

Evidence-based Public Health Practice - Basic Principles

Public health is founded on the science of epidemiology with an emphasis on quantitative methods to address questions of prevalence, causation, effectiveness of interventions and quality of work. Within this model, health outcomes are primarily attributed to physical, psychological, biological, or environmental causes with interventions focused at the individual, community, or system level. Increasingly, there is acknowledgement of the importance of the social and physical environment as determinants of health and a need to understand how contextual factors influence behavior and experience. A greater depth of understanding is needed than quantitative methods supply. Quantitative methods answer questions of effectiveness and causation. Qualitative methods answer questions of how and why. Using a combination of research methods may be the best approach for public health related research that evaluates interventions or strategies (Fielding & Briss, 2006; Jack, 2006; Kohatsu, Robinson, & Torner, 2004; Upshur, 2001; Waters & Doyle, 2002). This view is in line with a definition of evidenced-based public health as “the process of integrating science-based interventions with community preferences to improve the health of populations” (Kohatsu, Robinson, & Torner, 2004).

A large and growing body of high-quality evidence informs the road ahead in many areas of public health practice. In many other areas, however, a sufficient body of evidence has not accrued so that choices of interventions and resource allocation are based on low-quality evidence or on rationale that are separate from the evidence base. For example, science does not drive ethical decision-making though it may provide helpful insights (Stetler et al., 1998). Likewise, the practice of public health is often determined by regulations, laws, and public policies, or by requirements specified within grants, rather than by purely scientific rationale.

Within this context, the Los Angeles County Department of Public Health is committed to using the best available evidence to make decisions about public health practice. A continuous, thoughtful and thorough review of the available evidence is required not only to select approaches that are known to be effective and efficient, but also to know when rigorous evaluation is needed to validate the effectiveness of approaches that are not evidence-based. A continuous contribution to the scientific basis of public health practice is needed as much as rigor in applying what is already known. And, of course, practices known to be ineffective or that can be reasonably judged to be of low impact, wasteful of resources, or even potentially harmful, should be avoided. (Fielding & Briss, 2006; Task Force on Community Preventive Services, 2000).

This Quality Improvement brief includes resources that should prove valuable to public health workers who are responsible for making decisions about resources and interventions. A table is included that differentiates rationale for decisions that are based on evidence (Tier 1) from those that are not (Tier 2). The various types of evidence listed in the table are intended to be hierarchical such that those at the top are preferred; whereas, the types listed in Tier 2 are non-hierarchical and not listed in any order of preference. This table will be useful to those who are reviewing current interventions to determine their basis of selection. A list of “Resources” is also included and specifies a few that are considered essential in public health practice and are, therefore, labeled as “required”. Finally, a brief outline is provided on “How to Find Evidence”. Literature reviews are resource-intensive and the daily demands of public health practice often do not allow for these to be done more often than occasionally, if at all. Such activity is usually performed by organizations such as the Task Force on Community Preventive Services which have expertise in this area. Even so, local demands may require a literature review so that public health leaders should be capable of performing such reviews when necessary, to include assuring that adequate rigor is applied so that the review can be considered of high quality.

References

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Rationale for Selecting Interventions in Public Health Practice

Tier 1 Evidence

Type (ranked)
Research findings: syntheses, systematic reviews, meta-analyses
Research findings: individual studies (quantitative and qualitative)
Performance data such as program evaluation or peer review reports
Demonstrated to be effective in computer modeling, simulations, or exercises
Consensus recommendations of recognized experts either local or national
Anecdotal accounts such as practices of other public health jurisdictions alleged to be effective, clinical narratives, or case reports

Tier 2 Other Rationale

Type (unranked)
Philosophical or conceptual bases such as an ethical framework or a professional code of conduct
Regulations, laws, or public policies
Grant requirements
Community preferences
Necessary because of the political climate
Best hunches

Note: Tier 1 is preferable to Tier 2.

How to Find Evidence to Support Public Health Practice

Each program should assure that all program activities and interventions support their population-level goals and are based on the best available To do this, programs must know how to FIND evidence as well as how to REVIEW it to identify and prioritized strategies that are based on evidence. Here are *Suggested Steps...*

Step 1- Finding Documents for Review

Conduct an Electronic Literature Search

2. Select a bibliographic database (e.g., MEDLINE, PubMed, PsychInfo, CINAHL, Sociological Abstracts, HAPI, Econolit, EMBASE, ISI Web of Knowledge).
3. From your list of program goals, develop a list of KEY WORDS that you will use to search the scientific literature. (e.g., Medical Subject Heading – MeSH terms).
4. Conduct the search.
5. Refine the search as needed (broaden or narrow by adding or removing KEY WORDS and English only, peer reviewed, last 10 years).
6. Select source documents for review

Review “Sources” Listed Below

7. Review the required sources and others that relate to your program’s goals to see if there are any items listed that you have not already discovered.
8. Select source documents for review.

Review Bibliographies of Key Documents

9. Look for articles in document bibliographies that did not appear in your electronic literature search.
10. Select source documents for review.

Step 2 – Review Your Source Documents

11. Organize the documents for review, perhaps by the type of article:
 - Original Research Articles
 - Review articles
 - Review articles featuring a quantitative synthesis of results
 - Guidelines
12. Abstract pertinent information from each document.
 - a. Name of source, author, date of document
 - b. Methodological Characteristics
 - Type of document or study
 - Study population
 - Sample Size
 - Intervention Characteristics
 - c. Content-specific findings
 - Results
 - Conclusions
 - Other Comments
 - d. Key strategies recommended by the source

Step 3- Prioritizing Your Strategies

13. Compile a comprehensive list of strategies recommended by the source documents.
14. Prioritize the identified strategies based on the document “Rationale for Decision-making in Public Health Practice.”

Evidence Sources

Required Sources

Task Force on Community Preventive Services

<http://www.thecommunityguide.org/>

Task Force on Community Preventive Services

<http://www.ahrq.gov/clinic/prevenix.htm>

Cochrane Collaboration Health Promotion and Public Health Field

U.S. Preventive Services Task Force

<http://www.ahrq.gov/clinic/uspstfix.htm>

<http://www.vichealth.vic.gov.au/cochrane/welcome/index.htm>

Cochrane Library is accessible through the public health library at <https://intranet.ladhs.org/lib/>

National Association of County and City Health Officials

<http://www.naccho.org/topics/modelpractices/index.cfm>

Other Useful Sources

Division of Quality Improvement and the Office of the Medical Director

<http://lapublichealth.org/qa/interventions.htm>

Evidence-based Practice site of the Agency for Healthcare Quality and Research

<http://www.ahrq.gov/clinic/epcix.htm>

Health Evidence-Canada

<http://health-evidence.ca/>

Healthy Minnesotans Strategies for Public Health, Vol. 2

<http://www.health.state.mn.us/strategies/index.html>

Healthy People 2010 Information Access Program

<http://phpartners.org/hp/index.html>

National Academy of Sciences

<http://www.nasonline.org/site/PageServer>

National Library of Medicine Health Services Research and Public Health Information Programs

<http://www.nlm.nih.gov/hsrph.html>

Partners in Information Access for the Public Health Workforce

<http://phpartners.org/>

School of Nursing at the University of Illinois, Chicago

Evidence-based Public Health Nursing

<http://www.uic.edu/depts/lib/projects/ebphn/>

Step-by-Step Guide to Delivering Clinical Preventive Services Guidelines for Clinical Preventive Services, 2005

<http://www.ahrq.gov/clinic/prevenix.htm>

<http://www.ahrq.gov/clinic/ppipix.htm>

The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity

<http://www.surgeongeneral.gov/topics/obesity/>

University of Massachusetts Medical School

Evidence-Based Practice for Public Health

<http://library.umassmed.edu/ebpph/>