

Teaching Evidence-based Public Health to Public Health Practitioners

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PURPOSE: The purpose of the Evidence Based Public Health (EBPH) course is to train public health practitioners to utilize a comprehensive approach for program development and evaluation from a scientific perspective, including principles of scientific reasoning and systematic uses of data and information systems. The increasing technical sophistication of public health problems and approaches emphasizes the importance for an evidence-based approach to developing policy and interventions.

METHODS: The training methods used highlight the linkages between data systems and program/policy initiatives. Participants learn to access and interpret existing data systems and methods of using data to impact specific policies or decision-makers. From 1992 through mid-2004 the EBPH course was offered a total of 20 times, in Missouri, nationally and internationally. In March 2002, the workshop was taped and pressed into a 16-CD set that public health workers can use as a self-teaching program in their own homes and offices. The group exercises from the classroom workshop have been adapted into individual self-guided applications, and background readings are included in the set.

RESULTS: Compiled results of course evaluations indicate average ratings for course satisfaction ranging from 8.50 to 10.00 on a scale from 1 to 10. Satisfaction with course instructors ranged between 8.00 and 10.00 on the same scale. Ninety-four to ninety-six per cent of participants reported that they would use the course in their day-to-day work. Qualitative comments from participants at the time of and after the course show that the material is applied in a variety of ways.

CONCLUSIONS: The EBPH course is making a valuable contribution in strengthening the application of scientific methods to public health practice. To expand the offerings of this training, a train-the-trainer component for the EBPH course is being developed, to be made available in 2005.

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INTRODUCTION

The practice of public health is a large and diverse enterprise, encompassing the activities of 59 state and territorial health departments, over 3000 local health departments, and myriad federal agencies with both discrete and overlapping responsibilities. As noted in *The Future of the Public's Health in the 21st Century* (1), other central actors in the public health system include the health care delivery system and academe, as well as those engaged in the media, business and industry, and members of communities.

There are many reasons for the increasing complexity we see in the demands of the public health field: the diversity of local and state health departments and the communities they serve; new threats to the health of the population, ranging from infectious and chronic disease to climate change and biosecurity; technological innovation calling for

new skills to use new tools; demographic transformations; and an ever-changing political climate that places new demands on the priority-and policy-setting decision system. Faced with increasing demands and limited resources, we must find new and increasingly effective ways to address the threats facing the public's health.

Too often, what we do in day-to-day public health practice lacks scientific evidence of effectiveness (2). There are both historical and current examples of widespread implementation of programs or policies lacking scientific grounding. The 1975 campaign to immunize the American population against the swine flu was advanced without adequate consideration of the scientific evidence (3). Even though the policy was halted shortly after implementation, it led to substantial legal liability for the US Government because of the potential link between swine flu vaccination and Guillain-Barre syndrome (4). Another prominent example is the Drug Abuse Resistance Education (D.A.R.E.) program, which is the most widely used school-based drug use prevention program in the United States reaching over 70% of elementary-school children (5). Systematic reviews of methodologically sound D.A.R.E. program evaluations have shown the program to be ineffective (6).

It is estimated that the governmental public health workforce numbers over 430,000, with another 15,000 in voluntary agencies (7). The report entitled *Who Will Keep*

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the People Healthy? identified the public health workforce as cutting across multiple professions with highly varied preparation in the biological and social sciences and other technical fields (7). For example, only 44% of the public health workforce has formal public health education and only 22% of local public health officials have graduate degrees in public health (http://www.phppo.cdc.gov/owpp/WDI_Identify.asp).

In light of the increasing technical sophistication of public health problems, and the growing importance of applying an evidence-based approach to developing policy and interventions, there is a crucial need for educational offerings that create a common base of understanding of the fundamentals of public health practice.

Evidence-based public health (EBPH) has been 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 program planning models" (8). To enhance uses of evidence in public health practice, a course entitled "Evidence Based Public Health" was originally developed in 1997 by the Saint Louis University School of Public Health (SLU-SPH) in collaboration with the Missouri Department of Health and Senior Services; it has since been expanded with the Centers for Disease Control and Prevention, the Chronic Disease Directors, the World Health Organization (i.e., the Countrywide Integrated Noncommunicable Diseases Intervention [CINDI] directors), and the Pan American Health Organization.

COURSE DESCRIPTION

The EBPH course was developed to train professionals to use a comprehensive approach for program development and evaluation from a scientific perspective. Development of effective programs and policies in public health depend on the application of principles of scientific reasoning and systematic uses of data and information systems. This process relies on several related disciplines including epidemiology, biostatistics, behavioral sciences, and health care management. The course teaches a comprehensive approach to program development and evaluation from a scientific perspective. Highlighting the linkages between data systems and program/policy initiatives, participants learn to access and interpret existing data systems and methods of using data to impact specific policies or decision-makers. The EBPH course teaches about a process that includes:

- Engaging stakeholders (e.g., agency leaders, policy makers, community partners)
- Assessing what influences health, health behaviors, and community health (literature, local needs, academic theory)

- Developing programs based on assessment (science)
- Evaluating process, impacts, and outcomes
- Learning from our work and sharing it in ways that are accessible to all stakeholders

The course takes a "hands-on" approach and emphasizes information that is readily available at the fingertips of busy practitioners. It relies on experiential learning and includes lectures, practice exercises, and case studies. The audience for the course is broad and includes public health practitioners, that is, people who direct and implement population-based intervention programs in agencies or in other community settings. Most of the course attendees have had no formal training in public health (e.g., an MPH).

The main areas covered in the course are: 1) developing a concise statement of the issue; 2) describing the issue in a quantitative way; 3) determining what is known through the scientific literature; 4) developing program or policy options; 5) developing an action plan for the program or policy; and 6) evaluating the program or policy (Fig. 1). The EBPH course is organized into seven modules.

The first course module provides an introduction to evidence-based decision making. It includes an overview of basic principles and applications in disease prevention and health care. Participants learn to understand and apply the basic concepts of evidence-based decision making, differentiating between applications based on strong and weak evidence, and to identify the barriers to evidence-based decision making in public health settings. A broad view of evidence is presented that includes: data and scientific evidence, input from community members, input from other stakeholders, and professional experience.

In the second module, students learn to develop an initial, concise, operational statement of the issue in the context of the forces that shape public health programs and policies. The material in this model includes an overview of the strategic planning process for setting priorities in public health, developing a concise written statement of the public health problem, issue, or policy under consideration in a measurable manner, and understanding a criterion for the components of a sound problem statement.

The third module, quantifying the issue, presents an overview of descriptive and analytic epidemiology. In this section, participants come to understand the major designs and contributions of analytic epidemiology, as well as several major sources of public health surveillance data. They also learn how to characterize a public health issue according to time, place, and person.

The course then moves on to cover the process of determining what is known through the scientific literature. Participants receive an introduction to searching the scientific literature or other sources about the problem, issue, or policy under consideration, with an introduction

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