusions: Because young people of color are more likely to experience the death of a sibling or parent, and because nuclear family deaths during typical college years are associated with lower

educational attainment, an important social determinant of health, this exposure may play a role in perpetuating health disparities by race.

Public Health Implications: Health disparities as outcomes have been well-documented, but it is also important to think about health disparities as a cause of social determinants of health. Serious sickness and death earlier in life, which we see with racial health disparities, affect communities in a variety of ways.

Availability of Services Related to Achieving Pregnancy in U.S. Publicly Funded Family Planning Clinics

Authors: Ana Carolina Loyola Briceno
Kate Ahrens
Marie Thoma
Brittini Frederiksen
Emily Decker
Susan Moskosky

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: In 2014, the Office of Population Affairs and the Centers for Disease Control and Prevention fielded the 2013 Survey of Administrators of Publicly-Funded Health Centers that Provide Family Planning. Administrators of publicly funded family planning clinics were asked about services provided at their clinic in order to assess clinic practices as they relate to national recommendations for the provision of quality family planning services. A nationally representative sample of publicly funded clinics that provide family planning services were surveyed from 2013-2014 (N=1615). Additionally, the survey allows for analyses by Title X funding status of providers, allowing for comparisons between the Title X network to other publicly funded family planning providers.

Background: National recommendations for providing quality family planning services indicate that services should include: helping clients who want to become pregnant, providing basic infertility services, and providing preconception health services to improve health outcomes for women and men. Limited data are available on the extent to which services for achieving pregnancy, including basic infertility services, are offered by U.S. publicly funded family planning clinics.

Study questions: What is the distribution of services related to achieving pregnancy offered at publicly funded family planning clinics in the U.S.?

Methods: A nationally representative sample of publicly funded clinics that provide family planning services were surveyed from 2013-2014 (N=1615). Clinic administrators were asked about services offered at their clinic. Services related to achieving pregnancy included: basic infertility services, reproductive life plan assessment, preconception health services (body mass index [BMI], sexually transmitted infection [STI] and cervical cancer screening), natural family planning, and infertility treatment. The percentage of clinics offering these services was estimated by Title X funding status. Unadjusted prevalence ratios (PR) and 95% confidence intervals (CI) were estimated using predicted margins from logistic regression, after accounting for survey design.

Results: Title X clinics were more likely to offer the following services related to achieving pregnancy compared to non-Title X clinics: reproductive life plan assessment (76% vs. 35%; PR = 2.19, 95% CI: 1.93, 2.47, BMI screening for women (85% vs. 79%; PR = 1.07, 95% CI: 1.02, 1.13), STI screening (PR ranged from 1.36 to 1.58, all p-values <0.05), cervical cancer screening (91% vs. 74%; PR = 1.23, 95% CI: 1.16,

1.30), and natural family planning (83% vs. 74%; PR = 1.13, 95% CI: 1.06, 1.19). Title X clinics were less likely to offer infertility treatment (11% vs. 22%; PR = 0.48, 95% CI: 0.38, 0.61) compared to non-Title X clinics. Title X clinics were just as likely as non-Title X clinics to offer basic infertility services for men (14% vs. 16%; PR = 0.88, 95% CI: 0.68, 1.13) and women (35% vs. 37%; PR = 0.94, 95% CI: 0.82, 1.08), and BMI screening for men (73% for both; PR = 0.99, 95% CI: 0.93, 1.06).

Conclusions: The availability of services related to achieving pregnancy at publicly funded family planning clinics differs by Title X funding status, perhaps due to differences in populations served and services traditionally sought by Title X clients. Offering these services at all publicly funded family planning clinics can help people achieve their desired number and spacing of children, thereby leading to improved health outcomes for women, men, and infants.

Public Health Implications: There is a range in the availability of services related to achieving pregnancy at publicly funded family clinics across the United States. Understanding the barriers and facilitators for providing these services may aid with identifying strategies to increase the availability of services being offered to women and men who want to achieve pregnancy.

Hypertension in Women of Reproductive Age in the United States: NHANES 2013-2014

Authors: Olumayowa Azeez
Aniket Kulkarni
Shanna COX

Category first choice: Women's/maternal health

Data sources utilized: Other

Other data source: National Health and Nutrition Examination Survey (NHANES)

Background: Hypertension is a common condition that increases the risk for heart disease and stroke—leading causes of death in the United States—and a major contributing factor to maternal and infant morbidity and mortality. Better understanding of the prevalence of hypertension among women of reproductive age (WRA) can facilitate opportunities to improve hypertensive control and birth outcomes.

Study questions: What is the prevalence of doctor-diagnosed, undiagnosed and uncontrolled hypertension among WRA in the United States and how does this prevalence vary by select sociodemographic characteristics?

Methods: Demographic, questionnaire, and examination data from the 2013-2014 National Health and Nutrition Examination Survey (NHANES) were used to study women from ages 20 to 44. Doctor-diagnosed participants were those who were told by a doctor or other health professional that they had hypertension. Undiagnosed hypertension included participants who indicated that they had never been told by a health professional that they had hypertension but were found to have high blood pressure ($\geq 140/90$ mmHg). Uncontrolled hypertension was defined as high blood pressure among hypertensive patients. Descriptive statistics of study population, estimation of prevalence, and logistic regression to calculate adjusted prevalence ratios (aPR) and 95% Confidence intervals (CI) was performed using SAS callable SUDAAN Version 9.3. To improve robustness of the point estimates, we plan to add additional data from 2011-2012 and 2015-2016 to the final presentation.

Results: Among WRA, the prevalence of overall hypertension was 16.9% (95% CI, 14.6-19.3) with doctor-diagnosed hypertension at 15.9% (95% CI, 13.9-18.1); undiagnosed hypertension at 0.96% (95% CI, 0.64-1.5). Among WRA with doctor-diagnosed hypertension, uncontrolled hypertension was 16.9% (95% CI, 11.6%-23.9%). Overall prevalence of hypertension was higher in ages 40-44 and 35-39 than age 20-34; aPR 2.5 (2.0-3.0) and 1.6 (1.1-2.3) respectively. The prevalence of undiagnosed hypertension was higher in non-Hispanic Black women than non-Hispanic White women; aPR 7.6 (1.8-33.1). Among women with hypertension, uncontrolled hypertension was higher in non-Hispanic Black women than non-Hispanic White women (aPR 2.8 (1.3-5.8)), and among women who were uninsured than those who were privately insured (aPR 2.1 (1.0-4.5)). The aPR of overall hypertension in obese and overweight women compared to normal/underweight women were 2.4 (1.7-3.2) and 1.5 (1.1-2.2) respectively. Overweight (aPR 1.54 (1.06-2.23)) or obese (aPR 2.33 (1.73-3.15)) women were more likely than normal/underweight women to have doctor-diagnosed hypertension, but there was no difference in

undiagnosed hypertension by weight. The prevalence of uncontrolled hypertension was lower in overweight women than normal/underweight women (aPR 0.2 (.01-0.7)).

Conclusions: Non-Hispanic Black women were more likely to have undiagnosed and uncontrolled hypertension than non-Hispanic White women. Prevalence of hypertension increased with age and BMI, however, there was lower prevalence of uncontrolled hypertension in overweight women than normal/underweight women. Uninsured women were more likely to have uncontrolled hypertension than privately insured women.

Public Health Implications: In addition to documenting the prevalence of hypertension among WRA, this analysis demonstrates groups more likely to have undiagnosed and uncontrolled hypertension. Improving the health of WRA may provide opportunities to improve birth outcomes.

Relationship Between Screen Time and Depression in Children Aged 6-17

Authors: Lauren Schwerzler
Bethany Dominik
Colleen McLuckie
Kate Romond

Category first choice: Child/adolescent health

Category second choice: Mental/behavioral health

Data sources utilized: Child Health Survey

Background: Computers, video games, and handheld devices are prevalent in the daily lives of children and adolescents, and excessive screen time use has been linked to depression. The American Academy of Pediatrics recommends that parents monitor and set limits for screen time of school-aged children and adolescents. Little data exists on outcomes of excessive screen time in children and adolescents living in the United States (US).

Study questions: The objective of this study was to determine if there is a positive association between screen time and depression in children and adolescents in the US.

Methods: The association between screen time and depression was examined in children aged 6 to 17 (N=65,680) in the US based on the National Survey of Children's Health (2011/2012). Screen time was categorized by no devices, 0-1 hours, 1-4 hours, and 4+ hours daily. Depression was transformed into a bivariate variable categorized yes, indicating a previous diagnosis of depression and parental report of current depression, and no demonstrating no report of current depression or no diagnosis of depression. Stratified analysis was conducted to establish the presence of confounding and effect modification. Multivariate logistic regression was used, with age as an effect modifier (aged 6-11, 12-17), controlling for age, sex, race/ethnicity, household income, sleep, physical and extracurricular activities, and family structure. Data was cross-sectional, limiting our ability to establish temporality. Analyses were conducted using SAS University Edition 3.6.

Results: Preliminary results suggest that children aged 6-11 had an adjusted prevalence odds ratio (OR) for depression of 1.37 (1.04, 1.80) with no devices, 1.81 (1.34, 2.42) with 1-4 hours of screen time, and 3.05 (2.04, 4.55) with greater than 4 hours compared to 0-1 hours of screen time. For adolescents aged 12-17, the adjusted ORs were 1.25 (0.95, 1.64) with no devices, 1.33 (1.15, 1.55) with 1-4 hours of screen time, and 1.73 (1.46, 2.03) with greater than 4 daily hours compared to 0-1 hours of screen time. Results demonstrate a positive relationship between screen time and depression.

Conclusions: The relationship between screen time and depression was stronger in children than adolescents after controlling for covariates. For all participants, the prevalence of depression was higher for those living 200% below the federal poverty level, not participating in extracurricular activities, and not living in a two-parent household.

Public Health Implications: Public health interventions should seek to reduce screen time for children and adolescents, especially those with less access to educational and family supports. This data can be used to educate providers, parents, caregivers, and teachers of the risks of excessive screen time.

A qualitative approach to exploring barriers and facilitators to maternal engagement in the NICU

Authors: Susanne Klawetter
Madalynn Neu
Jennifer Greenfield
Kristi Roybal
Jessica Scott
Rachel Protentis
Sunah Hwang

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: Original research: qualitative interviews with mothers in NICUs

Background: Approximately 1 in 10 babies are born prematurely in the US. Preterm birth leading to hospitalization in neonatal intensive care units (NICU) is associated with adverse developmental outcomes across the life course. Research points to the importance of parental engagement activities in the NICU in ameliorating some of these adverse effects. However, preterm infants hospitalized in NICUs are likely to be separated from their parents for weeks or months during an especially critical developmental time. More research is needed to understand parents' perspectives on what influences visitation, participation, and engagement in the care of hospitalized infants.

Study questions: This study examines mothers' experiences in 2 metropolitan hospitals to identify barriers and facilitators of maternal engagement in the NICU.

Methods: This qualitative study uses naturalistic inquiry to examine pilot data from a mixed-methods project and reflects an interdisciplinary research partnership between neonatology, nursing, and social work. Using purposive sampling, mothers who consented to participate in the quantitative portion of the study were recruited to participate in qualitative interviews. Inclusion criteria included English or Spanish-speaking mothers of infants born less than 32 weeks gestational age hospitalized in a NICU for at least 2 weeks and who were 33-34 weeks gestational age at the time of the interview. Two researchers trained in qualitative methods used a semi-structured interview guide to explore mothers' experiences in the NICU. Interviews were recorded using HIPAA-compliant software and transcribed for analysis. Two researchers independently read and coded transcripts using a line-by-line coding approach. Codes were then independently compiled into themes. The researchers then compared codes and interpretation of themes, collaborating until consensus was reached.

Results: Fourteen mothers participated in this pilot study. All participants spoke English. Nine identified as non-Hispanic white, 3 as African American, 1 as American Indian/Alaskan Native, and 1 as Hispanic/Latina. Half of the participants had Medicaid health insurance while the other half purchased their health insurance or received it through an employer. Of the 14 participants, 1 had a master's degree, 7 had a bachelor's degree or some college, 5 had either a high school diploma, GED, or some

high school education, and 1 did not indicate their level of education attainment. Common themes were: 1) NICU hospitalization is stressful, 2) mothers want partnerships with providers, 3) mothers and babies need each other, and 4) mothers are nervous about going home with their baby.

Conclusions: Results suggest that having an infant hospitalized in the NICU is traumatic and poses numerous challenges for families. Mothers experience multiple barriers to NICU engagement, value being involved in the care of their infants, and appreciate aspects of the NICU environment that privilege the mother-infant relationship. Mothers are worried about monitoring and keeping their infants healthy upon discharge.

Public Health Implications: These findings suggest that preterm infant hospitalization in the NICU is challenging for mothers and multiple barriers exist to maternal engagement. Family-centered NICU environments that promote patient-provider relationships and support the mother-infant dyad are beneficial and can be strengthened to enhance maternal engagement and confidence in NICU discharge.

Association between a high adverse childhood event (ACEs) score and disability, Oregon 2013-2016

Author: Maria Ness

Category first choice: Trauma, violence, and injury

Category second choice: Life course perspective

Data sources utilized: Other

Other data source: Oregon Behavioral Risk Factor Surveillance System

Background: The association between a high adverse childhood events (ACEs) score and adult health outcomes is well established, particularly chronic disease outcomes. The relationship between a high ACEs score and disability has not been as well explored. This analysis examines the association between high ACEs scores and self-reported adult disability.

Study questions: Is a high ACEs score positively associated with adult self-reported disability?

Methods: Data from the 2013 to 2016 Oregon Behavioral Risk Factor Surveillance System was analyzed (unweighted sample size of 9,530 adults 18 or more years of age). Three types of disability were examined: difficulty concentrating, remembering, or making decisions; difficulty completing errands alone; and being limited in any way due to a physical, mental or emotional problem. Multivariable logistic regression was conducted to determine the association between a high (four or more) ACEs score and each type of disability. Odds ratios were adjusted by age of respondent.

Results: 12.2% of respondents reported difficulty concentrating, remembering or making decisions, 7.2% reported difficulty completing errands alone, 24.8% reported being limited in any way due to a physical mental or emotional problem, and 19.9% reported experiencing four or more ACEs. In multivariable logistic regression, a high ACEs score was positively associated with each of the types of disability (odds ratios adjusted by age): difficulty concentrating, remembering or making decisions (adjusted odds ratio (AOR) = 3.46, 95% confidence interval (CI) = 2.87 – 4.17); difficulty completing errands alone (AOR = 3.29, 95% CI = 2.65 – 4.10); being limited in any way due to a physical mental or emotional problem (AOR = 2.51, 95% CI = 2.16 – 2.92).

Conclusions: A high ACEs score of four or more is positively associated with three types of disability in adulthood: difficulty concentrating, remembering or making decisions; difficulty completing errands alone; and being limited in any way due to a physical mental or emotional problem.

Public Health Implications: The public health implications of this study are twofold, as the findings are relevant among both child and adult populations. This study strengthens the evidence supporting the need for interventions to reduce ACEs among children, in order to reduce the burden of disability among the adult population. This study also indicates utilizing ACEs screening as a tool for identifying adults who are at high risk for being effected by disability.

Disparities in Early Intervention Access Among a Low-income Safety Net Population: A cohort study using 2013-2015 linked administrative data

Authors: Beth McManus
Zachary Richardson
Margaret Schenkman
Elaine Morrato

Category first choice: Birth defects/developmental disabilities

Category second choice: Children and youth with special health care needs

Data sources utilized: Linked Data File

Linked data file: Linked pediatric primary care (safety net health system) and early intervention program records

Background: Although the American Academy of Pediatrics recommends referral to early intervention (EI) for infants and toddlers with developmental delays, EI service use of referred children has not been evaluated. Previous studies suggest that although universal development screening in primary care has increased, rates of EI referral remain low. Previous literature has focused on receipt of EI referral or an EI eligibility evaluation. To this end, there is a dearth of literature examining referred children to determine service use patterns.

Study questions: The purpose of this study was to examine factors associated with EI referral and core EI service use (e.g., physical and occupational therapy).

Methods: This was a secondary data analysis of data drawn from linked pediatric primary care and early intervention data for 14,710 children with a developmental condition within a large, urban safety net health system. Among the sample, 722 children were referred to EI and received a core EI service (e.g., physical or occupational therapy) [ages: less than 12 months, 62% (n=448), 12-24 months, 28.7% (n=207), and greater than 24 months, 9.3% (n=67), 36.7% (n=265) were female]. Outcomes were EI referral and service use. Adjusted odds ratios (ORs), 95% confidence interval (CI) were used to estimate outcomes controlling for race and ethnicity, language, condition type (diagnosed condition versus delay), health insurance type, age at EI referral, sex, and baseline EI functional performance.

Results: Overall, 14% of sample children were referred; of referred children, 36% received EI services. Sample EI children were predominantly below the Federal Poverty Level (91.8%), Hispanic (73.7%), publically insured (87.7%), and had a developmental delay (87.7%). Having greater functional limitations was positively associated with EI referral [OR=5.34, (3.7, 7.6)]. Children with lower odds of EI referral were Black, non-Hispanic (BNH) [OR=0.81 (0.7, 1.0)], female [OR=0.59, (0.5, 0.6)], and had a diagnosed condition ([OR=0.66 (0.5, 0.9)] rather than a developmental delay. Regarding EI therapy, children with a diagnosed condition had higher odds of PT [OR=2.99, (1.4, 6.4)] and OT [OR=3.26, (1.7, 6.3)]. Baseline EI functional performance were associated with receipt of EI therapies.

Conclusions: We found low rates of EI referral and service use. Study findings also suggest social disparities in EI referral and access.

Public Health Implications: The results of this study suggest areas for improving EI outreach and service use. For example, interventions to improve EI referral should target children who are black, non-Hispanic, female, and with a diagnosis. Interventions to optimize EI service use should target publically insured children and incorporate baseline functional measures. To this end, this study serves as a framework that could be replicated in other EI programs to improve EI care quality.

Predictors of maternal use of risk-reduction strategies to prevent mosquito-borne Zika virus transmission during pregnancy: PRAMS-ZPER, Puerto Rico, 2016

Authors: Katherine Kortsmitt
Beatriz Salvesen von Essen
Lee Warner
Denise D'Angelo
Holly Shulman
Wanda Hernández-Virella
Aspy Taraporewalla
Leslie Harrison Sascha Ellington
Tanya Williams
Carrie Shapiro-Mendoza
Wanda Barfield
Ruben Smith
Denise J. Jamieson
Margaret Honein
Shanna Cox
Karen Pazol
Manuel Vargas Bernal

Category first choice: Women's/maternal health

Category second choice: Child/adolescent health

Data sources utilized: PRAMS; Other

Other data source: Pregnancy Risk Assessment Monitoring System—Zika Postpartum Emergency Response

Background: Zika virus (ZIKV) infection is primarily transmitted through infective mosquito bites. ZIKV infection can cause microcephaly, brain abnormalities, and other birth defects in infants born to women infected during pregnancy. Healthcare providers can play an important role in preventing ZIKV infection by counseling patients on risk-reduction strategies to prevent infective mosquito bites, including wearing long-sleeved shirts and long pants (“protective clothing”) and using insect repellent (“repellent”). We examined the associations between maternal characteristics, and receipt of healthcare provider counseling, with the maternal use of protective measures to prevent mosquito-borne ZIKV infection during the 2016 ZIKV epidemic in Puerto Rico.

Study questions: Does use of repellent and protective clothing to prevent mosquito-borne ZIKV infection differ by maternal age, education, marital status, or receipt of counseling?

Methods: We analyzed data from the Pregnancy Risk Assessment Monitoring System—Zika Postpartum Emergency Response (PRAMS-ZPER), a hospital-based survey of women 24-36 hours postpartum during

August-December 2016. PRAMS-ZPER included a representative sample of postpartum women living in Puerto Rico with a response rate of 81%. We calculated adjusted prevalence ratios (aPRs) and 95% confidence intervals (CIs) to examine associations between maternal characteristics (i.e., maternal age, maternal education, and marital status) and receipt of counseling, with the use of protective practices to prevent mosquito-borne ZIKV infection. Analyses were adjusted for maternal age, maternal education, marital status and region, when applicable.

Results: Of the 2,320 respondents, 12% reported always wearing protective clothing and 46% reported always wearing repellent. Always wearing protective clothing was associated with older maternal age and higher education level, but not with marital status or having received counseling. Women ≤ 19 years old (9%, aPR:0.55 [CI:0.34-0.91]) and 20-34 years old (11%, aPR:0.68 [CI:0.48-0.96]) were less likely than women ≥ 35 years old (17%) to always wear protective clothing. Always wearing protective clothing was higher among women with a high school education or less than women with more than a high school education (14% vs 10%, aPR:1.40 [CI:1.10-1.79]). In contrast, the proportion of women who reported always wearing protective clothing did not differ between those who received counseling and those who did not (11% vs 11%, aPR:0.99 [CI:0.71-1.35]). Always using repellent was associated with older maternal age and receipt of counseling, but not with education or marital status. Specifically, women 20-34 years old were less likely than women ≥ 35 years old to always use repellent (44% vs 56%, aPR:0.79 [CI:0.69-0.90]). Repellent use was more likely among women who received counseling than among those who did not receive counseling (46% vs 37%, aPR:1.25 [CI:1.05-1.48]). Being too hot to wear protective clothing and forgetting to apply or reapply repellent were common reasons cited for not following recommendations.

Conclusions: One in ten respondents always wore protective clothing and slightly less than half always wore repellent. Although counseling was associated with increased repellent use, an association between counseling and wearing protective clothing was not found.

Public Health Implications: Strategies to enhance counseling and reduce barriers to using protective measures to avoid mosquito bites during pregnancy are needed, particularly in areas where pregnant women are at risk for mosquito-borne ZIKV transmission.

Smoking Cessation Two- years after Pregnancy in Los Angeles County

Author: Margaret Chao

Category first choice: Environment place and health

Category second choice: Women's/maternal health

Other data source: The Los Angeles Mommy and Baby project data

Background: Pregnancy is a special event and a period that is a particularly important “teachable moment”¹ or a trigger for smoking cessation² for mothers. Smoking habits often change in connection with pregnancy. However, mothers may pick up smoking habits after birth. These patterns are critical in evaluating anti-tobacco policies and refining strategies to decrease smoking rates among parents.

Study questions: What are patterns of smoking behaviors among mothers 6 month before and during pregnancy, and at two year follow up?

Methods: We analyzed the linked 2012 Los Angeles Mommy & Baby (LAMB) and LAMB Follow Up data. The LAMB Follow Up is an expansion of the LAMB Project. In 2014, the Follow UP project re-surveyed mothers who participated in the 2012 LAMB Project, when their babies turned two years old. This linked cohort provides longitudinal data capturing preconception, prenatal, delivery, postnatal and child health and well-being. A total of 3,488 mothers responded to the 2014 LAMB Follow-Up survey, representing an adjusted response rate of over 60%. The final data are weighted to represent the original 2012 live birth population. Responses on any cigarette smoking six months before pregnancy and during pregnancy were obtained from the original survey in 2012. Responses for any cigarette smoking were obtained at two year follow up.

Results: Overall, 7.5% of mothers in Los Angeles County smoked six months before pregnancy; 2.0% during their pregnancy and 3.9% at two year follow up. African American mothers had the highest smoking rates six months before pregnancy, during pregnancy and at two year follow up (16.2%, 8.4% and 11.3% respectively). Among mothers who smoked six months before pregnancy, three quarters (75.1%) stopped and a quarter (24.9%) continued smoking during pregnancy. Among mothers who stopped smoking during pregnancy, one in three (32.3%) took up smoking again at two year follow up. Among mothers who continued smoking during pregnancy, about a quarter stopped smoking (27.6%) and about three quarters (72.4%) continued smoking at two year follow up.

Conclusions: About three out of four women who smoked before pregnancy quit during pregnancy and one in three took up smoking when their toddlers became two year old. African American mothers had the highest smoking rates before during pregnancy and at two year follow up.

Public Health Implications: Public health prevention messages on how smoking during pregnancy are harmful to the baby have been effective as three in four mothers stopped smoking during pregnancy. Health care providers should continue follow and encourage mothers, especially African American mothers to continue smoking cessation during postpartum and well-baby visits. Further researches are needed to identify mother's reason to continue

Association between source of prenatal care and receipt of postnatal health care in the National Survey of Family Growth

Authors: Tamala Gondwe
Saba Masho

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: Health Care Utilization

Data sources utilized: Other

Other data source: National Survey of Family Growth, 2011-2015

Background: Receipt of prenatal care (PNC) is known to be associated with postpartum visit attendance, however, less is known about whether the source of PNC is predictive of receiving postnatal health care in general, and thus continuity of maternal care after pregnancy.

Study questions: In a national sample, is source of PNC associated with receipt of postnatal health care within a year after delivery of a live infant?

Methods: Data from the 2011-2015 U.S. National Survey of Family Growth (NSFG) was analyzed. Reported source of PNC was categorized as private care, community health, other source, or no PNC. Postnatal health care was assessed by response to the survey question "In the past 12 months have you received post-pregnancy care?" (Yes/No). The likelihood of not receiving postnatal health care was estimated using multivariable logistic regression, with the Andersen model of health service use providing the framework to identify confounders. Sampling weights were applied to account for the complex survey sampling design and to obtain nationally representative estimates.

Results: Of the 11,300 women surveyed in the 2011-2015 NSFG, 804 (7%) had delivered a live infant in the past year. Postnatal health care within a year after delivery was not received by 10.7% of the respondents. For source of PNC, 10.3% had no PNC, 71.8% received PNC from private care, 10.3% from community health, and 7.6% from another source. After adjusting for education, current employment, marital status, income, and health insurance status, women who received no PNC had an 11 fold higher likelihood of not receiving postnatal health care compared to those who received PNC from private care (adjusted odds ratio (aOR) 11.0 (95% CI 5.5-21.9)). Women who received PNC from community health or another source also had an increased likelihood of not receiving postnatal health care compared to those who received PNC from private care, however these associations were not statistically significant (aOR 1.7 (95% CI 0.6-5.0), and aOR 1.1 (95% CI 0.4-3.0), respectively).

Conclusions: Having no PNC was the greatest predictor of a mother not receiving postnatal health care within a year after delivery in a nationally representative sample. No significant difference in postnatal

health care receipt was found for women who received PNC from community health or other sources compared to women who received PNC from private care.

Public Health Implications: These findings add evidence to the importance of PNC in ensuring continuity of care after delivery. A point of intervention needs to be identified for women who are not receiving PNC in order to mitigate any potential adverse infant or maternal outcomes during or after pregnancy.

Women from racial/ethnic minority and low socioeconomic background receive more prenatal advice: Results from 2012-2014 Pregnancy Risk Assessment Monitoring System

Authors: Minh Nguyen
Mohammad Siahpush
Brandon Grimm
Gopal Singh
Melissa Tibbits

Category first choice: Perinatal outcomes

Category second choice: Racism, equity, and social justice

Data sources utilized: PRAMS

Background: Racial/ethnic and socioeconomic disparities in adverse birth outcomes are well known, but few studies have examined these disparities in receipt of prenatal counseling on health topics.

Study questions: The objectives were to examine racial/ethnic and socioeconomic variations in receiving (1) comprehensive prenatal health advice, and (2) advice about human immunodeficiency virus (HIV) testing, breastfeeding, alcohol use, and smoking cessation from health care providers.

Methods: Data from the 2012-2014 Pregnancy Risk Assessment Monitoring System (PRAMS) were used. Twenty-nine states were included with a sample size for analysis of 64,071 participants. Receiving counseling on all listed health topics during prenatal care visits was denoted as comprehensive prenatal health advice. Logistic regression models were used to examine the association of racial/ethnic and socioeconomic variables with receiving comprehensive prenatal health advice, and HIV testing, breastfeeding, alcohol, and smoking cessation advice separately.

Results: Overall, 26% of women reported having received comprehensive prenatal health advice. The proportions of women who received counseling on HIV testing, breastfeeding, alcohol use, and smoking cessation were 70%, 81%, 70%, and 69%, respectively. Adjusted results showed that non-Hispanic Black (OR = 1.49, 95% CI = 1.36-1.63) and Hispanic (OR = 1.22, 95% CI = 1.12-1.32) women had higher odds of receiving comprehensive advice compared to non-Hispanic white women. Women with less than a high school degree (OR = 1.25, 95% CI = 1.13-1.38) and high school degree (OR = 1.17, 95% CI = 1.09-1.26) had higher odds of receiving comprehensive health advice compared to women with more than a high school degree. Women from low-income households (\$79,001). Mothers on WIC (OR = 1.28, 95% CI = 1.18-1.39) and Medicaid (OR = 1.11, 95% CI = 1.01-1.22) during pregnancy were more likely to receive comprehensive health advice compared to their referent groups. Results were similar for receiving HIV testing, breastfeeding, alcohol, and smoking counseling.

Conclusions: Prenatal health counseling is socially patterned, with socially and economically advantaged groups being less likely to receive advice on healthful topics. Additional research is needed to understand the reasons as to why comprehensive health advice is not standard for all pregnant women.

Public Health Implications: Results highlighted the need for standardized guidelines and assessment of prenatal education and counseling to pregnant women.

Intimate Partner Violence and Bed-sharing, Florida PRAMS 2012–2015

Author: Ghasi Phillips-Bell

Category first choice: Trauma, violence, and injury

Data sources utilized: PRAMS

Background: The American Academy of Pediatrics has policy statements on intimate partner violence (IPV) and safe infant sleep. Qualitative studies indicate that some mothers bed-share with their infant in violent settings, while other studies show differences in bed-sharing by maternal depression and race/ethnicity. Clinical screenings and linkages to services for IPV, partner-related stress, and maternal depression may serve as opportunities to reinforce safe sleep messaging. However, the association between IPV and bed-sharing has not been well-studied and may provide additional insight into reasons for unsafe infant sleep practices.

Study questions: Is IPV associated with increased risk of bed-sharing? Are maternal race/ethnicity and depression effect modifiers?

Methods: This study included self-reported data from the 2012–2015 Florida Pregnancy Risk Assessment Monitoring System surveys that were limited to recent mothers with infants who resided with them. Weighted descriptive statistics were calculated using chi-square statistics and multivariable Poisson regression was used to estimate adjusted prevalence ratios (aPR) with 95% confidence intervals (CI) for bed-sharing with an infant in relation to IPV experienced before or during pregnancy. Propensity score analysis on 14 stress-related variables that captured stressful life events 12 months before delivery and a backward elimination strategy on 23 variables, including depression experienced before, during, or after pregnancy, were used for model building. Those missing data on IPV and bed-sharing were excluded. Wald tests were used to assess effect modification.

Results: Of 4,392 mothers, 37.7% reported bed-sharing and 3.5% experienced IPV. Victims of IPV were 29% (aPR=1.29; 95%CI: 1.07–1.55) more likely to report bed-sharing than non-victims after adjusting for maternal race/ethnicity and marital status. In exploratory analyses, no association was observed after further adjustment for ever depressed or partner-related stress (e.g. separation or divorce from a partner). Depression (p-value=0.78) and race/ethnicity (p-value=0.29) did not modify the association.

Conclusions: IPV was associated with an increased risk of bed-sharing. However, the relation lost statistical significance after controlling for maternal depression or partner-related stress, which may be potential intermediates on the causal pathway.

Public Health Implications: Addressing IPV in clinical settings according to protocol and through public health prevention interventions, such as therapeutic approaches with at-risk couples and community-based programs, may help to increase safe infant sleep practices.

Zika virus awareness, prevention, and information sources among low-income pregnant Latina

Authors: Susie Ramisetty-Mikler
LeAnn Boyce

Category first choice: Women's/maternal health

Category second choice: Perinatal outcomes

Data sources utilized: Other

Other data source: The study is a cross-sectional study to inquire about Zika awareness and information sources among pregnant Latina (18+ years) living in Denton County, TX. Primary data were collected by the first author.

Background: Vertical transmission of Zika virus (ZIKV) may result in a serious birth defect of the brain called microcephaly. The CDC issued guidelines on how to avoid mosquito bites including travel restriction, in particular, for pregnant women. Latina from low-socio economic background may have limited English skills which may become a barrier to access relevant health information. Further, much of clinical information on ZIKV is posted at health agency websites (CDC/WHO/PH departments) where women with limited resources are not able to access. Thus, it is necessary to investigate whether the crucial information is reaching this at-risk population and recognize gaps in the process of information dissemination. The threat of Zika is high in Texas due to immigrants from Mexico and other South American countries.

Study questions: What is the level of knowledge concerning Zika and information seeking behaviors among low-income pregnant Latina? Is there a gap in physician-patient communication concerning Zika threat and primary prevention based on clinic type (federal vs. private)?

Methods: The study conducted a survey (Aug 2016 to Feb 2018) to obtain relevant data from pregnant Latina (18+ years) living in Denton County, TX (N=300). Women were recruited from one Federally Qualified Health Center (FQHC) and two private clinics that serve 80% of the low-income, underserved, and undocumented population in the county. The survey inquired about ((a) knowledge on ZIKV transmission, symptoms, consequences, primary prevention, and (b) sources of information concerning ZIKV (e.g., mass media, physician, friends/family). The survey was translated to Spanish and translated back to English. A clinic staff member distributed the survey during the intake and had the women complete the survey for a \$10 Walmart gift card.

Results: Forty four percent of the pregnancies are untimed or unwanted. One-third (37%) are not aware that ZIKV can be transmitted via sexual activity; 59% did not postpone pregnancy in spite of knowing about Zika; 20% were not aware that contracting Zika virus may lead to "microcephaly"; 35% not aware of symptoms (fever, rash and pink eye) for them to identify Zika infection. Only 48% of the women were actively educated about Zika without asking and 39% received none. Two-thirds of women indicated that they learned about Zika from TV and only a third learned from physician/nurse. Type of clinic (FQHC vs. private) significantly influenced the language in which the nurse shared information (higher proportion of women in FQHC received information in Spanish). Significantly more women from private

clinics were specifically asked about their travel history/plans; 54% of women from FQHC were not asked ($p<.001$). Private clinics specifically warned ($p<.01$) about traveling to Zika affected places.

Conclusions: Considerable proportion of pregnant Latina lack knowledge concerning transmission of virus via sex, symptoms and consequences of contracting Zika. The type of clinic influenced proactive sharing of information, travel advice, and language in which information was shared or displayed.

Public Health Implications: The study identified information sources and information seeking behavior of low-income Latina with limited-English skills and resources. The study revealed gaps in patient-clinician communication, and -, system-level factors that are crucial for targeted intervention and best practices.

A State-by-State Analysis of Key Maternal and Child Health Mortality Measures

Authors: Kristin Shaw
Sarah Milder
Laura Houghtaling

Category first choice: Child/adolescent health

Category second choice: Women's/maternal health

Data sources utilized: Birth/Death Certificates

Background: Nationally, rates of maternal mortality and child mortality are increasing, while infant mortality rates have stagnated. Teen suicide rates are also increasing. Since aggregating data at the national level can mask differences by state, we explore the geographic variation of four key maternal and child health mortality measures across states.

Study questions: How do mortality rates among infants, children, and mothers vary across states?

Methods: Using National Vital Statistics System data from the CDC WONDER online database, mortality rates were calculated for infants under age 1 (linked birth-death file, 2014-2015), children aged 1-18 (multiple cause of death file, 2014-2016, age-adjusted), and suicides among adolescents aged 15-19 (multiple cause of death file, 2014-2016) for the District of Columbia, 50 states, and the nation. Maternal mortality rate ratios were also calculated (multiple cause of death and natality files, 2011-2015). Quintiles for each measure were calculated in Excel.

Results: Of the four measures analyzed, maternal mortality has the widest variation across states with a 10-fold difference between the state with the highest rate, Georgia (46.2 deaths per 100,000 live births), and the state with the lowest rate, California (4.5 deaths per 100,000 live births). Teen suicide varies 8-fold (from 35.1 deaths per 100,000 adolescents in Alaska to 4.7 in Rhode Island), child mortality by 3-fold (from 36.4 deaths per 100,000 in South Dakota to 12.8 in Connecticut), and infant mortality by 2-fold (from 8.8 deaths per 1,000 live births in Mississippi to 4.2 in New Hampshire). California and Massachusetts are in the top quintile for each measure, and are the only two states that fall in the same quintile across all four measures. Mississippi is in the bottom quintile for child mortality, yet is in the top quintile for teen suicide. While New Jersey is in the top quintile across the three infant and child mortality measures, the state is in the bottom quintile for maternal mortality.

Conclusions: We found that states most challenged by higher child mortality rates are often different than states challenged by the other mortality measures. Teen suicides are included in the child mortality calculation, however, the two measures have unique geographic profiles. California and Massachusetts are the only states in the same quintile for all four mortality measures, reflecting success in dealing with these types of death.

Public Health Implications: Public health professionals can use this information to identify how their state compares with other states in deaths among infants, children, and mothers. Future analysis should

explore the influence of teen suicide on child mortality rates, and how infant mortality and child mortality vary across states by subpopulation and cause of death.

Adolescent birth outcomes in the United States: an analysis of racial and ethnic differences.

Authors: Matthew Moore
Martha Wingate

Category first choice: Perinatal outcomes

Category second choice: Life course perspective

Data sources utilized: Linked Data File

Linked data file: National Center for Health Statistics Linked Live Birth-Infant Death Cohort files from 2009-11

Background: Women of color have higher rates of adverse pregnancy outcomes compared to white women. Rates of adolescent pregnancy are higher among non-whites, but there is little research that examines risks of adverse outcomes among adolescent mothers by race and ethnicity. Given the decline in overall teen pregnancy and changing demographics of mothers in the United States, this study examines how birth outcomes differ by race and ethnicity among adolescent mothers.

Study questions: Do birth outcomes differ by race and/or ethnicity among adolescents? What factors characterize differences by race and/or ethnicity if they exist?

Methods: We utilized the National Center for Health Statistics Linked Live Birth-Infant Death Cohort files from 2009-11. Selecting only adolescent mothers (less than 15; 15-17; 18-19), we calculated descriptive statistics by age subgroups and race and ethnic groups (white, black, and Hispanic) for selected maternal and infant outcomes. Adjusted odds ratios (aOR) were calculated within each race and ethnic group by age subcategories, comparing less than 15 and 15-17 to 18-19 year olds by race and ethnicity. Preterm birth and other maternal characteristics were included as covariates.

Results: Hispanic mothers had the highest proportion of births across each age subcategory; however, as age increased, the percent of infants born to Hispanic mothers declined from over 40% in the less than 15-year olds to around 32% in 18-19 year olds. White mothers over age 15 had the highest rates of diabetes whereas black mothers had the highest rates of hypertensive disorders across all age groups. Infants born to black mothers had the highest rates of preterm birth across the three age categories, 14.7, 11.4, and 11.2 percent, respectively. Compared to mothers aged 18-19, the risk of infant mortality among mothers less than 15 was higher regardless of race. When adjusted for preterm birth, among blacks mothers, there was no difference. For neonatal mortality, the youngest white mothers had significantly increased risks compared to their older counterparts (aOR=1.84; 95% CI=1.23-2.74), but there were no differences in risks by age among blacks and Hispanics. Although the risk of postneonatal mortality did not differ across age subcategories in any racial and ethnic group, there was an increased risk in postneonatal mortality among 15-17-year old black mothers compared to their white counterparts. (aOR=1.32, 95% CI=1.14-1.53).

Conclusions: Although babies born to the youngest mothers generally were at increased risk of morbidity and mortality, there were variations by racial and ethnic groups and by timing of death

(neonatal versus postneonatal). When adjusted for preterm birth, differences in risks across age categories declined or, for some racial and ethnic groups, disappeared. There were also differences across neonatal and postneonatal periods when contrasting racial and ethnic groups, indicating potential differences in needs across populations.

Public Health Implications: Adolescent pregnancy continues as a needed focus to understand and address Life Course issues in MCH, as U.S. adolescent pregnancy rates are higher than other developed nations. Understanding the contribution of adolescent pregnancy to perinatal outcomes, specifically across the age continuum of the teenage years, is critical for research and programmatic activities in public health and MCH.

Household Language, Poverty, and the Social Environment: An Analysis on Latino Children's Health

Authors: Adriana Black
Michelle Huezo
Candice Belanoff

Category first choice: Racism, equity, and social justice

Category second choice: Child/adolescent health

Data sources utilized: Other

Other data source: 2011-2012 National Survey of Children's Health

Background: Current understanding of the relationship between immigrants' language and their income on children's health remains mixed. Many studies have examined "acculturation" through language to measure the relationship to immigrant children's health, suggesting that health declines with cultural assimilation and time spent in the U.S. However, an intersectional approach that accounts for the complex interplay between processes of social integration and social marginalization experienced by immigrants has been proposed. We examined whether parent-reported Latino children's health differed by language and federal poverty level (FPL), and additionally, whether measures related to children's social environment explained any observed associations.

Study questions: Does the overall health of Latino children differ by categories of language and poverty level combined? Does the quality of social environment explain the observed relationship between language and poverty level and its impact on Latino children's health?

Methods: Using the 2011-2012 National Survey of Children's Health, we included Latino children aged 6-17 (n=7,680) in our analysis. Children were grouped by FPL and primary language spoken in the home (English or non-English). Poverty level was categorized using guidelines established by the Department of Health and Human Services: 400%. Our primary outcome, parent-reported child health, was dichotomized as "Excellent/Very Good/Good" or "Fair/Poor." Adjusted multiple logistic regression analysis was used to examine the joint effects of language and poverty level on parent-reported children's health. Additional logistic regression models were used to assess whether social environment measures explained the association between language and poverty level on children's health.

Results: Our results suggest that non-English speaking households at 400% FPL [OR: 13.78 (4.62-41.10); OR: 13.34 (4.33-41.09); OR: 15.00 (2.64-84.74)], respectively. When incorporating social measures (community safety, school safety, community violence, and experiences of racism) into our models, community safety showed the strongest impact of the association between language and poverty level. Across all models, non-English speakers have a higher odds of reporting fair or poor health when compared to English-speakers.

Conclusions: Our study's preliminary results show that Latino children living in non-English-speaking households at <100% FPL, may be at risk for certain adverse health outcomes and experiences, suggesting ethnicity alone is insufficient for examining health, safety, and social environment. Despite

poverty having a negative impact on children's health, language illuminates the need to explore other social factors that can contribute to poorer health outcomes.

Public Health Implications: Our data contribute to the growing body of literature that indicates an intersectional approach is necessary when conducting immigrant health research. The social environment, in addition to individual-level social characteristics, must also be examined to better understand children's health.

Associations Between Work Place Leave and Breastfeeding Initiation, Duration and Postpartum Depressive Symptoms: Pregnancy Risk Assessment Monitoring System—8 Sites, 2015

Authors: Katie Kortsmitt
Denise D'Angelo
Rui Li
Shanna Cox
Wanda Barfield
Craig Garfield
Lee Warner

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: PRAMS

Background: Globally, paid maternity leave has been associated with improved maternal and child health outcomes, such as longer breastfeeding duration and better mental health. However, in the United States, factors affecting the amount of leave taken and the effect of leave on breastfeeding initiation, duration and postpartum depressive symptoms are unclear.

Study questions: What factors affect decisions about the amount of leave to take from work after birth? What are the associations between leave and breastfeeding initiation, breastfeeding duration and postpartum depressive symptoms?

Methods: PRAMS 2015 data were analyzed from 8 sites (AK, LA, MA, MO, NM, NYC, OK, VT) with work place leave questions on their survey. PRAMS, a site-specific and population-based surveillance system, collects data on maternal attitudes, behaviors, and experiences before, during, and shortly after pregnancy among women with a recent live birth. Respondents returned surveys no earlier than 3 months postpartum. Women who worked for pay during pregnancy and had returned (or planned to return to work) reported on leave type and factors that affected their decisions about the amount of leave to take. We calculated adjusted prevalence ratios (aPRs) and 95% confidence intervals (CIs) to examine associations between leave type ("paid only," "unpaid only or no leave," and "both paid and unpaid") and breastfeeding initiation and duration (any breastfeeding at 8 and 12 weeks). We also examined associations between leave type and postpartum depressive symptoms (defined as "always" or "often" feeling down, depressed, hopeless, having little interest or little pleasure in doing things since infant delivery). Analyses were adjusted for race/ethnicity, maternal age, maternal education, participation in the Special Supplemental Nutrition Program for Women, Infants, and Children, marital status, and timing of survey completion (infant age in months).

Results: Among 11,106 respondents, 66% reported working during pregnancy, most of whom (70%) returned or planned to work (58% and 12%, respectively). Most women (95%) who worked during pregnancy took leave, with 35% reporting “paid only,” 47% “unpaid only,” and 18% “both paid and unpaid” leave. The most common factors that women reported affected decisions about the amount of leave to take were: paid leave unavailable (36%), unable to afford taking longer leave (32%), not enough leave time (24%), and flexible schedule unavailable (21%). Breastfeeding initiation did not differ by leave type; however, women with “both paid and unpaid” leave were more likely than women with “unpaid only or no leave” to continue breastfeeding at 8 (75% vs 70%, aPR:1.09 [CI:1.01-1.16]) and 12 weeks postpartum (69% vs 63%, aPR:1.10 [CI:1.02-1.19]). Breastfeeding duration did not differ between women with “paid only” or “unpaid only or no leave”. Differences in postpartum depressive symptoms by leave type were not found.

Conclusions: Two-thirds of women reported working during pregnancy, most of whom had already returned to work when they completed PRAMS. Women with “both paid and unpaid” leave were more likely than women with “unpaid only or no leave” to breastfeed longer than 8 weeks.

Public Health Implications: Increasing access to both paid and unpaid leave may facilitate longer breastfeeding duration.

Exploring Regional Variation in Black Infant Mortality: The Contribution of Contextual Factors

Authors: Veni Kandasamy
Ashley Hirai
Jay Kaufman
Paula Braveman
Arthur James
Milton Kotelchuck

Category first choice: Racism, equity, and social justice

Category second choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates; Other

Linked data file: Infant birth-death files for 2009-2011

Other data source: 2010 Census, 2009-2012 American Community Survey, 2008 Current Population Survey, 2009 Food Environment Atlas, and the Area Health Resource File

Background: In the U.S., non-Hispanic Black infants have the highest rates of adverse birth outcomes, such as preterm birth and infant mortality. However, there is considerable regional variation in adverse birth outcomes; non-Hispanic Black rates tend to be highest in the Midwest and lowest in the West and Northeast. We examine county and state-level conditions including social, economic, political, environmental, and medical factors that may explain differences in regional patterns of Black infant mortality rates (IMR) and identify strategies for improvement.

Study questions: What are the contextual factors that are associated with Black IMR and may help to explain the regional variation?

Methods: Non-Hispanic Black IMR data come from the Linked birth/Infant Death files for 2009-2011. State and county contextual factors within social, economic, political, environmental, and health domains were compiled from various Census databases, the Food Environment Atlas, and the Area Health Resource File. State-level variables included: percent non-Hispanic Black population, Black-White marriage rate (proxy for integration), Black incarceration rate, overall voting rate, Medicaid eligibility thresholds for pregnant women, and the maternal and child health (MCH) budget per capita. County-level variables included: a hyper-segregation measure based on dissimilarity and isolation indices, the Black index of concentration at the extremes (ICE) based on income, Black civilian unemployment rate, urban-rural classification, daily fine particulate matter level, grocery stores per capita, housing vacancy percent, certified nurse midwives per capita, obstetricians/gynecologists per capita, and percent uninsured females ages 18-44. Region was defined by the 10 Public Health Regions. We examined contextual associations with Black IMR and the proportion of regional variation explained using county-level log-linear Poisson regression with standard errors adjusted for clustering by state.

Results: Overall, the Black IMR nearly doubled across regions, ranging from 7.4 per 1,000 in the Northwest (Region X) to 13.4 per 1,000 in the Midwest (Region V). All covariates also varied significantly

across region. For example, average MCH budget per capita ranged from \$2.30 in Region VII to \$53.57 in Region IX. In an adjusted model with all covariates, the following factors were protective for Black IMR: Black-white marriage rate (rate ratio (RR) per standard deviation (SD) increase:0.78, 95% confidence interval (CI): 0.64, 0.95), MCH budget per capita (RR per SD:0.97, 95% CI:0.94, 1.00), Black ICE (RR per SD=0.84, 95% CI=0.79, 0.90), grocery stores per capita (RR per SD: 0.92, 95% CI:0.86, 0.99) and certified nurse midwives per capita (RR per SD:0.96, 95% CI:0.93, 1.00). Modeled variables accounted for 27% of the IMR variation by HHS region.

Conclusions: Several state and county social, economic, and health factors were significantly and independently associated with Black IMR. While the contextual factors accounted for over a quarter of regional variation, the majority was unexplained. Limitations include the ecologic and cross-sectional design, which may be addressed in future multilevel trend analyses.

Public Health Implications: These findings suggest that efforts to improve social integration, public health spending, household income, access to healthy foods, and midwifery care may help to reduce Black infant mortality. Additional research is needed to advance knowledge of causation and understanding of regional variation.

Piloting the March of Dimes Supportive Pregnancy Care Model in Tennessee: Addressing Providers' Perceived Barriers to Group Prenatal Care Implementation

Authors: Heather Kettrey
Mary Grace Pagaduan
Katarzyna Steinka-Fry
Tracey Reed
Elizabeth Riggs
Siobhan Dolan
Emily Tanner-Smith

Category first choice: Women's/maternal health

Category second choice: Reproductive health/family planning

Data sources utilized: Other

Other data source: Data come from open-ended interviews with 20 prenatal care providers who are facilitators/co-facilitators of a group prenatal care program currently being piloted at six sites across the state of Tennessee.

Background: Group prenatal care is an effective and efficient way to promote infant and maternal health. Past research has shown positive effects of group prenatal care on birth outcomes, breastfeeding initiation, levels of prenatal knowledge, preparation for labor/delivery, and satisfaction with prenatal care. Despite these demonstrated benefits, availability and uptake of group prenatal care remains relatively low compared to traditional one-on-one prenatal care. In 2016, the March of Dimes developed Supportive Pregnancy Care (SPC), a new model of group prenatal care, which is currently being piloted in six sites across Tennessee. SPC is a cost-efficient model of group prenatal care that supplements clinical care with a focus on social support, health education, and skill building in a group setting.

Study questions: This study seeks to identify prenatal care providers' perceived barriers to and facilitators of group prenatal care implementation across a sample of diverse clinical settings.

Methods: This analysis is part of a larger pilot study that uses a mixed-methods research design to examine the effects of SPC on maternal and infant health, and to assess prenatal care providers' perceived barriers to and facilitators of program implementation across six diverse pilot sites. The pilot sites varied by setting (e.g., rural or urban; private clinic, university medical center, or federally qualified health center) and the patient populations they serve (e.g., African American, Non-Hispanic White, or Hispanic White; English-speaking or Spanish-speaking; Medicaid recipient, privately insured, or uninsured). Providers at each site were invited to participate in an open-ended interview to discuss their reactions to SPC and their experiences implementing the program with their patient population. An inductive grounded theory approach using open and axial coding is used to analyze interviews.

Results: A total of 28 prenatal care providers across six diverse pilot sites were invited to participate in an in-depth interview. Interviews were conducted with 20 prenatal care providers (response rate of 71%) between August and December 2017. At least one provider from each of the six pilot sites participated in an interview. Themes relevant to implementation barriers include challenges in patient recruitment, cultural norms of privacy, and patient concerns about scheduling, time commitments, and childcare. Themes relevant to enhanced implementation include access to adequate meeting space, administrative enthusiasm for the program, and availability of group facilitators or co-facilitators who match patient demographics. Providers noted that, although initial recruitment could be challenging, retention rates were high.

Conclusions: Group prenatal care programs have demonstrated positive effects on maternal and infant health. Lack of familiarity with the group model, paired with cultural norms of privacy, can make patient recruitment and administrative buy-in difficult. However, once recruited, prenatal care patients tend to remain active in group prenatal care. Thus, roll out of group prenatal care programs should address barriers to patient recruitment and promote enthusiasm among administrators.

Public Health Implications: Successful efforts to roll out group prenatal care programs should include a community/public awareness component that educates patients and administrators about the benefits of group prenatal care and addresses cultural norms of privacy.

Postpartum Visit Attendance and Contraceptive Use among Women Less Than 25 Years Old, Massachusetts, 2012–2015

Authors: Emily Lu
Justine Egan
Jill Clark
Susan Manning
Hafsatou Diop
Timothy Nielsen
Sarah Lederberg Stone
Cecilia Vu Lissette Gil-Sanchez
Stephanie Campbell

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: PRAMS; Birth/Death Certificates

Background: Short interpregnancy interval, defined as less than 12 months between last live birth and the subsequent pregnancy, is associated with adverse perinatal outcomes, particularly third trimester bleeding and maternal anemia, preterm birth, low birthweight, and infant death. For adolescent women (defined as less than 25 years of age), short interpregnancy interval may also interfere with education and employment opportunities if the pregnancy is unplanned. The postpartum visit is considered a critical opportunity for contraceptive counseling to prevent short interpregnancy interval. Massachusetts (MA) home visiting and case management programs working with young mothers to facilitate contraception access would benefit from our analysis of the relationship between postpartum visit attendance and contraceptive use.

Study questions: Is postpartum visit attendance associated with higher use of contraception in the postpartum period among women less than 25 years old?

Methods: We analyzed MA Pregnancy Risk Assessment Monitoring System (PRAMS) data from 2012–2015 (N=5,767 births) to describe maternal characteristics by postpartum visit attendance and use of contraception utilizing weighted prevalence estimates and Chi-squared statistics. We used multivariate logistic regression to examine the association between postpartum visit attendance and contraceptive use among the overall population as well as among women less than 25 years old. A potential limitation of this analysis is the relatively small sample of women less than 25 years old, limiting the power of our analysis.

Results: During 2012–2015, 88% of MA mothers less than 25 years old attended their postpartum visit compared to 93% of MA mothers 25–29 years old (Chi-square, $p < 0.001$). However, multivariate analyses demonstrated no significant association between maternal age and postpartum visit attendance after controlling for maternal race/ethnicity, education, insurance type, and intimate

partner violence. Postpartum visit attendance was significantly associated with contraceptive use among women less than 25 years old (adjusted prevalence ratio [aPR] = 1.21, 95% Confidence Interval [CI] = 1.04-1.41) as well as for the overall population (aPR = 1.13, 95% CI = 1.05-1.22). In addition, among women less than 25 years old, Hispanic women were 9% more likely than White, non-Hispanics (WNH) to use contraceptives (aPR = 1.09, 95% CI = 1.02-1.16) and Hispanic women were 6% more likely than WNH to use contraceptives among the overall population (aPR = 1.06, 95% CI = 1.03-1.09).

Conclusions: Postpartum visit attendance was less common among women less than 25 years old; however, younger maternal age was not independently associated with not attending the postpartum visit.

Public Health Implications: While postpartum visit continues to be useful for contraception access, our analysis indicates that other factors may also be associated with postpartum contraceptive use; these findings should be further explored. Home visitors and case managers may consider exploring interventions such as educating young parents on long-acting reversible contraceptive methods prior to the visit and helping their clients address barriers to attendance, such as scheduling, and a lack of transportation and child care in addition to promoting postpartum visit attendance.

Early Engagement of High-Risk Pregnant Women in Enhanced Prenatal Care: System of Care Strategies to Address Population Health

Authors: Lee Anne Roman
Jennifer Raffo
Zhehui Luo
Susan Henning
Peggy VanderMeulen
Steve Rechner
Melinda Johnson
Kelly Strutz

Category first choice: Women's/maternal health

Category second choice: Community collaboration

Data sources utilized: Linked Data File

Linked data file: Linked Medicaid claims, vital record, and Maternal Infant Health Program data for Medicaid-insured births in Michigan from State of Michigan's data warehouse

Background: Although many Medicaid-insured pregnant women have access to effective state-sponsored enhanced prenatal care (EPC) or federal Healthy Start (HS) programs, population health disparities persist, especially for African American (AA) women. These programs are voluntary, underutilized, and challenged to identify, screen, and engage high-risk women early in pregnancy. As part of an AHRQ-funded, county-level demonstration to improve perinatal care, system efforts focused on early EPC screening and engagement of at-risk women using integration in high volume prenatal clinics and building out Community Health Worker (CHW) roles within EPC through a HS partnership.

Study questions: Were more women (overall and AA) with medical, social determinant (SDOH), and behavioral risks EPC screened in the demonstration county compared with a state-wide population or a similar county? Did first trimester screening improve?

Methods: Linked Medicaid claims, vital record, and EPC data for Medicaid-insured births in Michigan from 2009-2015 (N=458,810; EPC participant n=114,602) were used. Logistic regression models with interaction terms (location*birth year) assessed whether improvements over time differed significantly ($p<0.05$) among the demonstration county, the state population, and a comparison county.

Results: Over time, significantly more women EPC screened in the demonstration county had any medical risk (65-81% overall, 71-85% AA) or any SDOH risk (75-72% overall, 75-70% AA) than in either the rest of the state (medical:63-76% overall, 65-76% AA; SDOH:58-64% overall, 60-67% AA) or the comparison county (medical:55-63% overall, 65-73% AA; SDOH:45-65% overall, 48-64% AA). The percentage of screened women with any behavioral risk in the demonstration county (21-24% overall, 24-34% AA) was significantly lower than the state (26-27%) but higher than the state for AA women (19-23%) and for the comparison county (17-15% overall, 10-15% AA). EPC first trimester enrollment in the

demonstration county improved for women with medical risk (26-49% overall, 24-47% AA), SDOH risk (26-47% overall, 22-45% AA), and behavioral risk (31-50% overall, 30-49% AA). In the overall population, improvements were significantly smaller in the rest of the state (medical: 28-38%; SDOH: 26-36%; behavioral: 32-41%) and nonexistent/minor in the comparison county (medical: 24-25%; SDOH: 25-28%; behavioral: 29-25%). For AA women, significantly greater improvements were seen for medical or SDOH risk compared to the rest of the state (medical: 21-29%; SDOH: 21-28%), but not to the comparison county (medical: 16-23%; SDOH: 11-23%); there were no difference for AA women with behavioral risk in either comparison. Limitations of the analyses include that risk indicators from the EPC screening instrument could not be identified among EPC nonparticipants. However, the subset of vital records indicators exhibited the same patterns of improvement.

Conclusions: The demonstration community showed significantly greater improvements in EPC screening for all women and AA women who were at medical or SDOH risk. Notably, more women in the demonstration community with medical, SDOH and behavioral risks were screened early.

Public Health Implications: Systems-based work, at practice and community program levels, can improve early reach to high-risk women with effective programs that may influence population outcomes. Integrating clinic and community-based EPC programs and teaming with HS CHWs supported efforts to improve program inclusion of women with medical and SDOH risks.

Intended Pregnancy by State, PRAMS 2015

Authors: Laura Houghtaling
Sarah Milder
Mary Ann Honors
Kristin Shaw

Category first choice: Reproductive health/family planning

Category second choice: Women's/maternal health

Data sources utilized: PRAMS

Background: Measuring pregnancy intention is complex. Ideally intention should be measured prior to a pregnancy, but it is usually measured retrospectively. The Pregnancy Risk Assessment Monitoring System (PRAMS) is a surveillance system that collects state level population data on maternal attitudes and experiences before, during, and after pregnancy and is administered after a live birth. Determining intention after a birth is complicated because respondents who may not have intended to get pregnant may be happy with the result post birth and may not report the pregnancy as unintended. The survey asks whether or not the respondent was trying to become pregnant. Rather than report unintended pregnancy, we chose to look at the prevalence of "intended" pregnancy.

Study questions: How does the prevalence of intended pregnancy vary by state?

Methods: Using data from PRAMS 2015, national and state level prevalence estimates and 95% confidence intervals of intended pregnancy were calculated using the PGINTENT variable. Pregnancy intention was defined in four ways: 1) a pregnancy that was wanted at the time or sooner than one occurred; 2) a pregnancy that was wanted later; 3) a pregnancy that was not wanted then or any time in the future; 4) wasn't sure if a pregnancy was wanted. A response of "sooner" or "then" was considered an intended pregnancy.

Results: Data from 32 states was available. The prevalence of intended pregnancy is almost 2 times higher in the state with the highest prevalence, Massachusetts, at 67.3% compared with 45.2% in Arkansas, the state with the lowest prevalence. The prevalence of women who did not intend to become pregnant ranged from 3.9% in Virginia to 9.2% in Louisiana, a two-fold difference.

Conclusions: Both the prevalence of intended and unintended pregnancies vary two-fold between the highest and lowest states. While the variation is similar, the state with the highest percentage of intended pregnancies, Massachusetts, did not have the lowest percentage of unintended pregnancies. Similarly, the state with the lowest percentage of intended pregnancies, Arkansas, did not have the highest percentage of unintended pregnancies. Additional methodology research needs to be done on the concept of pregnancy intention.

Public Health Implications: Measuring intended pregnancy rather than unintended pregnancy may reduce the bias that occurs in retrospective studies of intention. In addition, reframing intent to be a positive measure rather than a negative measure allows for positive public health messaging and interventions, and may reduce negative stigma of unintended pregnancy. However, this method does not help to ascertain the intention of those who respond "unsure."

ADHD and Technology Usage: An Analysis from the 2016 National Survey of Children's Health

Authors: Janelle Barrera Ikan
Acadia Webber
Russell Kirby

Category first choice: Children and youth with special health care needs

Category second choice: Child/adolescent health

Data sources utilized: Other

Other data source: NSCH

Background: Attention deficit hyperactivity disorder (ADHD), commonly diagnosed in childhood, has increased over the past decades. ADHD symptoms, including hyperactivity, trouble paying attention, and controlling impulsive behaviors can often continue through adulthood. Technology has advanced tremendously over the past few decades as well. With the rise of technology advancement and increased use by young children, technology use is a potential modifiable factor that could be associated with ADHD.

Study questions: The research questions are as follows: 1) Does the number of hours spent watching television have an association with ADHD diagnosis? 2) Does the number of hours spent on computers have an association with ADHD diagnosis?

Methods: A secondary data analysis was conducted using the 2016 National Survey of Children's Health (NSCH) on 35,718 children aged 6-17 years, including 4,586 (11.6%) with an ADHD diagnosis. Bivariate and multivariable regression was conducted using statistical analysis program SAS V9.4 to evaluate the association of the amount of time spent on computers and watching television in children with an ADHD diagnosis. Key independent variables were television usage and computer usage, with an outcome variable of ADHD diagnosis; controlling for sex, race, poverty level, and parent marital status.

Results: Parent-reported prevalence of ADHD was 11.6%. Children with parent-reported ADHD tended to be male (70.2%), non-Hispanic white (69.8%), 400 FPL or more (29.1%), to have an outside smoker in the household (75.2%), to be physically active 4-6 days out of the week (37.5%), and to live with two parents who are currently married (42.2%). Over half of children with ADHD (53.5%) watched 1-2 hours of television per day. Odds of having an ADHD diagnosis was significantly higher in children who spent 2 hours on the computer per day versus children who spent more than 4 hours using the computer (OR 1.25; 95% CI 0.64-2.42) Odds of having an ADHD diagnosis was significantly higher in children who spent 4 hours or more watching television versus children who did not watch television (OR 1.13; 95% CI 0.29-4.39), watched less than 1 hour per day (OR 1.18; 95% CI 0.54-2.56), watched 1 hour per day (OR 1.52; 95% CI 0.70-3.32), watched 2 hours per day (OR 1.07; 95% CI 0.52-2.17), or watched 3 hours per day (OR 1.49; 95% CI 0.70-3.21).

Conclusions: Results from this large nationally representative sample of children suggest an increased risk of ADHD with technology usage. Although each additional hour spent watching television and

utilizing computers does not show significant associations with ADHD diagnosis, the use of television and computers by children should be monitored. Further studies are needed to determine whether technology usage is a factor for ADHD and whether ADHD can exacerbate problematic technology use. Future studies should be directed towards specific technology use (i.e. tablet, television, computer, video games).

Public Health Implications: Research on technology usage associated with ADHD can be expanded to include a more detailed description of the type of technology used (i.e. tablet, television, computer, video games, etc.). Further studies are warranted to implement interventions that could positively influence the association between ADHD and technology use.

Healthcare Utilization in CenteringParenting® and Individual Well Baby Care in a Low Income Community

Authors: Andrew Paoletti
Matilde Irigoyen
Susan Leib
Jessica Bondy
Lior Gecht

Category first choice: Child/adolescent health

Data sources utilized: Other

Linked data file: Electronic Medical Records

Background: CenteringParenting® is an innovative, dyad model of group well baby care. Little is known about the impact of the CenteringParenting® model on healthcare utilization among children in high risk communities.

Study questions: To assess healthcare utilization in patients participating in CenteringParenting® (group well baby care) vs. traditional individual well baby care in a low income, minority community.

Methods: We conducted a cross sectional study at a pediatric academic practice in an urban, low income, minority community. A convenience sample of parents of newborns were offered participation in group well baby care or traditional individual well baby care, based on group appointment availability. In the group care model, a cohort of 6-8 infant/mother dyads and a provider come together for 2-hour long, well visits during the first 2 years of life. Group visits include 30-45 minute health assessments, 60 minute facilitated group discussion guided by a structured age-based curriculum, and 15 minute screening tests and immunizations. All providers – residents and faculty – are trained in group facilitation and participate in group and individual care. The study population includes all 6, 12, 18 or 24 month old infants seen Jan 2015-June 2017 who had at least 2 well baby visits and their well baby visits were either all in group care or all in individual care. Outcome measures include number of well visits, no shows and sick visits.

Results: Patient demographics were similar in group and individual care: 95% were low income (public insurance) and 95% were ethnic minority (72% Black, 14% Hispanic). Infants in group care made a significant greater number of well visits in all age groups and had a greater number of no shows in the first 6 months. Sick visits were not significantly different.

Conclusions: In a low income, minority community, infants participating in the CenteringParenting® model of group well baby care had significantly greater number of well visits, but comparable number of sick visits than infants in individual care. Larger, controlled studies are need to further assess the efficacy of group care as an alternative model of care in low income minority communities.

Public Health Implications: Attending the recommended number of well-child visits is crucial in the formative months of an infant's life. This data suggests that group well baby care may encourage parents to attend more well-baby appointments, leading to improved health outcomes. Future research

should focus on randomization studies to eliminate potential selection bias that results from proactive parents choosing the CenteringParenting health care model.

Child Clinical and Social Characteristics and Receipt of Core Early Intervention Services

Authors: Beth McManus
Zachary Richardson
Brianna Rigau
Beth Scully
Jodi Litfin-Dooling
Mary Khetani

Category first choice: Children and youth with special health care needs

Category second choice: Birth defects/developmental disabilities

Data sources utilized: Other

Other data source: Early Intervention Program electronic health records

Background: In an era of increased accountability of early intervention (EI) programs to demonstrate service effectiveness, it is critical to understand core EI service use patterns and how diagnostic, social, and functional characteristics of enrolled children relate to their service use. Prior studies show that children who are poor, minority, and have a diagnosed condition (versus delay) are less likely to access EI. Yet, previous studies relied on diagnostic information without adequately capturing service need based on the child's function. Yet, functional data are routinely collected by EI programs for mandated outcomes reporting, but have not been used in a robust, systematic approach to understand EI service use.

Study questions: The purpose of this study is to describe children's diagnostic, social, and functional characteristics associated with EI access and core service use.

Methods: Data were drawn from an electronic EI database of 2,045 children (ages: <12 month: 26% [n=531], 12-24 months: 39.8% [n=814], and 24+months: 34.2% [n=700]; 36.5% [n=747] female) discharged from a large, urban EI program between 2014 and 2016. The primary outcome was EI core service use (e.g., physical [PT], occupational [OT], and speech [ST] therapy). Adjusted logistic regression estimated the odds (95% CI) of receiving any (i.e., at least 1 visit) of the four core EI services, controlling for the child's developmental condition type, race and ethnicity, language, sex, insurance type, age at referral, and functional performance at EI entry. Adjusted median regression estimated EI core service intensity (hours per month, b [95% CI]) controlling for same child clinical and social characteristics.

Results: Children were predominantly Hispanic (42%) or white, non-Hispanic (41%), male (63%), English-speaking (76%), and had a developmental delay (90%). Children with diagnoses (versus delay) had higher odds of receiving any PT [OR=3.84 (2.6, 5.6)] and OT [OR=2.41 (1.6, 3.6)]. Children whose primary language is English had higher odds of PT [OR=1.58 (1.1, 2.2)] and OT ([OR=1.83 (1.3, 2.7)]). Hispanic children had lower odds of receiving any PT [OR=0.59 (0.4, 0.8)] or OT [OR=0.68 (0.5, 0.9)], and females had lower odds of receiving any OT [OR=0.72 (0.5, 1.0)] or ST [OR=0.67 (0.5, 0.8)]. Older infants received more intensive ST (b=0.42, [0.1, 0.7]), but less intensive OT (-0.71 [-1.3, -0.1]). Children's functional performance at EI entry was significantly associated with receipt, but not intensity of EI therapy services.

Conclusions: Social disparities in core EI service use persist, even after controlling for the child’s baseline functional performance to indicate service need. Interventions to optimize service delivery should target Hispanic and female children and those whose primary language is not English and consider additional child attributes that influence service use intensity (e.g., family engagement, motivation, shared decision-making).

Public Health Implications: Study findings provide an improved framework for replication among other EI programs who are collecting functional data for outcomes reporting purposes and could improve understanding and mitigation of social disparities in EI service use. In addition, the study framework could be included in “scale up” EI outcomes research efforts and could inform future research to understand best practice EI access and service delivery.

Tobacco Outlet Density and Sociodemographic Disparities in Urban and Rural Tennessee Public Schools

Authors: Morgan McDonald
Paul Loeser

Category first choice: Chronic disease/smoking

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: National Center for Education Statistics; 2017 Tennessee Synar Report

Background: Tobacco outlet distribution may contribute to sociodemographic disparities of tobacco use and poor health outcomes attributable to its use. A recent sampling of 97 counties in mostly urban and suburban areas in the US showed that there were more tobacco outlets near schools in low-income and minority neighborhoods. Given that prior studies mainly focus on urban areas, this study intended to obtain a more comprehensive view of the relationship between tobacco outlets and secondary schools by including all Tennessee tobacco outlets and all secondary schools, analyzing both urban and rural areas.

Study questions: What is the association between the density of tobacco outlets near Tennessee public secondary schools and the sociodemographic characteristics of the schools?

Methods: A list of tobacco outlet addresses was obtained using the 2017 Tennessee Synar Report. The National Center for Education Statistics website was used to obtain public school sociodemographic information. Geographic information systems software was used to determine the number of tobacco outlets within 1.0 mile and 0.5 mile buffer zones around Tennessee public secondary schools in 2017. For each buffer distance, Statistical Analysis System software was used to create a Poisson generalized linear regression model incorporating variables total students, rural vs. urban locale, percentage of Black and/or Hispanic students, percentage of students on free/reduced lunch, and school grade level, and incorporating interaction effects. The model was used to determine the predicted number of tobacco outlets within 1.0 mile and 0.5 mile of urban and rural schools. Student engagement with tobacco outlets within 1.0 mile and 0.5 mile of school is unknown, and not measured in this study.

Results: Tobacco outlet density increased by urban locale, percentage of students on free/reduced lunch, percentage of Black and/or Hispanic students, and high school level; for urban schools, each 10% increase in Black and/or Hispanic students predicted an 8% increase in tobacco outlets within 1.0 mile. For rural schools, each 10% increase in low-income students predicted an 11% increase in tobacco outlets within 1.0 mile. Results should be interpreted with acknowledgment that in rural areas of Tennessee, Black and Hispanic students make up a smaller percentage of total students.

Conclusions: Associations between tobacco outlet density and sociodemographic variables differed among urban and rural schools. In Tennessee, a disproportionate increase in tobacco outlets is found near minority schools in urban areas and near low-income schools in rural areas.

Public Health Implications: Policies aiming to limit the number of outlets near low-income, rural schools and near minority, urban schools have the potential to not only decrease overall tobacco use but also decrease tobacco-related health inequities. The expansive, state-wide analysis described in this study has the potential to inform policy to promote the health of all youth, and particularly low income and minority youth who have a higher environmental exposure to tobacco products.

Assessing labor intervention timing among obese women in a retrospective cohort study

Authors: Sairah Khan
Nicole Smith Carlson

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: Clinical Practice

Data sources utilized: Other

Other data source: The dataset used belongs to Dr. Nicole Carlson of Emory University. The sample is 359 healthy, nulliparous, obese women (BMI ≥ 30 kg/m²) who birthed at the University of Colorado Hospital between 2005 and 2012 with singleton, cephalic fetus born at 37 weeks to 41 weeks gestation. These women planned for vaginal birth and entered labor spontaneously. The median BMI for the 359 women is 33.83 kg/m² (IQR: 31.33,36.76). Of the 359, 170 (47.4%) were exposed to exogenous oxytocin. Of the 170 (47.4%) exposed to exogenous oxytocin, the median BMI was 34.26 kg/m² (IQR: 31.89,37.59).

Background: Approximately 40% of pregnant women in the United States (U.S.) are obese during pregnancy. When these women have cesarean deliveries, they are more likely than their normal-weight counterparts to experience significant morbidity and mortality. Unfortunately, obese women are at elevated risk for cesarean delivery, with rates up to 5 times higher than normal weight women. The primary indication for cesarean delivery in obese women is abnormally slow labor progression. Current clinical understanding of labor is that endogenous oxytocin, in concert with other hormones, causes contractions that dilate the uterine cervix, eventually resulting in birth. Per this logic, clinicians administer exogenous oxytocin when a woman shows inadequate cervical progress. The expectation is that this intervention will cause contraction strength to increase, speeding cervical dilation. However, obese women do not exhibit faster cervical dilation in response to exogenous oxytocin. Since labor progress and responsiveness to synthetic oxytocin doses are not individualized by degree of maternal obesity, inadequate clinical management of slow labor progress may therefore increase risk of unplanned cesarean delivery in obese women. According to the American College of Obstetricians and Gynecologists, slow labor progress cannot be diagnosed by clinicians until after 6cm cervical dilation, the official onset of active labor. Therefore, in women with no other indications, exogenous oxytocin to hasten labor progress should not be initiated until at least 6cm. Although this guideline applies to all women, it may be particularly important for obese women, given their longer labor course and oxytocin response difficulty.

Study questions: Does an obese woman's BMI predict if she receives exogenous oxytocin before active labor (cervical dilation < 6 cm) or during active labor (cervical dilation ≥ 6 cm) in a retrospective cohort of women?

Methods: Logistic regression was performed for the relationship between the exposure, maternal BMI, and the outcome of exogenous oxytocin initiation prior to active labor vs during active labor among a

retrospective cohort of 359 healthy, nulliparous obese women. A limitation is the comparison of obese women with other obese women as opposed to non-obese women.

Results: Logistic regression for the relationship between maternal BMI and oxytocin initiation (prior to 6 cm, at or after 6 cm cervical dilation) yields an odds ratio (OR) of 1.09(95% CI:1.07,1.16, p-value=0.004).

Conclusions: The results suggest that maternal BMI, as a continuous variable, predicts the initiation of exogenous oxytocin prior to active phase labor (<6cm) in this cohort. A conclusion about the predictive value of BMI when non-obese women are included cannot be made.

Public Health Implications: This analysis has the potential to spur closer examination of the relationships between exogenous oxytocin and labor progress in obese women. This could inform clinical practice by supplying evidence-based information upon which to design new intrapartum care strategies that are targeted to the unique needs of obese women.

Effectiveness of an academic community-based pregnancy support program in improving pregnancy outcomes among high-risk women: the Moms2B experience

Authors: Courtney Lynch
Erinn Hade
Jason Benedict
Steven Gabbe
Patricia Gabbe

Category first choice: Perinatal outcomes

Category second choice: Racism, equity, and social justice

Data sources utilized: Birth/Death Certificates; Linked Data File; Other

Linked data file: Ohio birth, death, and fetal death certificates were linked for this project

Other data source: Moms2B Program participation records

Background: The high rate of infant mortality in the United States and its associated racial/ethnic disparities remain a challenging public health problem that warrants significant attention. Limited empirical data exist regarding the effectiveness of community-based programs for high risk women aimed at improving pregnancy outcomes. In 2010, Moms2B -- an academic community-based program designed to improve health education, including nutrition and the social determinants of health -- was founded in Central Ohio.

Study questions: The aim of our project was to examine the effectiveness of the Moms2B program in improving pregnancy outcomes among high-risk women.

Methods: We identified all women who participated in the Moms2B program from 2011 to 2015. Minimally adequately exposed women were defined as those who attended the program at least three times during a pregnancy. Among these women, we used Ohio vital records to identify all of their related birth, fetal death, and infant death certificates during the study period. Only the first Moms2B-exposed pregnancy for each woman was considered in the current analysis. Other eligibility criteria included: mother 12 years or older at delivery, singleton gestation, resident of Franklin County, Ohio, \geq 20 weeks at delivery, and not missing age, gestational age at delivery, zip code, or plurality on the index vital record. In the unexposed group, derived from the Ohio vital records, we also excluded other births to exposed moms during the study period. We identified a risk-matched sample of women from the vital records who had characteristics similar to the Moms2B participants yet did not participate in the program via 1:1 matching with the estimated propensity score. Pregnancy outcomes were compared among the two groups. Outcomes of interest included: low birthweight, very preterm birth (<32 weeks), preterm birth (<37 weeks), perinatal death (death from 20 weeks of gestation through 28 days of life), and infant mortality (death within the first year of life).

Results: A total of 293 deliveries to mothers who were minimally adequately exposed to Moms2B during the study period were identified. A close match could not be found for one of the mothers; so, she was excluded from further analyses. The final analytic sample included 292 Moms2B participants and a risk-matched sample of 292 non-participants. Overall, we observed the suggestion of better pregnancy outcomes for deliveries to mothers who participated in Moms2B. With the exception of perinatal mortality, all relative risk point estimates were below one. Confidence intervals for the rarest outcomes (perinatal and infant death) were wide; however, those for low birthweight and preterm birth outcomes had upper coverage marginally above 1.0.

Conclusions: We observed the suggestion of better pregnancy outcomes for deliveries to mothers who participated in Moms2B compared to a risk-matched sample of women who did not participate. Analyses will soon include the 2016 data, the most recent data that are available.

Public Health Implications: This is the first community-based pregnancy support program of which we are aware to empirically demonstrate improvements in pregnancy outcomes among high-risk women. Work is underway to make the program broadly available to communities.

Variation in Sudden Unexpected Infant Death Reporting by State and Urbanicity — United States, 2011–2015

Authors: Lindsay Womack
Lauren Rossen
Margaret Warner

Category first choice: Trauma, violence, and injury

Category second choice: Environment place and health

Data sources utilized: Birth/Death Certificates

Background: Sudden unexpected infant deaths (SUID) include three underlying causes of death: sudden infant death syndrome (SIDS), accidental suffocation and strangulation in bed (ASSB), or unknown cause. Among SUID deaths, the percentage reported as SIDS has declined since 2010, while ASSB and unknown cause have increased. Deaths among infants that are sudden and unexpected are investigated by medical examiners and coroners (ME/C) who then report the cause of death on death certificates. Some ME/Cs have stated that SIDS is not an appropriate cause of death, and have shifted to reporting “cause unknown.” The purpose of this study was to examine variation in SUID reporting by state, urbanicity, and other factors.

Study questions: What percentage of variation in SUID reporting can be accounted for by state, urbanicity, and other factors?

Methods: We conducted a population-based study of U.S. linked birth and infant death certificates from 2011–2015, identifying underlying cause of death from ICD-10 codes. Mixed-effects multinomial logistic regression was used to examine variation in SUID reporting by state of occurrence, residential urbanicity, and other factors. The regression model was adjusted for maternal and infant demographic characteristics (maternal age, maternal race and Hispanic origin, maternal nativity, residential urbanicity, maternal marital status, maternal parity, plurality, infant sex, gestational age) and characteristics of the death (year of death, age at death in months, day of death, season of death, place of death, autopsy status).

Results: Of 17,173 SUID deaths from 2011–2015, 47.4% were reported as SIDS, 22.7% as ASSB, and 29.9% as unknown cause. Decreases in the proportions reported as SIDS occurred each year. The state of occurrence accounted for 22–24% of the variability in the percentage of SUID deaths reported as ASSB or unknown cause compared with SIDS. SUID deaths were less likely to be reported as ASSB (adjusted odds ratio [AOR]: 0.84; 95% confidence interval [CI]: 0.74–0.95) or unknown cause (AOR: 0.77; 95% CI: 0.69–0.87) among infants residing in rural counties compared with large urban counties. Additionally, SUID deaths were less likely to be reported as unknown cause for deaths in small/medium urban counties (AOR: 0.84; 95% CI: 0.76–0.92) compared with large urban counties.

Conclusions: Reporting of SUID deaths varies by year, state, and urbanicity. Variation in underlying cause of death (i.e., SIDS, ASSB, unknown cause) reporting among SUID deaths may be partially related to improvements in death investigation practices, diagnostic techniques, reporting practices, or medical advances. Some medical examiners have stated that in the absence of an identifiable cause of death, the

infant death should be reported as “unexplained” or “unknown” rather than SIDS. This change in reporting practice has been documented in prior studies, and is consistent with our findings of state and county-level variation in SUID reporting. In order to appropriately interpret trends in cause-specific infant mortality, a better understanding of variations in reporting of SUID deaths is critical.

Public Health Implications: Better understanding of variations in reporting of SUID deaths is critical for infant mortality surveillance, research, and prevention.

Health professionals' knowledge, beliefs, and practices regarding concurrent breastfeeding and maternal medication-assisted treatment for opioid use disorder

Authors: Vanessa Short
Meghan Gannon

Category first choice: Women's/maternal health

Category second choice: Other

Other category second choice: breastfeeding, substance use

Data sources utilized: Other

Other data source: survey

Background: Rates of opioid use and misuse during pregnancy and associated adverse neonatal consequences, including neonatal abstinence syndrome (NAS), have been increasing in the U.S. and represent significant public health issues. Finding effective strategies to mitigate the effects of prenatal opioid exposure on mother-infant dyads is warranted. Current evidence suggests that there are unique benefits of breastfeeding for mothers receiving medication-assisted treatment (MAT) with opioid agonists, the recommended care for opioid use disorder (OUD), and several national organizations advocate breastfeeding in this population. Breastfeeding rates, however, are low among mothers in treatment for OUD. Because health care provider support and counseling about breastfeeding are key predictors of breastfeeding behaviors, identifying health professionals' knowledge, beliefs, and practices regarding concurrent breastfeeding and maternal MAT could offer insight into targets for breastfeeding-promotion interventions in substance abuse treatment centers and clinical settings serving women with OUD and their children.

Study questions: What are health professionals' knowledge, beliefs, and practices regarding concurrent breastfeeding and maternal MAT for OUD?

Methods: Healthcare providers who work in the departments of obstetrics/gynecology and pediatrics in a hospital-affiliated university were emailed a link to complete a questionnaire electronically. Descriptive statistics were used to describe responder breastfeeding knowledge, attitudes, and clinical practices regarding concurrent breastfeeding in women receiving MAT for OUD. Responses to questions were compared by work setting (drug treatment vs. clinic) using chi-square or Fisher's exact tests.

Results: Fifty-five individuals completed the electronic survey. Slightly more than half of respondents (55%) reported that they were very likely to discuss breastfeeding with mothers receiving MAT for OUD. Less than half of respondents agreed that, among infants with NAS, breastfeeding helped to reduce NAS scores (49%), treatment duration (46%), treatment dose (40%), and length of hospital stay (45%). More than half were unfamiliar with the current recommendations regarding maternal MAT and breastfeeding. The leading perceived breastfeeding challenges for women receiving MAT for OUD were: 1) worry about transfer of methadone through breast milk; 2) daily commutes for methadone

treatment; and 3) beliefs that formula is better than breastfeeding. Differences by work setting were present. Only 11% of providers in the drug treatment setting received breastfeeding education compared to 86% of providers in the non-drug treatment setting ($P<.0001$). About half (53%) of providers in the drug treatment center reported MAT as a contraindication to breastfeeding compared to 18% of other providers ($P=0.01$).

Conclusions: Health professionals who provide care for mothers in drug treatment and/or their children could benefit from education regarding concurrent breastfeeding and maternal MAT for OUD and the benefits of breastfeeding infants with NAS.

Public Health Implications: Information from this pilot study can be used to develop future educational interventions targeting health professionals with the ultimate goal of increasing breastfeeding rates among women in treatment for OUD.

Increasing Number of Maternal Chronic Conditions is Associated with Preterm and Early Term Births, Hawaii PRAMS, 2012–2015

Authors: Divya Patil
Donald Hayes
Wendy Nihoa
Matthew Shim

Category first choice: Perinatal outcomes

Category second choice: Chronic disease/smoking

Data sources utilized: PRAMS

Background: In 2014, the Centers for Disease Control and Prevention (CDC) estimated that 25.7% of adults were living with two or more chronic conditions and that women (27.2%) were more likely to have multiple chronic conditions (MCC) than men (24.1%). As the number of conditions increase, the costs and risk of hospitalization and premature mortality rise. Over the last 20 years, the number of chronic conditions in women of reproductive age has increased and may impact maternal and child outcomes. However, neither the burden of chronic conditions among women with a recent live birth nor the association with birth outcomes is clear.

Study questions: Is there an association between the number of maternal chronic conditions and preterm and early term birth in Hawaii?

Methods: Data from 4,131 participants in the 2012–2015 Hawaii Pregnancy Risk Assessment and Monitoring System (PRAMS) were analyzed. Deliveries were categorized into five groups based on gestational age (GA): term (39 weeks or older), early term (37–38 weeks), late preterm (35–36 weeks), moderate preterm (32–34 weeks), and early preterm (less than 32 weeks). The number of chronic conditions were calculated based on presence of three conditions: 1) high blood pressure before or during pregnancy which includes chronic and pregnancy related; 2) diabetes before or during pregnancy which also includes chronic and gestational; and 3) overweight or obese status before pregnancy. Bivariate analysis and multivariate generalized logit models were created to compare the associations between the number of chronic conditions and GA categories. Maternal age, maternal race/ethnicity, smoking, insurance status, infant's sex, previous preterm delivery and marital status were included in the adjusted analysis.

Results: In Hawaii, 38.4% of women with recent live birth reported having one chronic condition while 11.3% reported having two chronic conditions and 2.3% reported having three chronic conditions. Overweight or obese status (41.8%) was most common, followed by diabetes (16.2%) and high blood pressure (9.6%). Adjusted odds ratios (AOR) for early preterm were 1.7 (95%CI:1.1–2.5) for women with one chronic condition, 3.8 (95%CI:2.2–6.3) for two, and 11.8 (95%CI:5.1–27.2) for three compared with those without any chronic condition. AOR for moderate preterm were 2.4 (95%CI:1.4–4.0) for women with two, and 6.8 (95%CI:3.1–14.9) for three compared with those without any chronic condition. AOR

for late preterm were 1.5 (95%CI:1.0-2.1) for women with one, 2.0 (95%CI:1.2- 3.4) for women with two, and 5.0 (95%CI:2.1-12.0) for three compared with those without any chronic condition. AOR for early term births were 2.7 (95%CI: 1.4-2.1) for two and 2.5 (95%CI:1.3-5.1) for three compared with those without any chronic condition.

Conclusions: Chronic conditions were associated with all preterm birth categories and early term birth. The magnitude of the association increased with each number of chronic condition and decreased with increasing GA categories.

Public Health Implications: The increased likelihood of earlier deliveries among women with multiple chronic conditions should be considered in the management of these women during pregnancy to ensure providers balance the risks for both mom and infant.

Repeat Cesarean Among Hispanic Women in the United States

Authors: Roxanne Mirabal-Beltran
Donna Strobino

Category first choice: Women's/maternal health

Category second choice: Racism, equity, and social justice

Data sources utilized: Other

Other data source: Electronic medical records, including delivery and prenatal records.

Background: Repeat cesarean deliveries (RCD) account for a third of all cesarean deliveries (CD) and present a greater overall health risk to women than primary cesareans. Despite a lower prevalence of primary CD, Hispanic women in the US had the highest rate of RCD in 2016. While there is evidence that ethnicity is associated with RCD rates, it is unclear if the reason for differences are due to demographic, anthropomorphic, obstetrical/medical, or health system risk factors. Current studies often underrepresent or exclude Hispanic women with previous CD, resulting in limited understanding about Hispanic women's risk for RCD.

Study questions: Examined the relation between ethnicity/race and RCD among women with a previous CD and whether known risk factors account for any observed differences by ethnicity/race in the odds of RCD.

Methods: A retrospective cohort study was performed using 2010-2016 data from 1821 births to women with one previous CD at a hospital in the District of Columbia. The source of data was electronic medical records(EMR) linked with prenatal clinical records(PNR). EMR data provided information about the intrapartum course not available from other data sources and PNR were instrumental in providing data usually missing from delivery records. Logistic regression was used to evaluate the relation between ethnicity/race and RCD and assess whether measurable risk factors (parity, gestational age, birth weight, gestational diabetes, induction/augmentation) for RCD account for observed differences. Multiple imputation techniques were applied to address missing data. Additionally, a sensitivity analysis of language, ethnicity/race, and RCD was conducted.

Results: Ethnic/racial differences in RCD odds were not accounted for by differences in demographic and anthropometric factors; in fact, statistically significant differences by ethnicity/race were not noted until adjustment was made for obstetric/medical risk factors. Hispanic and non-Hispanic black women had higher odds of RCD than non-Hispanic black women, however, after adjusting for obstetric/medical, and health system factors. Sensitivity sub-analysis suggest that Spanish-speaking Hispanic women have lower odds of RCD than English-speaking Hispanic women, after adjustment for covariates. Comparisons across ethnic/racial groups may have been affected by inadequate cell sizes for specific factors, especially among non-Hispanic white women whose demographic characteristics were markedly different than those of Hispanic and non-Hispanic black women.

Conclusions: After adjusting for obstetrical/medical and health system factors, Hispanic and non-Hispanic black women had higher odds of RCD than non-Hispanic white women. Demographic and anthropometric factors did not alter the results.

Public Health Implications: Assessing the relation between ethnicity and RCD as well as possible explanations, particularly modifiable factors, for this relation targets a growing population of US women that may be disproportionately affected by RCD. The identification of modifiable factors is the first step in creating effective public health policy and programs that target unnecessary RCD to reduce associated risk and healthcare costs for women.

An Examination of Low Birthweight Births and Subsequent Low Birthweight Births in Florida, 2012-2015

Authors: Angel Watson
Leticia Hernandez

Category first choice: Women's/maternal health

Category second choice: Preconception health

Data sources utilized: PRAMS; Birth/Death Certificates; Linked Data File

Linked data file: PRAMS linked to birth records.

Background: Low birthweight infants are born weighing less than 2500 grams. Low birthweight can cause severe health issues during infancy and later in life. A low birthweight delivery is a risk factor for a subsequent low birthweight delivery. In 2015, 8.6% of births in Florida were low birthweight compared to 8.1% for the United States.

Study questions: Among women who had a previous low birthweight delivery, what is the association between a previous low birthweight delivery and a subsequent low birthweight delivery in Florida? What other factors may be associated with a low birthweight delivery?

Methods: This cross-sectional study was conducted using data from the Florida Pregnancy Risk Assessment Monitoring System (PRAMS) linked to birth certificate data for years 2012-2015. This analysis included 4,453 survey respondents with singleton births. The outcome variable was current low birthweight and the predictor variable was previous low birthweight. To determine the association between having a previous low birthweight delivery and a subsequent low birthweight delivery weighted Poisson regression was used to calculate unadjusted and adjusted prevalence ratios using Stata/SE 14.2. Prevalence ratios were adjusted for race/ethnicity, age, education, pregnancy intention, smoking status, body mass index, chronic disease, and insurance status.

Results: Approximately 12% of singleton mothers in Florida who answered the PRAMS survey had a previous low birthweight delivery during the period 2012-2015. Women who reported having a previous low birthweight delivery had a higher prevalence of having a subsequent low birth weight delivery (APR: 3.5, 2.7-4.5) compared with women who did not have a previous low birthweight delivery. Significant associations with having a low birthweight delivery were found with non-Hispanic Black women (APR: 1.4, 1.0-1.9), age 35 and older (APR: 1.3, 1.0-1.8), underweight (APR: 1.8, 1.1-2.9), smoking (APR: 1.8, 1.3-2.4), late or no prenatal care (APR: 1.6, 1.0-2.5), and chronic disease (APR: 2.0, 1.5-2.7).

Conclusions: Women who reported having a previous low birthweight delivery were more likely to have a subsequent low birthweight delivery. Ensuring comprehensive interconception care, prenatal care, and management of chronic conditions for women with a previous low birthweight delivery can potentially decrease the rates of low birthweight in Florida.

Public Health Implications: State agencies and outreach organizations must develop innovative ways to educate women, especially women with a previous preterm birth, on the importance of interconception care, prenatal care, and managing chronic conditions.

Understanding and Describing the Black-White Disparity in Fetal and Infant Mortality in Illinois: Perinatal Periods of Risk Analysis, 2014-2015

Authors: Jennifer Le
Amanda Bennett

Category first choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates

Background: The infant mortality rate is higher in the United States than in any comparable developed country. In Illinois, non-Hispanic black infants consistently have an infant mortality rate two to three times that of non-Hispanic white infants. A detailed analysis of the factors contributing to racial disparities in infant mortality in Illinois has not previously been conducted.

Study questions: 1) What periods of risk account for the excess fetal and infant mortality for non-Hispanic black infants in Illinois? 2) What factors contribute to the black-white disparity in fetal and infant mortality in Illinois?

Methods: We used birth, fetal death, and infant death certificates for Illinois residents from 2014-2015 to describe the fetal and infant mortality rates in Illinois. Analyses were limited to fetuses/infants ≥ 24 weeks gestation at delivery with weight ≥ 500 grams. We used the Perinatal Periods of Risk approach to describe the disparity in fetal and infant death between the groups with the highest mortality rate (fetuses/infants of non-Hispanic black women) and the lowest mortality rate (fetuses/infants of low-risk non-Hispanic white women; ≥ 20 years old with more than a high school education). Deaths were classified into four perinatal periods of risk based on whether the fetus/infant was very low birthweight (< 1500 grams) and the timing of death (fetal, 0-27 days, or 28-364 days). We then conducted a Kitigawa decomposition analysis by birthweight to assess the contribution of the birthweight distribution and birthweight-specific mortality to the racial disparity in fetal and infant mortality.

Results: In Illinois during 2014-2015, the combined fetal and infant mortality rate was 4.20 deaths per 1,000 for low-risk non-Hispanic white mothers and 12.18 deaths per 1,000 for non-Hispanic black mothers. Among non-Hispanic black women, the excess mortality rate was 7.98 deaths per 1,000 live births, translating to 418 “excess” deaths over the two-year period. The excess deaths were divided into the four perinatal periods of risk: 160 related to maternal health/prematurity, 123 related to infant health, 106 related to maternal care, and 29 related to newborn care. According to the Kitigawa analysis, birthweight distribution and birthweight-specific mortality rates each contributed about 50% of the excess fetal/infant deaths for non-Hispanic black women in Illinois.

Conclusions: If fetal and infant mortality rates for non-Hispanic black women were the same as those for low-risk non-Hispanic white women, over four hundred deaths could have been prevented in Illinois during 2014-2015. About two-thirds of the excess deaths for fetuses and infants of non-Hispanic black women occurred in the maternal health/prematurity and infant health periods of risk. Increased rates of

prematurity and higher birthweight-specific mortality rates among non-Hispanic black fetuses and infants both contributed approximately equally to the disparity.

Public Health Implications: Targeted interventions to address the maternal health/prematurity and infant health periods of risk may improve health equity. Examples could include pre/inter-conception case management for women with chronic disease, provision of 17 alpha-hydroxyprogesterone caproate to women with a history of previous preterm delivery, or delivery of culturally-competent safe sleep education for new parents in healthcare and home visiting settings.

The Effectiveness of Tdap Counseling during Pregnancy in Florida, 2012-2015

Authors: Angel Watson
Leticia Hernandez

Category first choice: Women's/maternal health

Category second choice: Immunization/Infectious disease

Data sources utilized: PRAMS; Birth/Death Certificates; Linked Data File

Linked data file: PRAMS linked to birth records.

Background: Tetanus, diphtheria, and acellular pertussis (Tdap) vaccine is recommended during the third trimester of pregnancy to provide protection to newborns, who are at risk for pertussis-related morbidity and mortality. Pertussis is a highly contagious disease and mortality is highest among newborns. Most pertussis-associated deaths occur within the first two months of life, when babies are too young to receive pertussis vaccinations. In the United States, 39.9% of recently pregnant women reported receiving a Tdap vaccination during pregnancy in 2015.

Study questions: What is the association between Tdap vaccination offering and receipt of Tdap during pregnancy?

Methods: This cross-sectional study was conducted using data from the Florida Pregnancy Risk Assessment Monitoring System (PRAMS) linked to birth certificate data for years 2012-2015. This analysis included 4,658 survey respondents. To determine the association between offering a Tdap vaccine and receiving a Tdap vaccine weighted Poisson regression was used to calculate unadjusted and adjusted prevalence ratios using Stata/SE 14.2. Prevalence ratios were adjusted for race/ethnicity, age, education, pregnancy intention and insurance.

Results: Overall 68.8% of new mothers in Florida reported being offered a Tdap vaccination and 35.3% reported being vaccinated. The prevalence of getting a Tdap vaccination was higher among women who reported being offered a Tdap vaccination (APR: 10.2, 7.5-13.7) than women not offered a Tdap vaccination. A decreasing prevalence of getting a Tdap vaccination was observed among Hispanic women (APR: 0.86, 0.7-0.9). A significant interaction between white mothers with more than twelve years education and receiving a Tdap vaccination was identified. Stratum specific prevalence ratios among women who were offered a Tdap vaccination and received a Tdap were 7.2 for non-Hispanic black women, 7.6 for Hispanic women and 18.3 for non-Hispanic white women.

Conclusions: Racial/ethnic disparities were observed. However, women who reported being offered a Tdap were more likely to get a Tdap vaccination. The greatest benefits were observed for white mothers with more than 12 years education. Recommendations for Tdap from providers, particularly obstetricians and gynecologist, influences a pregnant woman's decision to be vaccinated.

Public Health Implications: Providers must continue to communicate information about vaccinations and educate all women on the risk of not being vaccinated.

Impact of Maternal Transfers on Neonatal Mortality in Very Preterm Infants

Authors: Kshama Shah
Raye-Ann deRegnier
Amanda Bennett

Category first choice: Perinatal outcomes

Data sources utilized: Birth/Death Certificates

Linked data file: Illinois birth certificates were linked to Illinois death certificates

Background: Very preterm (VP) delivery at level III perinatal hospitals (L3H) reduces neonatal mortality compared with birth at a non-level III (non-L3H), but there is limited understanding of the impact on VP mortality when mothers are transferred into a L3H or present directly to the L3H before birth.

Study questions: How does maternal transfer to L3H prior to delivery affect neonatal mortality for VP infants?

Methods: Retrospective cohort study using Illinois resident birth and death certificate data for VP infants (22-31 completed weeks gestation) born during 2015-16. Infants were classified as L3H births to mothers presenting at the delivering L3H, L3H deliveries after prenatal transport, or non-L3H deliveries. Neonatal mortality (<28 days) rates were calculated per 1,000 live births. Multivariable logistic regression was used to evaluate the impact of hospital level and transfer status on neonatal mortality after adjusting for: gestational age, congenital anomalies, maternal characteristics (race/ethnicity, age, education, history of preterm birth, hypertension, and diabetes), geography (type of residential county and distance from residential zip code to nearest L3H), and antenatal steroids. Odds ratios (OR) and 95% confidence intervals (CI) were calculated for the relationships of interest. Five-minute Apgar score was examined as a secondary outcome of interest, and the bivariate association with level/transport status was evaluated through chi-square tests.

Results: Of the 4817 VP infants born in IL during 2015-16, 68.5% (n=3302) were born to mothers presenting directly to a L3H, 14.1% (n=677) to mothers who were transferred to a L3H before birth, and 17.4% (n=838) were born at a non-L3H. Compared with birth after maternal presentation at the L3H (NMR 109.6/1000 births), crude mortality was increased with birth at a non-L3H (NMR 173/1000; OR 1.7; 1.38-2.10; $p<0.0001$) but not with maternal transport to a L3H before delivery (NMR 97.5/1000; OR 0.88, 0.67-1.16, $p=0.3533$). After adjusting for covariates, compared with birth at a L3H after maternal presentation to the L3H, the odds of neonatal mortality increased when infants were born at a non-L3H (OR=1.66, 95% CI=1.21-2.28), but not when mothers were prenatally transferred to the L3H (OR=0.86, 95% CI= 0.59-1.24). Five minute Apgar scores <4 occurred more commonly when infants were born at a non-L3H (n=155, 18.8%) than when mothers were transferred to a L3H (n=76, 11.3%) or when mothers presented to a L3H (n=309, 9.4%, $p<0.0001$).

Conclusions: VP infants born at non-L3H had increased odds of mortality compared with VP infants born at L3H, regardless of whether mothers initially presented to a L3H or were transferred to the L3H prior to delivery. This finding persisted after adjustment for covariates. VP infants born at non-L3H have lower

Apgar scores and difficulties with neonatal resuscitation may be partially responsible for the higher neonatal mortality in these infants.

Public Health Implications: Increased resource allocation and support for early recognition of preterm labor and early transfer of mothers with threatened VP delivery to L3H can reduce neonatal mortality. Systematic state-wide efforts to improve resuscitation capabilities may improve outcomes for infants born at non-L3H.

Clinical Chorioamnionitis and Cerebral Palsy in Term and Near-Term Infants: A Population Based Nested Case-Control Study in South Carolina

Authors: Qing Li
Dorothea Jenkins
Rita Ryan
Stephen Kinsman

Category first choice: Perinatal outcomes

Category second choice: Other

Other category second choice: Nested Case-Control Study

Data sources utilized: Medicaid Files; Hospital Discharge; Birth/Death Certificates; Other

Linked data file: Our nested case-control study used five prospectively collected administrative data from birth cohorts in South Carolina to minimize selection and recall bias. We built birth cohorts using linked birth and death files and identified cerebral palsy using ICD-9 diagnostic codes 343.X in linked records from Medicaid, Departments of Disabilities and Special Needs, and Hospital Discharge datasets.

Other data source: Departments of Disabilities and Special Needs

Background: Cerebral Palsy (CP) is the most common severe motor disability in childhood and has four causal pathways including inflammation and infection. Two thirds of CP cases are from term and near-term infants. Among them, clinical chorioamnionitis (CC) was under-researched in 109, 8,473 and 395 severe cases born in California and Washington before 2001 (Wu et al., 2003; Bear & Wu, 2016; Neufeld et al., 2005).

Study questions: To determine whether CC is associated with the risk of CP in recent term and near-term births in a population-based nested case-control study in the South Carolina (SC).

Methods: Our nested case-control study used five prospectively collected administrative data from birth cohorts in South Carolina to minimize selection and recall bias. There were 626,059 singleton infants delivered at 36-43 weeks' gestation from 1996 to 2009. We identified 1,074 CP cases up to age 4 years with ICD-9 diagnostic codes 343.X in linked records from Medicaid, Departments of Disabilities and Special Needs, and Hospital Discharge datasets. Control infants (n=4,296) were matched 4:1 with cases on gestational week, gender and birth year and randomly selected. CC was identified with ICD-9 codes 762.7 and 658.4. Conditional logistical regressions estimated the adjusted odds ratio [AOR] and 95% confidence interval [CI] of the effect of CC on CP, controlling for maternal race, age, education, parity, and small for gestational age status.

Results: CC was identified in 2.3% of CP cases and 1.3% of controls (OR, 1.62; 95% CI, 1.00-2.63, P=0.05). After logistic regression, risk factors for CP included: CC (AOR, 1.60; 95% CI, 0.97-2.64, P=0.07), small for

gestational age (AOR, 2.04; 95% CI, 1.72-2.41), maternal African-American race (AOR, 1.26; 95% CI, 1.09-1.45), and less than high school education (AOR, 2.25; 95% CI, 1.76-2.87).

Conclusions: CC was not significantly associated with a higher risk of CP in recent term and near-term infants in South Carolina in a population-based nested case-control study using multiple administrative datasets. Further investigation should validate this new method to access hard-to-obtain CP data and include placental information, birth defects and factors related to other CP causal pathways (e.g., asphyxia, coagulation, and thyroid hormone deficiency) in mediation analyses.

Public Health Implications: Using the administrative datasets and trans-disciplinary team approach engaging epidemiologists, neonatologists, neurologists, and local public health community allows recent investigation of the association between CC and CP in South Carolina. The nested design can overcome bias (e.g., selection, reverse causality) from the case-control design, as demonstrated in lessons from studies of homocysteine and coronary artery disease.

A Scorecard to measure the Success of Healthy Start Services In Palm Beach County, Florida

Authors: Jeffrey Goodman
Amy Lora

Category first choice: Perinatal outcomes

Category second choice: Other

Other category second choice: System Impact

Data sources utilized: Birth/Death Certificates; Other

Other data source: Internal database of Healthy Start referrals, services and outcomes for Palm Beach County, Florida.

Background: In 2010, the Children's Services Council of Palm Beach County (CSC) funded the implementation of an integrated system that provides Healthy Start (HS) Services to prenatal women with identified risk factors. After full implementation of this system, CSC explored the question of whether birth outcomes (as measured by decreased percentage of low birthweight and pre-term babies) of these prenatal women who received services were significantly better than prenatal women who did not receive services. A scorecard was developed to graphically illustrate the birth outcome trends of Healthy Start clients and a matched cohort in order to track system impact and inform next steps in policy and practice.

Study questions: Do prenatal women who enroll in Healthy Start services achieve better birth outcomes than a matched group who qualified for services, but did not enroll?

Methods: Using propensity score matching (PSM), those who enrolled in Healthy Start services were matched to prenatal women who were referred for services, but did not enroll. Regression analysis was conducted to identify the demographic and medical characteristics that significantly effect a prenatal woman's decision to enroll in services. Birth outcome data from 2013-2017 provided by the Florida Bureau of Vital Statistics were then merged with an internal database of Healthy Start referrals and services to develop a comprehensive database of enrolled and non enrolled prenatal women. Primary limitations involved inability to match service and birth data due to misspellings or changes in names, or family relocation.

Results: Some of the key findings: - Percentage of babies born low birthweight to prenatal women enrolled in services decreased every year from 2013 to 2017 except for an increase in 2016 - The percent of babies born low birthweight to enrolled women decreased 25% from 9.6% in 2013 to 7.2% in 2017 - From 2014 through 2017 enrolled women had a lower percentage of low birthweight babies than a matched cohort who opted not to enroll. - Percentage of babies born pre-term to prenatal women enrolled in services decreased every year from 2013 to 2017 except for an increase in 2016 - The percent of babies born pre-term to enrolled women decreased 14% from 2013 to 2017 from 8.5% in 2013 to 7.3% in 2017. - In three of the five years, the percent of babies born pre-term was lower for

enrolled prenatal mothers compared to a matched cohort of mothers who opted not to enroll, but in the past two years the comparison group had slightly lower pre-term percentages.

Conclusions: Based on birth outcome trends, prenatal women who received HS services had improved outcomes 4 out of 5 years. PSM comparisons indicated that enrolled mothers had lower birthweight percentages in four of the five years and lower pre-term percentages in three of the five years.

Public Health Implications: The combined approach of a matched data sets, matched comparisons and trend focused scorecard provide broad and critical insights to funders, stakeholders, and policymakers who need to ensure investments in services are meeting expectations.

Variation in Birth Outcomes by Mother's Country of Birth Among Hispanic Women in the United States

Authors: Carla DeSisto
Jill McDonald

Category first choice: Perinatal outcomes

Category second choice: Other

Other category second choice: Immigrant health

Data sources utilized: Birth/Death Certificates

Background: Hispanics have slightly worse birth outcomes than non-Hispanic white women in the U.S. However, population-based birth outcomes by mother's country of birth among Hispanic women have not been published.

Study questions: How do the rates of preterm birth (PTB), low birth weight (LBW), and small-for-gestational age (SGA) compare for U.S.- and foreign-born Hispanic women? Are there differences in rates by mother's country of birth?

Methods: Using the 2013 natality file, we examined PTB, LBW, SGA, and maternal characteristics for singleton births to Hispanic women (N=725,389). We excluded states that had not implemented the 2003 revised birth certificate by 1/1/2013. We examined outcomes and maternal characteristics of interest (education, age, marital status, number of previous live births, adequacy of prenatal care, delivery payment source, smoking, and chronic disease) by maternal nativity (U.S. or foreign-born) and by country of birth for foreign-born women. We used chi-square tests to assess differences between groups. We calculated crude and adjusted relative risks and 95% confidence intervals for PTB, LBW, and SGA using log binomial models. We compared the risk of each adverse birth outcome for U.S.-born (versus foreign-born) women. Among foreign-born women, we compared the risk of each adverse birth outcome for each country of birth (versus Mexico). We refer to Puerto Ricans (PR) as foreign-born although they are U.S. citizens because their experiences are different than those of women born within the 50 states and Washington, DC.

Results: U.S.-born Hispanics (49.9% of all Hispanic births) had higher rates of PTB, LBW, and SGA than foreign-born Hispanics (PTB: 7.95% versus 7.04%; LBW: 6.09% versus 5.15%; SGA: 9.18% versus 7.88%, respectively). These higher rates persisted after adjusting for maternal characteristics [adjusted RRs and 95% CIs: PTB- 1.21 (1.19, 1.24); LBW- 1.21 (1.18, 1.23); SGA- 1.10 (1.08, 1.12)]. Among foreign-born women, the rate of PTB ranged from 4.28% (Costa Rica) to 8.84% (PR), LBW ranged from 3.39% (Spain) to 7.08% (PR), and SGA ranged from 3.91% (Bolivia) to 9.68% (PR). Limited information on socioeconomic status, health behaviors, and acculturation prevent a comprehensive analysis of variables responsible for the observed differences.

Conclusions: U.S.-born Hispanics are at significantly greater risk of PTB, LBW, and SGA than foreign-born Hispanics after adjusting for maternal characteristics. There is significant variation in the rates of these outcomes among foreign-born women by country of birth, and Puerto Ricans consistently had the

poorest birth outcomes. The pattern of better birth outcomes among women who migrated from certain countries is consistent with the healthy migrant hypothesis, but further research is necessary.

Public Health Implications: A growing proportion of U.S. Hispanic births will be among U.S.-born women. As such, the rates of adverse outcomes among Hispanics may appear to increase over time if nativity is not examined. Further, our results demonstrate significant heterogeneity in rates of adverse birth outcomes by country of birth for foreign-born Hispanic women. Presenting rates for foreign-born mothers as a group masks differences by country, and these rates are skewed towards rates for Mexicans, who account for two-thirds of foreign-born Hispanic mothers.

Racial Disparity in Influenza Vaccine Recommendation from Healthcare Provider and its uptake among Pregnant Women

Authors: Jen Jen Chang
Lan Luong
Terri Rebmann
Lauren Arnold

Category first choice: Immunization/Infectious disease

Category second choice: Women's/maternal health

Data sources utilized: PRAMS

Background: Pregnant women are at increased risk of hospitalization, serious complications, poor pregnancy outcomes, and mortality from influenza. Prior research suggest that when a physician recommends and provides the influenza vaccine, patient uptake is anywhere between 2 and 50 times higher than otherwise. Research has also reported racial/ethnic disparity in vaccination coverage among adults. However, few studies explore the racial/ethnic disparity in influenza vaccine recommendation from healthcare providers, its uptake, and the interrelationship between the two among pregnant women.

Study questions: To examine racial/ethnic disparity in healthcare providers' recommending women to receive the influenza vaccine, its uptake, and the association between healthcare provider recommendation and influenza vaccine uptake during pregnancy.

Methods: This cross-sectional population-based study was based on data from CDC's Pregnancy Risk Assessment Monitoring System (PRAMS) from women who delivered a live-born infant during 2012 to 2015 (n=130,161). The binary healthcare provider recommendation variable was assessed by the question "During the 12 months before the delivery of your new baby, did a doctor, nurse, or other health care worker offer you a influenza shot or tell you to get one?". The influenza vaccine uptake outcome variable was assessed by the question, "During the 12 months before the delivery of your new baby, did you get a influenza shot?" Logistic regression was conducted to ascertain adjusted odds ratios and corresponding 95% confidence intervals controlling for mother's age, mother's marital status, mother's education, prenatal care utilization, and mother's smoking status.

Results: The prevalence of influenza vaccine uptake during pregnancy ranges from the lowest of 47% among non-Hispanic (NH) African American women to the highest of 62% among Asian women. In our adjusted analysis, NH black and NH Asian women had 24% and 51% increased odds of not receiving provider recommendation for influenza vaccine during pregnancy, respectively, compared to NH white women. For influenza vaccine uptake, NH black women were 44% less likely to receive influenza vaccine during pregnancy compared to NH white women. Overall, there is a strong association between healthcare provider recommendation and influenza vaccine uptake during pregnancy with the strongest effect observed in NH Asian women followed by NH black, NH white, Hispanic women, and women of

other races. Our study findings are based on a large population-based survey but may be limited by recall bias because the PRAMS data are self-reported postpartum.

Conclusions: Our study confirms that recommendation of the healthcare providers towards the seasonal influenza vaccination were strongly associated with vaccine uptake among pregnant women. However, we observed racial/ethnic disparity in healthcare provider recommendation and influenza vaccine uptake among pregnant women.

Public Health Implications: Influenza vaccination coverage in pregnant women remains suboptimal, especially among non-Hispanic black women. Targeted efforts toward providers and interventions focusing on pregnant women may be warranted to reduce the disparity. There is a need for effective communication strategies training to improve awareness of maternal immunization among healthcare providers.

Factors associated with knowledge of the recommendation for Tdap vaccination during pregnancy among women with a recent live birth, 2017

Authors: Katherine Kahn
Carla Black
Helen Ding
Amy Parker-Fiebelkorn
Fiona Havers
Denise D'Angelo
Sarah Ball
Stacie Greby

Category first choice: Immunization/Infectious disease

Category second choice: Women's/maternal health

Data sources utilized: Other

Other data source: Internet panel survey

Background: The Advisory Committee on Immunization Practices (ACIP) recommends tetanus, diphtheria, and acellular pertussis (Tdap) vaccination during every pregnancy to protect infants until they are old enough to be vaccinated. Few studies have investigated pregnant women's knowledge regarding this recommendation.

Study questions: What percentage of women with a recent live birth knew the ACIP Tdap recommendation for pregnant women and what factors were associated with correct knowledge?

Methods: An Internet panel survey of pregnant and recently pregnant women 18–49 years in the United States was conducted March 28–April 7, 2017, and included questions about knowledge of the ACIP Tdap recommendation for pregnant women, receipt and timing of Tdap vaccination, and provider recommendation for Tdap vaccination during pregnancy. Women were recruited from a national, opt-in, general population Internet panel. Respondents with a live birth August 1, 2016 through the survey completion date were included in the analysis. Respondents who correctly identified from a list of options that women should get a Tdap vaccination during every pregnancy were considered to know the ACIP recommendation. Multivariable logistic regression was used to determine variables independently associated with correct knowledge of the ACIP recommendation. Estimates were weighted to reflect age, race/ethnicity, and geographic distribution of the U.S. population of pregnant women.

Results: Among women with a recent live birth (n=742), 40.6% knew the ACIP recommendation. Among these women, 79.0% received a Tdap vaccination during pregnancy compared with 26.8% who did not know the ACIP recommendation. The 76.2% of women who received a provider recommendation for Tdap vaccination during pregnancy were more likely to know the ACIP recommendation than women without a provider recommendation (53.0% vs. 10.0%, respectively). Among women with a provider recommendation, those who knew the ACIP recommendation were more likely to be vaccinated than

women who did not (84.1% vs. 43.2%, respectively). Non-Hispanic black, Hispanic, and women of non-Hispanic other race/ethnicity were less likely to know the ACIP recommendation than non-Hispanic white women (adjusted prevalence ratio (95% confidence interval) [aPR(95% CI)]: 0.51(0.32–0.80), 0.74(0.56–0.97), and 0.66(0.46–0.95), respectively), as were women living below poverty than women living at/above poverty (aPR(95% CI): 0.63(0.41–0.94)). Women with a provider recommendation were more than four times as likely to know the ACIP recommendation than women without a provider recommendation (aPR(95% CI): 4.21(2.71–6.53)).

Conclusions: Two-fifths of women with a recent live birth knew the ACIP Tdap recommendation for pregnant women. Although provider recommendation for Tdap vaccination during pregnancy was associated with knowing the ACIP recommendation, nearly half of women with a provider recommendation did not know the ACIP recommendation. Among women with a provider recommendation, women who knew the ACIP recommendation were more likely to be vaccinated than those who did not. Disparities in knowledge were found between white women and all other race/ethnic groups and among those living below poverty.

Public Health Implications: Providers should continue to recommend Tdap vaccination to all pregnant women. Education about Tdap along with provider recommendations for vaccination could help ensure women understand the importance of Tdap vaccination during every pregnancy.

Maternal Medical and Social Factors Associated with Very Preterm Infant Delivery at Level III Perinatal Hospitals

Authors: Kshama Shah
Raye-Ann deRegnier
Amanda Bennett

Category first choice: Perinatal outcomes

Category second choice: Women's/maternal health

Data sources utilized: Birth/Death Certificates

Linked data file: Illinois birth certificates were linked with Illinois death certificates

Background: The American Academy of Pediatrics recommends that very preterm (VP) infants be delivered in Level III hospitals (L3H); maternal transports prior to delivery can facilitate delivery at L3H. Efforts to reduce infant mortality by improving risk appropriate care are impeded by limited understanding of maternal and social factors associated with delivery at non-L3H.

Study questions: Are maternal medical and social factors associated with delivery of VP infants at a L3H? Do these factors also relate to successful maternal transfer from another hospital to a L3H prior to VP delivery?

Methods: This is a retrospective cohort study using birth certificate data for Illinois resident VP (22-31 completed weeks gestation) infants born in Illinois perinatal hospitals during 2015-2016. Outcomes were 1) VP delivery at a L3H, and 2) successful prenatal maternal transport to a L3H hospital from another hospital. Covariates included maternal medical factors (age, gestational age (GA), hypertension, diabetes, and history of preterm birth) and social factors (maternal race/ethnicity, education, insurance, residential county type, and distance from residential zip code to nearest L3H). Prenatal care was excluded due to high rates of missing values. Forward-selection ($p < 0.10$ selection criteria) was used to build multivariable binomial regression models and calculate relative risks and 95% confidence intervals for the adjusted associations.

Results: During 2015-2016, 82.6% ($n=3981/4818$) of VP births occurred in L3H. In multivariable models, a significantly increased likelihood of VP delivery in a L3H was associated with: maternal age ≥ 30 , 24-29 weeks GA, hypertension, bachelor's degree, private insurance, rural county residence, and living < 10 miles from a L3H. Of L3H VP deliveries, 17.0% ($n=677/3981$) were to mothers prenatally transported to the L3H. Combining transported L3H deliveries ($n=677$) with non-L3H deliveries ($n=837$) showed 44.7% ($n=677/1514$) of women successfully prenatally transported to a L3H. In multivariable models, a significantly increased likelihood of successful maternal transport was associated with: 27-29 weeks GA, hypertension, any residence except in suburban counties surrounding Cook County, and living 25-49 miles from a L3H. An example of our data: In mothers with hypertension compared to no hypertension, relative risk for prenatal transfer to L3H was 1.07 (95%CI=1.04-1.09) and for prenatal transfer to L3H was 1.60 (95%CI=1.44-1.78).

Conclusions: There are maternal medical (age, GA, hypertension) and social factors (education, insurance, residential county type and distance to L3H) associated with VP delivery at L3H. GA, hypertension, and residential county type and distance to L3H are associated with maternal prenatal transfer to L3H. Notably, history of preterm birth had no association with VP delivery at or maternal transfer to L3H.

Public Health Implications: Encouraging early recognition of risk factors (such as HTN) for preterm labor improves delivery at L3H and emphasizes the need to identify other risk factors. There is opportunity to improve recognition of history of preterm birth as a risk for VP delivery through clinician/patient education and institutional guidelines. In addition, recognizing distance as a risk factor for delivery of VP infants at non-L3H can help guide state policy based on successful local practices such as in rural counties and where mothers live 25-49 miles from L3H in this study.