Epidemiology in Public Health Practice
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Epidemiology is often considered the key scientific underpinning of public health practice. This pivotal role of epidemiology was emphasized by the Institute of Medicine in its definition of the substance of public health as organized community efforts aimed at the prevention of disease and promotion of health, with linkages to many disciplines and a scientific core of epidemiology (1, 2).

Lilienfeld and Lilienfeld observed 3 decades ago that “...the discipline of epidemiology has become increasingly divorced from those activities in the real world that result in the improvement of public health” (3, pp. 146–147). The new text from Haveman-Nies et al. addresses the linkage and gaps between epidemiology and public health practice and policy. As noted in the introductory chapter, the book broadens the common definition of epidemiology (i.e., the study of the distribution and determinants of health and diseases in populations). A useful starting point is perhaps the most comprehensive definition and the one most relevant to public health practice (4).

Epidemiology is the study of the health of human populations. Its functions are as follows:

1. To discover the agent, host, and environmental factors that affect health to provide the scientific basis for the prevention of disease and injury and the promotion of health;
2. To determine the relative importance of causes of illness, disability, and death to establish priorities for research and action;
3. To identify those sections of the population that have the greatest risk from specific causes of ill health so that the indicated action may be directed appropriately; and
4. To evaluate the effectiveness of health programs and services in improving the health of the population.

The book by Haveman-Nies et al. primarily addresses parts 2–4 of this definition.

In describing the role of epidemiology in public health practice, the authors introduce their 7 epidemiologic steps in the public health cycle. These steps include conducting a needs assessment, setting priorities, formulating objectives, constructing a logic model, developing an evaluation plan, performing quality control, and analyzing processes and outcomes. The heart of the book is the chapter-by-chapter description of each of these steps. Many of these approaches are parallel to frameworks for evidence-based medicine (5) and evidence-based public health practices (6). One could argue that much of what is contained in the 7 core chapters is quite different from the standard literature on epidemiology; yet, in most places, the authors do a nice job of linking epidemiologic contributions to these important public health functions. There are 2 areas in which I would have valued more detail: 1) the important contributions and approaches from economic evaluation and 2) searching the scientific literature when a systematic review is not available (7).

In the later chapters, the authors introduce other disciplines that complement epidemiology (e.g., health services, health promotion, and primary care). In that set of chapters, the section on policy is especially useful and interesting. We know that policy is among the most important determinants of health, and yet the linkages between epidemiologic science and policy-making are often limited and sporadic. Short case studies are scattered throughout the book. These are generally useful, although I would have preferred additional cases from a range of countries beyond the Netherlands. More far-reaching case studies would have broadened the appeal of the text.

This book appears to have been written for practicing public health professionals who do not have extensive formal training in the public health sciences (epidemiology, behavioral science, biostatistics, environmental and occupational health, and health management and policy) and for students in public health and preventive medicine. It will be useful mainly in Western Europe, but many of the concepts are helpful across any part of the world. The text succeeds in addressing its core audiences at the right level.

Overall, the authors are to be applauded for broadening understanding of the role of epidemiology, linking it with other core public health disciplines, and highlighting the core issues of prime importance in the real-world practice of public health.

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REFERENCES


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