

# Guide to Community Preventive Services: Harnessing the Science

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Stephen Hawking reminded us that the history of science is the gradual realization that things do not happen in an arbitrary fashion.<sup>1</sup> Because this is a cause-and-effect world, our scientific focus in public health is on understanding the causes that impact on health and measuring their effects. Led by the example set by the U.S. Preventive Services Task Force, which in 1988 issued the first edition of its landmark *Guide to Clinical Preventive Services*,<sup>2</sup> increasingly the medical community is making evidence-based medicine the standard. The surprise has been to find out how much of what we had accepted as good clinical practice, was in fact not based on evidence that stood up to scientific scrutiny. The impact of these new inquiries on clinical care is already evident in the reduction of over-use and misuse procedures and in the narrowing of the spectrum of care given. The *Guide to Community Preventive Services* brings public health to the same level of scientific scrutiny with evidence-based recommendations for community prevention services. This, in turn, holds promise for an improvement in the public health care given but also for a narrowing of the spectrum of public health care provided.

Some reactions to this development are:

First, it is a good change that should be supported, encouraged, and continued. It will lead to surprises. Some of our cherished beliefs will turn out to be unfounded and many of our accepted practices will be found to lack adequate study of effectiveness. For example, there is insufficient evidence that community education programs for immunization are good investments compared to other immunization expenditures. Having said that, we do not know if they are not useful or whether they have been inadequately measured. But the point is that this helps us to know which practices are based on some level of evidence and which practices warrant more study.

Second, this is one more welcomed step in the institutionalization of public health. It follows a series of changes, including the development of schools of

public health over 80 years ago, to standardize the training of public health workers, and the institutionalization of epidemiology in public health practice 50 years ago. More recently, standardized programs have developed, including immunization programs for vaccine-preventable diseases, programs for the control of problems such as tuberculosis, sexually transmitted diseases, lead poisoning, injury, violence, heart disease, cancer, and environmental and occupational hazards. Even more recently there has been attention given to policies, including the *Model Standards for Community Preventive Health Services*,<sup>3</sup> published in 1979, as well as attention to outcomes, as with the *Objectives for the Nation*,<sup>4</sup> published in 1980, and the *Healthy People 2000* report in 1990.<sup>5</sup> Each step has helped to develop a system, has provided national guidelines, and has encouraged the use of these systems by local health departments. Local health departments do not have the resources to test every intervention, yet the vast majority of interventions are developed and introduced in local health departments. The *Guide* aggregates the experiences of those who have tried and documented preventive practices—the latest step in public health institution building.

Third, the absence of strong evidence is in itself a call to action. In public health and prevention, dealing with large populations as we do, we have a special obligation to document the effectiveness of our interventions. The *Guide* will help point the way to those activities for which additional attention and study is needed. It will also prod us to be creative and innovative in the design and interpretation of population-wide studies, which are inherently difficult. Classically structured randomized clinical trials—the gold standard for the assessment of discrete and well-controlled patient interventions—often do not lend themselves well to conclusive results when applied to community-wide interventions subject to confounding circumstances and trends. This serves as a welcome challenge to public health to identify an evaluative calculus of superior applicability and credibility.

Fourth, even if it is evidence-based, it is not certainty. It is the best judgment, given the evidence. Richard Feynman discussed the uncertainty of science in a series of lectures in 1963,<sup>6</sup> in which he pointed out that all scientific knowledge is uncertain. By admitting that we

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do not know for sure, we have the possibility of alteration; he points out that true scientists try to prove themselves wrong as quickly as possible. Likewise, communities should apply these guidelines with enthusiasm as the best interpretation of what we know. At the same time, communities should seek to find the errors and the problems in order to improve our collective knowledge. At one time it seemed so logical to advise that babies sleep on their stomachs, but observation, studies, and evidence revealed the dangers. At times we are frustrated as the information seems to whipsaw us from side to side. Examples include understanding the role of coffee and certain diseases, or music in child development. Sometimes new knowledge causes a sea change in attitude, as for example, discovering the relationship between bacteriology and ulcers. The constant is that this is an evolutionary process—it is never finished, but always exciting.

Fifth, these guidelines are useful only to the degree that they are applied. It is important that the evidence was collected, that there were debates on the possibilities of interpreting the evidence, and that finally those involved reached an imperfect consensus. But every immunization given, every restaurant inspected, every

premature death delayed, every illness prevented, ultimately involves application and it involves a local health department. And while local health departments differ widely from each other, the unifying theme is that they are all problem solvers. Solving public health problems requires knowledge that indeed does give power. This publication provides local health departments with an abundance of clear and factual information to plan their activities, to educate their political decision makers, and to educate the community. It is a great start to a new public health century.

## References

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Journal of Preventive Medicine