

ACE POLICY SYMPOSIUM

How Do We More Effectively Move Epidemiology into Policy Action?

FAITH G. DAVIS, PhD, FACE, CARYN E. PETERSON, PhD, FRANK BANDIERA, MPH,
OLIVIA CARTER-POKRAS, PhD, AND ROSS C. BROWNSON, PhD

A major focus of the American College of Epidemiology's Policy Committee has been to review the translation of epidemiologic evidence into policy by developing case studies. This article summarizes crosscutting policy process lessons across the eight cases developed to date through two workshops held in 2009 and 2011. A framework for evidence-based public health policy has emerged to suggest that process, content, and outcomes are all needed to help move policy forward. The most readily and apparent contributions from epidemiologists are towards content and outcomes activities, and although this is apparent in all of the case studies presented, much of the 2011 workshop discussion focused on six process issues. Policy and process issues are not well incorporated into current epidemiologic training, and controversy remains over the role of the epidemiologist as an advocate for policy changes. As these case studies show, epidemiologic evidence impacts policy to address emerging public health problems, yet few epidemiologists are formally trained in the domains to support policy development. As we continue to learn from current policy efforts, we encourage the incorporation of these case studies and the emerging experience within epidemiologic training programs.

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INTRODUCTION

To better understand the policy process, a major focus of the American College of Epidemiology's Policy Committee has been a series of symposia designed to review the translation of epidemiologic evidence into policy. The Committee has sponsored two special workshops resulting in a set of eight case studies. The first cases were published in June 2010, and this issue of the *Annals of Epidemiology* reports four new case studies. Previous cases covered a wide range of public health issues including compensation of veterans (1), regulation of secondhand smoke (2), blood alcohol limits for drivers (3), and physical activity in school (4).

From the Department of Public Health Sciences, School of Public Health, University of Alberta, Edmonton Clinic Health Academy (F.G.D.); Division of Epidemiology and Biostatistics, School of Public Health, University of Illinois at Chicago, Chicago, IL (C.E.P.); Department of Epidemiology and Public Health, Miller School of Medicine, University of Miami, Miami, FL (F.B.); Department of Epidemiology and Biostatistics, School of Public Health, University of Maryland College Park, College Park, MD (O.C.-P.); Division of Public Health Sciences and Alvin J. Siteman Cancer Center, Washington University, School of Medicine, Washington University in St. Louis, St. Louis, MO (R.C.B.); and Prevention Research Center in St. Louis, Brown School, Washington University in St. Louis, St. Louis, MO (R.C.B.).

Address correspondence to: Faith G. Davis, PhD, FACE, Chair, Department of Public Health Sciences, School of Public Health, University of Alberta, 3–317 Edmonton Clinic Health Academy, 11405–87 Avenue, Edmonton, AB, Canada, T6G 1C9. E-mail: faith.davis@ualberta.ca.

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The four new cases address health disparities, cancer screening, human immunodeficiency virus (HIV) prevention among Latinos, and the National Salt Reduction Initiative (5). This article highlights key findings from the new case studies and summarizes some crosscutting policy process lessons across all eight cases.

The importance of moving epidemiologic evidence into policy and practice is no longer a debate (6–8), but the question remains as to how to effectively impact policy change aligned with the knowledge we generate. A framework for evidence-based public health policy has emerged to suggest that process, content, and outcomes are all needed to help move policy forward (9). The most readily and apparent contributions from epidemiologists in this schema are towards content and outcomes activities, and although this is apparent in all the case studies presented, much of the discussion of workshop participants focused on process issues. Process issues are not well incorporated into current epidemiologic training, and controversy remains over the role of the epidemiologist as an advocate for policy changes and what that means (8, 10). Spasoff (11) lists key elements of policy development and argues that epidemiology is central to each element, including policy choices, policy implementation, and policy evaluation. It is interesting that some identified barriers to implementing effective public health policy involve scientists being isolated from the policy process, not wanting to get involved in a complex

Selected Abbreviations and Acronyms

HIV = human immunodeficiency virus

and time-consuming policy process, not understanding the process, and not having the skills to impact the process (10). It is also noteworthy that an element known to facilitate policy formulation is personal communication (12). It is clear that as a discipline we need to learn from past and ongoing efforts to influence policy, that different models will arise within different contexts, and that the interface between individuals in the discipline and the policy process will be context dependent as shown here and by others (13).

The most important ingredient for success in moving epidemiologic evidence into policy seems to be placing a high priority on a specific issue and recognizing that this decision needs to be followed by a strong and long-term multidisciplinary team approach. Alone, epidemiologists are unlikely to be effective in creating policy, but as members of teams they may have diverse roles, particularly in identifying and quantifying issues and monitoring and evaluating outcomes of programs and policies.

According to Kingdon's model (14), the policy content and the policy process are both important. He argues that policies move forward when elements of three "streams" come together. These streams are very distinct, and, when combined, increase the odds of a policy being adopted. The first of these is the definition of the problem (e.g., epidemiologic data demonstrating a high rate of HIV/acquired immunodeficiency syndrome). The second is the development of potential policies to solve that problem (e.g., identification of policy measures to achieve an effective

HIV-prevention strategy). Finally, there is the role of politics and public opinion, factors both inside and outside of government that influence the policymaking process (e.g., interest groups supporting or opposing the policy). Policy change occurs when a "window of opportunity" opens and the three streams push policy change through. Among the three phases (problem definition, policy development, politics/public opinion), epidemiologists probably play the most significant role in the problem definition phase and a supporting role in the policy development stage.

At the core of any policy change is the need for a strong understanding of the epidemiologic data, a critical evaluation of its strengths and weakness, transparency of that evaluation, and the emergence of a compelling story that can be translated to a nonscientific audience. A multifaceted approach involves understanding the constituency that is affected by the issue and engaging key players in discussion of the issue. These players then become effective members of a team, assisting in the policy analysis necessary to bridge the gap between evidence and change. The team can then develop a more complete and compelling story directed to the target audience, build the network of stakeholders and media connections, and create a broad consensus for change. The epidemiologist can focus solely on content contribution or become a part of the entire process.

These case studies have a number of characteristics in common that made each situation effective. In all examples, a key group chose to focus on one specific change for which there is epidemiologic evidence supporting the health benefits of this change. Although any one change is multifactorial in nature, focusing on the most important or compelling issues supporting that change, and not digressing into the full spectrum of potential health benefits, appears to

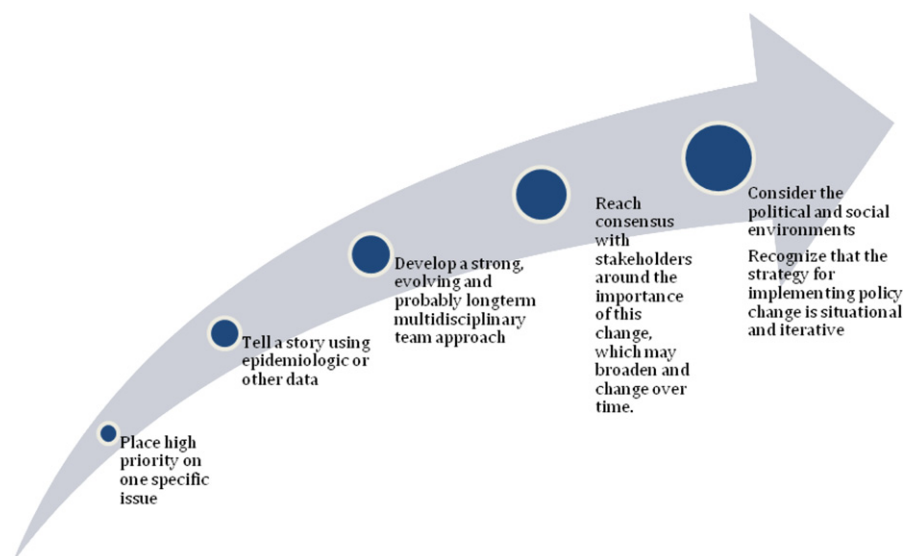


FIGURE 1. Understanding policy processes.

provide teams with the most likely chance for success. This also allows advocacy groups to mobilize around the issue (e.g., the American Cancer Society aligning with a policy to reduce cancer mortality).

The type of epidemiologic data needed to make change may be quite simple. Descriptive patterns determined by local data can provide a powerful impetus for local change as described by (Strathdee et al., in this issue). In this situation, a prevention strategy for the health issue of concern was readily available once the local problem was identified. In contrast, complex study designs are essential when the behaviors in question have not previously been demonstrated to be efficacious, when new evidence on behaviors emerges, and when weak associations are in play. Routes in which epidemiologic data may inform various types of policy decisions are discussed in (Carter-Pokras et al., this issue). Historically, a body of literature is necessary to guide decisions. However, matching the short time horizon between the interests of policy makers to the longer term efforts of researchers is a barrier to implementing effective

public health policy (10). An understanding of the processes of policymaking (summarized in Fig. 1) may help align the activities of researchers more closely with those in a position to develop and implement policies.

Having a consensus on a single critical element to direct a group effort towards change, the next step(s) become reaching a consensus around the importance of this change across a broader community of stakeholders. As pointed out in the cancer screening case study (Deppen et al., this issue) this process can be on a continuum and the stakeholders may change along this continuum. In the process of reaching a consensus with various agencies and organizations, key individuals emerge and become a part of your team. They are the “eyes and ears” to those in the world who care about the issue. The use of key players to assist in helping one understand the issue in the agencies and communities for which the issue is important will allow one to better evaluate and adjust one’s strategy for change.

When a team approach is developed, a number of things are accomplished. First, you don’t need to feel you are

TABLE 1. Policy training needs of epidemiologists

2011 Policy Case Review	2006 Congress of Epidemiology Survey*	Mid-Level Applied Epidemiologist Competency†
Evaluation methods	<ul style="list-style-type: none"> • Evaluate community level interventions 	Skill Domain 1–Assessment and analysis Skill Domain 4–Community dimensions of practice
Mediation analysis	<ul style="list-style-type: none"> • Application of causal based modeling 	Skill Domain 1–Assessment and analysis
Mixed methods	<ul style="list-style-type: none"> • Quantitative and qualitative methods, developing quantitative instruments from qualitative research • New techniques for observational studies that can improve the validity and integrity of observational studies • Conducting epidemiology research using government and community data • New epidemiologic methods for field epidemiologists • Research methods on difficult to study populations • Social vs. clinical epidemiology studies • Survey method development and challenges 	Skill Domain 1–Assessment and analysis Skill Domain 2–Basic Public Health Sciences Skill Domain 4–Community Dimensions of Practice Skill Domain 5–Cultural Competency
Multilevel analysis	<ul style="list-style-type: none"> • Multilevel/simulation modeling • Complex longitudinal and hierarchical modeling 	Skill Domain 1–Assessment and analysis
Provide experiences and collaborations outside of the discipline	<ul style="list-style-type: none"> • Study design of community-based participatory research • Opportunities for international collaborative projects 	Skill Domain 1–Assessment and analysis Skill Domain 2–Basic Public Health Sciences Skill Domain 4–Community dimensions of practice Skill Domain 5–Cultural competency Skill Domain 7–Leadership and Systems Thinking
Learn how to tell the story, ask the right questions and frame solutions	<ul style="list-style-type: none"> • How to talk to media and legislators • Organizing opportunities for epidemiologists to do advocacy • Translating research into policy • Policies, regulations on public health; use of epidemiology in public health and policy setting • Intersection between public health epidemiology, research, and practice • Policies in formulating standards protective of children • Open access publishing • Dissemination of results, presenting scientific research in the public arena • Data sharing and spreading results to participants 	Skill Domain 1–Assessment and analysis Skill Domain 2–Basic Public Health Sciences Skill Domain 3–Communication Skill Domain 4–Community Dimensions of Practice Skill Domain 5–Cultural competency Skill Domain 6–Financial and operational planning and management Skill Domain 8–Policy development

*Carter-Pokras and colleagues (16).

†Centers for Disease Control and Prevention/Council of State and Territorial Epidemiologists (17).

working in isolation and you multiply the labor force to get the job done. Second, your analysis will have the benefit of multiple perspectives that will inform the approach you take and improve the story you tell. Although the role of advocacy is sometimes controversial for epidemiologists, you can provide needed information to other team members to affect policy even if you are not directly involved as an advocate.

The complexity and strategy for implementing policy change is situational and the role epidemiologists play in the policy debate is distinctly different depending on the maturity of the underlying science and the level of the policy debate as characterized by (Deppen et al., this issue). The risks and benefits associated with the recommendation or change need to be considered and must be transparent. Policy actions with known risks, such as ionizing radiation associated with mammography, have different trade-offs than preventive policy actions, such as zoning ordinances that promote farmers markets within areas in which fresh produce is not readily available.

Political and communication environments are important and can be unpredictable. For example, the political environment around health care reform when the new breast cancer screening guidelines were announced may have heightened media and public reaction to the recommendations. The topic area, narrowness of the question, and general public acceptance of the information may impact the ability to effect change. For example, the National Salt Reduction Initiative is working with well-established and accepted data relating salt intake to blood pressure and hypertension (Appel, this issue), making the rationale for salt reduction more straightforward; however, implementation strategies are proving more elusive.

As these case studies show, epidemiologic evidence impacts policy to address emerging public health problems, yet few epidemiologists are formally trained in the domains to support policy development. As we continue to learn from our current policy efforts, we need to incorporate this knowledge into training programs (8, 15). Table 1 (16, 17) focuses on policy training needs in epidemiology assuming that programs continually update curricula for novel analytic methods and new and emerging statistical methods that apply to the field (in particular with survey data), and that continuing education efforts are made to educate epidemiologists who have completed their formal training. Training may have multiple effects: (1) directly help that subset of the discipline who elect to become involved in policy efforts at any stage of the process; (2) help individuals focus research questions more concretely on impactful questions; (3) and provide a basis for epidemiologists to understand and minimize barriers to policy translation. Together these are results that may allow the field to quickly

translate findings into informed policy and in so doing impact the health of the public. We encourage the incorporation of these case studies and the emerging experience within epidemiologic training programs.

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