

Evidence-Based Public Health Practice: Using Research and Data to Improve Your Programs

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Workshop Agenda

- Overview of evidence-based public health practice
- Access health data
- Access to EBPH resources
 - Systematic reviews
 - Guidelines
- Access to research literature
 - Online databases

What is evidence-based public health?

- Many definitions
 - [From Evidence-Based Medicine to Evidence-Based Public Health](#)
 - Evidence-based public health is defined as the development, implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program planning models. (Brownson, Ross C., Elizabeth A. Baker, Terry L. Leet, and Kathleen N. Gillespie, Editors. *Evidence-Based Public Health*. New York: Oxford University Press, 2003.)
 - [E-Roadmap to Public Health Practice Concepts](#) (New Hampshire Institute for Health Policy and Practice)
 - Developing, implementing, and evaluating public health programs or public health policies (in public health terms an "intervention") that have 1) data demonstrating their effectiveness and 2) a grounding in a health behavior theory or ecological model of health.

What is evidence-based public health?

- Many definitions
 - "The process of integrating science-based interventions with community preferences to improve the health of populations." (Kohatsu ND, Robinson JG, Torner JC. [Evidence-based public health: An evolving concept](#). *Am J Prev Med*. 2004 Dec;27(5):417-21.)

What is evidence-based public health?

- Improve community health
 - Involve the community
 - Community-based participatory research
 - Use research and data
 - Don't forget what you already know

Steps for EBPH

- Develop an initial statement of the issue
- Gather data to quantify it
- Use the research literature to determine what is already known
- Develop program or policy options
- Create an implementation plan
- Evaluate the program or policy plan

O'Neill, M. A., & Brownson, R. C. (2005). [Teaching evidence-based public health to public health practitioners](#). *Annals of Epidemiology*, 15(7), 540-544.

Step 1: Develop an initial statement of the issue

- What is the health issue?
- What are the forces that might shape this issue? Political? Personal? Social norms? Environmental?
- Who are key stakeholders?
 - Including community members
- What do you know in general about the problem?

Step 1: Develop an initial statement of the issue

- Use PICO (from EBM) to begin define question
 - P: Population
 - I: Intervention
 - C: Comparison
 - O: Outcome
- Use a logic model to begin your strategic planning
 - Inputs, activities, outputs, results (short/long term)
 - [W.K. Kellogg Foundation Logic Model Development Guide](#)
 - <http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf>
 - [Logic model tutorials \(CDC\)](#)
 - http://apps.ncccd.cdc.gov/dashoet/logic_model_1/menu.html
 - http://apps.ncccd.cdc.gov/dashoet/logic_model_2/index.html

Step 2: Quantify the Issue

- Public Health Surveillance
 - “..continuous and systematic process of collection, analysis, interpretation, and dissemination of descriptive information for monitoring health problems.”¹
 - “...for use in public health action to reduce morbidity and mortality and to improve health.”²

¹Buehler, J.W. (1998). Surveillance. In: Rothman KJ, Greenland S. *Modern epidemiology* (3rd ed., 435-57). Philadelphia, PA: Lippincott-Raven.

² Guidelines Working Group. (2001). Updated guidelines for evaluating public health surveillance systems. *MMWR* 50(RR13):1-35. Retrieved March 2, 2008 from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm>

Step 2: Quantify the Issue

Types of Surveillance Systems

- Vital Statistics
 - Birth and death
 - Reported to CDC
 - See <http://wonder.cdc.gov> for more
- Notifiable diseases
 - Lists of notifiable diseases at <http://www.cdc.gov/epo/dphsi/phs/infdis.htm>
 - Changes throughout the years

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Step 2: Quantify the Issue

Types of Surveillance Systems

- Laboratory-based surveillance
 - Can get detailed information about pathogen
 - Not always effective
 - Physicians can avoid lab for “sensitive” diseases for high-profile people
- Volunteer Providers
 - Can be just-in-time for non-notifiable diseases
- Registeries
 - Tracks all occurrences of type of disease or condition or category of disease or condition
 - Birth defects
 - Cancer

Buehler, J.W. (1998). Surveillance. In: Rothman KJ, Greenland S. *Modern epidemiology* (3rd ed., 435-57). Philadelphia, PA: Lippincott-Raven.

Step 2: Quantify the Issue

Types of Surveillance Systems

- Surveys
 - Monitors behaviors, health status, knowledge and attitudes
 - BRFSS, NHANES,
- Information Systems
 - Info collected for general purposes
 - Vital records, HCUP, Workers Compensation
- Sentinel Events
 - Disease outbreaks

Buehler, J.W. (1998). Surveillance. In: Rothman KJ, Greenland S. *Modern epidemiology* (3rd ed., 435-57). Philadelphia, PA: Lippincott-Raven.

Step 2: Quantify the Issue
Types of Surveillance Systems

- Record Linkages
 - Link data from more than one system
 - Birth/infant deaths
- More information
 - Buehler, J.W. (1998). Surveillance. In: Rothman KJ, Greenland S. *Modern epidemiology* (3rd ed., 435-57). Philadelphia, PA: Lippencott-Raven.

Step 2: Quantify the Issue
Sources of Data

- National Data from Federal Agencies
 - National Center for Education Statistics
 - National Center for Health Statistics
 - Bureau of Labor Statistics
 - Census Bureau
 - FBI
 - Housing & Urban Development
 - EPA
 - SAMHSA
 - NCI
 - Medicare/Medicaid
- State government agencies
- Non-profit organizations
- Colleges/Universities
- Other research organizations

Step 2: Quantify the Issue
Where do we stand?

- What do we do well?
 - Births & deaths
 - Infectious disease
 - Cancer
- What don't we do well?
 - Chronic diseases
 - Linkages for certain types of conditions

Step 2: Quantify the Issue
Confidentiality

- Public data
 - County level typically
 - Census Bureau exception
- Hospital discharge data
 - IRB approval from state & home institution
 - TX charges for the data
- Surveys that you instigate
 - IRB approval from your institution?

Step 3: Use the Research

- Is there research related to your issue?
 - Your population?
 - Your disease?
 - Was it evaluated appropriately?
 - Theory-based?

Step 3: Research the Issue
Sources of Research

- Evidence-based research collections
 - CommunityGuide.org
 - Cochrane Library
 - Clinical Practice Guidelines
 - All available from Evidence-Based Public Health Web site
 - <http://www.sph.uth.tmc.edu/library/default.aspx?id=2909>

Step 3: Research the Issue
Sources of Research

- Research syntheses
 - Others have evaluated & vetted the research
 - TheCommunityGuide.org
 - [Using What Works: Adapting Evidence-Based Programs to Fit Your Needs](#) (Nat'l Cancer Institute)
 - [Clinical Practice Guidelines \(Agency for Healthcare Research and Quality\)](#)
 - [National Guideline Clearinghouse](#)
 - [Clinical Practice Guidelines Online](#)

Step 3: Research the Issue
Sources of Research

- Original research
 - Online databases through your local public library
 - TexShare program
 - Free of charge
 - Just need a library card
 - Access to full text articles
 - Through TexShare databases
 - Through open access journals
 - Through DSHS Medical and Research Library
 - Contact them for eligibility
 - <http://www.dshs.state.tx.us/library/default.shtm>

Step 4: Develop program or policy options

- Review what you know about public health programs
- Determine criteria for to prioritize options
- Evaluate potential costs (cost-effectiveness and cost-benefit)

Step 5: Create an Implementation Plan

- Refine your description of the issue
- Go back to your logic model
 - Add inputs
 - Expand activities
 - Refine outcomes
- Implement!

Step 6: Evaluate the program or policy

- Qualitative
 - Focus groups, town halls, neighborhood walk-throughs, surveys
- Quantitative
 - Just the facts!
 - Survey participants
 - Before and after
 - Look at health data trends from before program to after program
 - Decide if you discontinue or revise

Questions?

On to:
 Access to health data resources
 Please go to CHARTing Health Information for Texas:
<http://www.sph.uth.tmc.edu/charting> and the community assessment workbook