

# What Do You Mean When You Say Evidence Base?

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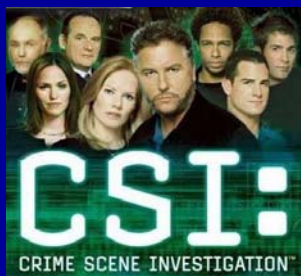
## Disclosures

- I have nothing to disclose

## Objectives

- Define what is meant by “evidence” in public health
- Discuss where to find evidence and how to apply evidence to maternal child health practice
- Identify what maternal and child health professionals can do to add to the evidence base

## What is “Evidence”?



## What is “Evidence”?

### Definitions:

- A thing or things helpful in forming a conclusion or judgment
- Stand as proof of
- An outward sign
- Something that furnishes proof

## What is “Evidence”?

### Initially use in medicine:

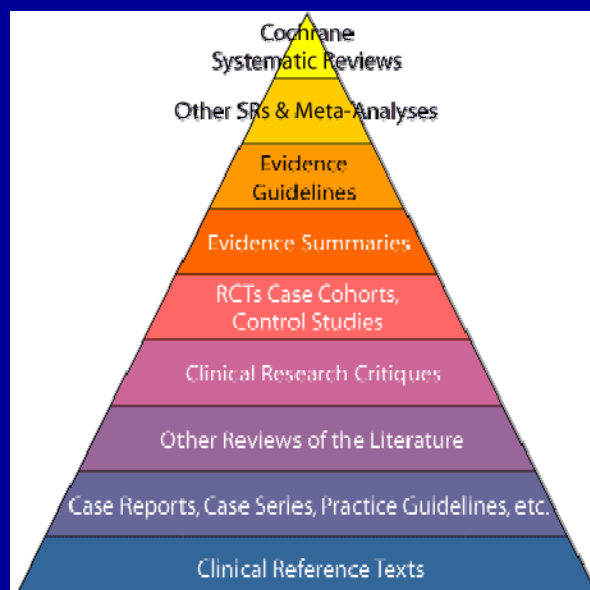
"Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research."

D Sackett et al. *BMJ* 1996;312:71-72

## Evidence-Based Public Health

- “The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of communities and populations in the domain of health protection, disease prevention, health maintenance and improvement.” Jenicek M. J  
*Epidemiol* 1997;7:187-97
- “The process of integrating science-based interventions with community preferences to improve the health of populations.” Kohatsu ND et al. *AJPM* 2004;27:417-21

## Levels of Evidence



# Sources of Evidence (1)

## Cochrane Review

- International, non-profit and independent organization that produces and disseminates systematic reviews of healthcare interventions and promotes the search for evidence

[www.cochrane.org/reviews](http://www.cochrane.org/reviews)



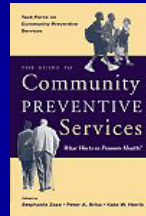
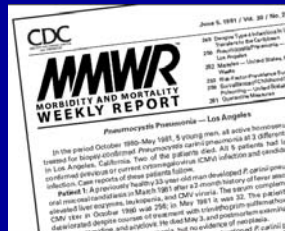
# Sources of Evidence (2)

## Meta-Analyses/ Systematic Reviews

- PubMed Systematic Reviews  
[www.ncbi.nlm.nih.gov/pubmed](http://www.ncbi.nlm.nih.gov/pubmed)
- Evidence for Practice and Policy Information (EPPI)  
[www.eppi.ioe.ac.uk](http://www.eppi.ioe.ac.uk)



## Sources of Evidence (3)



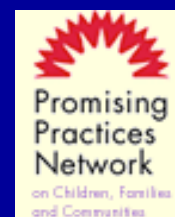
### Evidence Guidelines

- MMWR [www.cdc.gov/mmwr](http://www.cdc.gov/mmwr)
- Guide to Community Preventive Services [www.thecommunityguide.org](http://www.thecommunityguide.org)
- National Health Guideline Clearinghouse [www.guideline.gov](http://www.guideline.gov)

## Sources of Evidence (4)

### Experience-based “best practices”

- Model practice database, NACCHO [www.naccho.org/toppics/modelpractices](http://www.naccho.org/toppics/modelpractices)
- Promising Practices Network, Rand [www.promisingpractices.net](http://www.promisingpractices.net)



## Evidence and Public Health Practice

But *Why*?

- Makes sense
- Economic drivers
  - ↓ Resources = ↑ demand for ROI
- Health outcomes driven
  - Many health outcomes not improving despite much “intervention”
- Benefit to PH worker
  - Want to know we are making a difference

## Evidence and Public Health Practice

How?

1. Identifying the “right” issue
2. Seek out the best evidence
3. Critically appraise the evidence
4. Integrate with public health experience
5. Evaluate

## Identifying the “Right” Issue

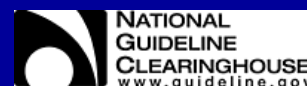
- Relevant
  - To community
  - To funders
- Achievable
  - Resources
  - Time frame
- Consider the use of conceptual frameworks

## Locate & Appraise the Best Evidence

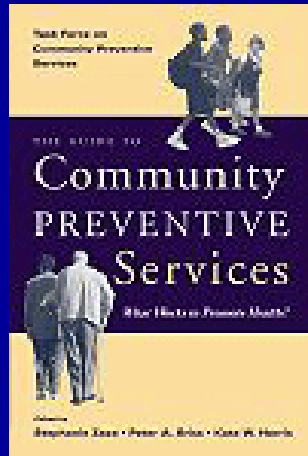
- Use various sources
- Critically appraise evidence for:
  - Validity (closeness to the truth)
  - Impact (size of effect)
  - Applicability (usefulness in given population)



National  
Library  
of Medicine



## Locate & Appraise the Best Evidence



### Strength of evidence

- Strongly recommended
- Recommended
- Insufficient evidence

## Integrate Evidence with Public Health Experience

- Determine the best course of action considering the population for whom the intervention is designed
  - Consider consulting with key stakeholders to jointly develop plan based on evidence



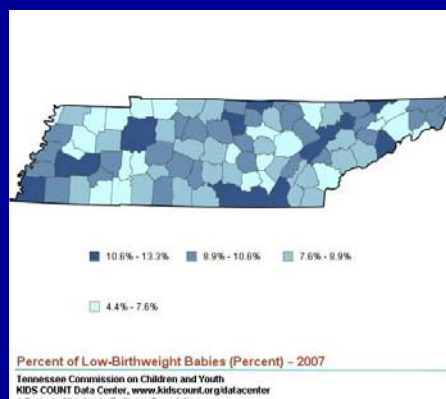
## Evaluate!

- Evaluate both process and outcome
- Process: did we adhere to the model, reach the intended population, etc?
- Outcome: did health outcomes improve as expected?



## Example: Tobacco Use and Poor Birth Outcomes

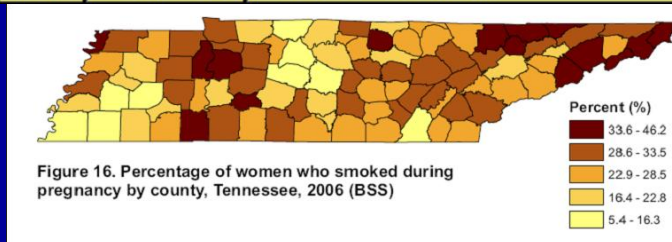
- TN ranks 45<sup>th</sup> in LBW Annie E. Casey Foundation, 2009 Kids Count
- Rates of LBW deliveries high in northeast region (NER)



## Example: Tobacco Use and Poor Birth Outcomes

- Smoking during pregnancy in NER approaches 45%
- Maternal smoking known to increase risk for:

Health Outcome	Relative Risk
Short Gestation / Low Birth Weight	1.83
Sudden Infant Death Syndrome	2.29
Respiratory Distress Syndrome - newborn	1.41



## Example: Tobacco Use and Poor Birth Outcomes

“[Smoking is] the single most preventable cause of illness and death among mothers and infants” -CDC

- Issue: Can we decrease low birth weight deliveries and reduce infant mortality by reducing tobacco use during pregnancy?



## Finding/Appraising the Best Evidence

Strong Evidence:

- Healthcare provider reminder systems with provider education
  - Impact: Increased quitting by 5%
  - Applicability: Most clinical settings
- Multi-component interventions with telephonic support
  - Impact: Increased quitting by 3%
  - Applicability: Most adults in clinical and community-settings

Fiore MC et al. Treating Tobacco Use and Dependence. US Dept of Health and Human Services, Oct 2000

## Integrating into Public Health Practice

- “5 A’s” Approach Task Force on Preventive Health Services
  - Ask** about patient’s habits
  - Advise** of consequence of smoking
  - Assess** willingness to quit
  - Assist** with cessation plan development
  - Arrange** for follow-up
- Counseling offered in HD clinics, Home Visit program, private providers’ offices
- TN Tobacco QuitLine



## Evaluate!

- Intended outcomes:
  - ↓ maternal smoking
  - ↓ LBW deliveries (intermed. term)
  - ↓ infant mortality (long term)
- Process measures:
  - # pregnant women counseled in HD, HV
  - # pregnant women using Tobacco Quitline
- Data sources: vital statistics, PRAMS, PBTMIS, HUGS database

## What Happens When There Is No Evidence?



What is a MCH program to do if little or no evidence exists to guide a given intervention?

## How to Generate New Evidence

1. Guide activities based on some reasonable data
2. Determine what “success” looks like
3. Design evaluation
4. Implement intervention
5. Adjust as necessary to achieve outcomes

## Example: Developing New Evidence, Child Obesity

- 20% of TN’s youth overweight (4<sup>th</sup> highest in US)  
Trust for America’s Health, 2008
  - 43% are overweight or are at risk of becoming overweight Coordinated School Health
- 70% of overweight adolescents will become obese adults CDC
- ↑ incidence of adult diseases occurring in children and adolescents
- Lewis County, TN: 45-50% of children 4-8<sup>th</sup> grades are overweight or at risk of overweight



## Developing New Evidence, Child Obesity: Data

### Challenges

- High rates of obesity and poverty in area
- Small funding amount
  - \$10,000 from CSG
- Few physical resources
  - 1 gym
  - Few swings
  - No PE teacher

### Assets

- Strong commitment from school, county gov't, community leaders
- Co-location of 2 schools
- Coordinated school health staff champion
- PE requirement

## Developing New Evidence, Child Obesity: Data

- Existing evidence: Creation of enhanced access to places for physical activity combined with informational outreach is strongly recommended as effective for improving fitness levels *among adults* Guide to Community Preventive Services, 2006

## Developing New Evidence, Child Obesity: Issue & Success

- Issue: Can a community-based intervention at the school improve physical fitness and BMI for children in 4-8<sup>th</sup> grades?
- Success: Participants will become more physically fit due to increased access to fun, non-competitive, and individually paced fitness opportunities

## Developing New Evidence, Child Obesity: Evaluation

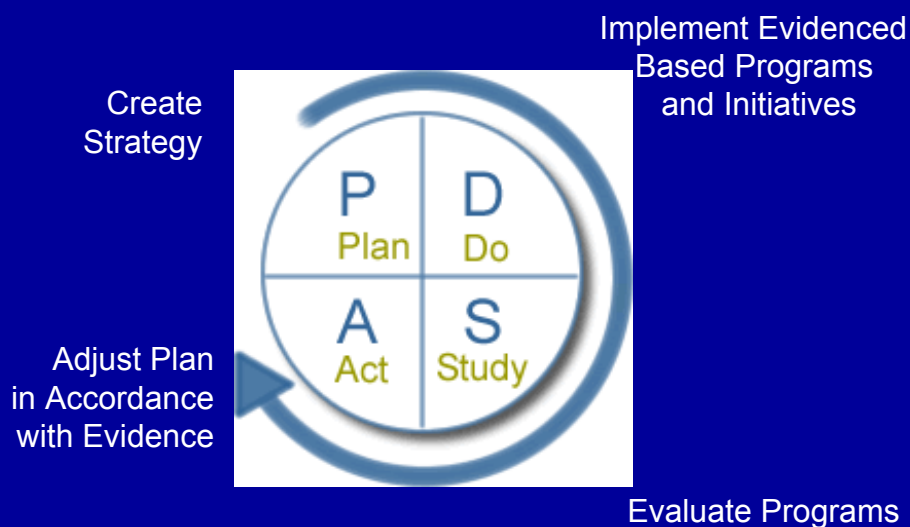
- Process: Timeliness of ordering and installing equipment, development of guidelines, training of staff, obtaining designated pre- and post- metrics, completing community kick off activities
- Outcome: Biometric (e.g. body mass index) measures, and fitness and flexibility indicators chosen by participants from the President's Physical Fitness Test

## Lewis County Collaboration

- 2 Schools, 1 campus, 1 gym
- Child-sized exercise equipment + circuit training
- Activity worked into school curriculum in 15-20 minute segments
- Family-based nutritional diaries and counseling
- Open access to faculty, families

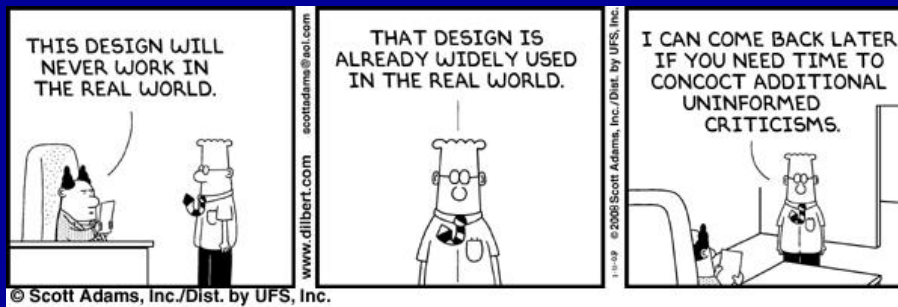


## Rapid-Cycle Study



## Evidence “Dangers”

- Defining “evidence”



## Evidence “Dangers”

Defining evidence

Public Chapter 1029

“Evidence-based means a program or practice that meets the following requirements:

- (A) ...governed by a program manual or protocol...
- (B) Scientific research using methods that meet high scientific standards for evaluating the effects of such programs must have demonstrated with two or more separate client samples that the program improves client outcomes central to the purpose of the program.” SB 3198



## Evidence “Dangers”

PC 1029

All state dollars expended on home-visiting programs shall meet the evidence based requirements as follows

- 25% during FY 2011-2012
- 50% by FY 2012-2013
- 100% by FY 2014-2015

HUGS (Help Us Grow Successfully):

- >6100 families, 56,000 visits
- Access health, educational, social service resources
- Parent education, appropriate child development
- Family planning services
- *Theory*-based program



## Evidence “Dangers”

PC 1029

- Opportunity for TDH to scrutinize our activities
  - Established formal program manual
  - Developed training tools, trained HV staff
  - Developed computer-based data entry for HV staff
- Will result in improved service delivery and outcome evaluation
- Language amended to “best available”

## Evidence “Dangers”

- Failure to identify the “right” issue or apply the “right” evidence-based model
  - Identifying an unattainable outcome for the time period
  - Assuming a rigorously evaluated model will apply to broader populations or will achieve different outcomes than studied
- Failure to evaluate outcomes
  - Evaluation is often first to go with low resources

## When Funders Require “Evidence-Based” Practices

- Talk with program/project officers
  - Discuss proposed need, data, model, and evaluation
- Talk with legislators about innovative opportunities specific to their district(s)
  - Potential to establish broader use of state/local resources



## When Funders Require “Evidence-Based” Practices

Signs things are changing:

- Federal Education Begins At Home Act
  - Includes language allowing for evaluation of promising programs



- RWJF’s “healthy community” demonstrations to evaluate the effects of a full complement of health-promoting policies and programs



- CDC’s Healthy Communities Program

## Summary

- Much “evidence” exists to guide appropriate public health action and are readily available to most MCH programs
- Appropriate application of evidence can improve outcomes and efficiencies
- MCH programs can and should show leadership in evidence innovation, or development of new evidence
- MCH programs should be aware of potential challenges of the definition and application of “evidence”

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