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Public Health Genomics: The Essentials. By Claudia N. Mikail

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makers, ethicists, and public health practitioners with a myriad of information to potentially improve disease outcomes on an individual and population basis. Genomics is a burgeoning field of study that examines the interactions among the genetic material in the human body, including interactions with environmental and behavioral factors. The role of public health in this new field of study is complementary, since population trends, health disparities, and the social determinants of health contribute to our understanding of the underlying causes of disease provided by genomic research. Thus, the new discipline of public health genomics has improved our ability to carry out the health professional's mission to promote health and prevent disease. *Public Health Genomics: The Essentials* is a recent book that describes this emerging "interface between science and society."

In order to practice public health effectively, agencies and organizations such as the Centers for Disease Control and Prevention, the Institute of Medicine, and the Council on Linkages between Academia and Public Health have determined that the public health workforce should be competent in public health genomics via knowledge and the application of relevant skills. The author—a clinician and clinical assistant professor in the School of Public Health and Health Sciences at the University of Massachusetts at Amherst and a clinical instructor at the University of Southern California, Keck School of Medicine—contributes to this goal by providing an introduction to the discipline of public health genomics for public health students, medical students, genetic counselors, and public health professionals.

The book is well-written and organized into three parts, with seven chapters in the introductory section that emphasize the scientific and social aspects of genomics; five chapters on the role of genomics in maternal, child, and adult health; and four chapters on areas of general interest. The chapters are concise, and consist of a set of learning objectives and a list of key terms, names, and concepts to emphasize important points for the reader. The questions at the end of each chapter are thought provoking and

Public Health Genomics: The Essentials. By **Claudia N. Mikail.** San Francisco: Jossey-Bass/A Wiley Imprint. 2008. 304 pp. \$75 (paperback).

The sequencing of the human genome in 2001 provided researchers, clinicians, policy-

employ different formats. For example, some questions are scenario-based and require the reader to assume the role of a public health practitioner or genetic counselor when considering the response; other questions require the utilization of analytical skills to arrive at the answers (which are provided in Appendix 1), and further questions are posed in a debate-type format. Each chapter also uses figures to illustrate principles and concepts. However, the figures tend to be rather simplistic, which contributes to the introductory nature of the book.

The author provides pertinent examples of how genomics research is currently being utilized at the state and federal levels of government. Actual disease examples are included to demonstrate the effects of different types of mutations and their role in population genetics. In addition, genetic differences associated with race and ethnicity and the accompanying concerns about privacy, anti-discrimination laws and ethics are explored from a national (e.g., United States' Health Insurance Portability and Accountability Act) and international (e.g., Iceland's Health Sector Database Act) perspective. The author's efforts in addressing these topics contribute to helping the reader understand how genomics research is being translated into public health and clinical practice and the applicable issues for consideration when working in a variety of settings, such as a screening clinic, public health laboratory, or surveillance program.

The author relies heavily on the text written by Ricki Lewis (*Human Genetics: Concepts and Applications*, 7th ed. New York: McGraw-Hill, 2007) to present the reader with basic information pertaining to molecular genetics, inheritance patterns, and genetic epidemiology. In addition, due to the overview nature of the book, terms are often introduced and not highlighted or defined in

the narrative, but can be found in the book's inclusive glossary.

The public health professional can relate to the role of social, religious, and cultural factors in developing and managing genetic screening programs, as well as how the eugenics movement has influenced genotypic prevention measures. The benefit of newborn screening and the criteria for determining whether it is cost effective to society as a whole is one of the more relevant public health issues the book addresses.

The last part of the book effectively presents a wide breadth of topics germane to the field of public health genomics and prevalent in today's media, such as the distrust of our health care system, health economics of genetic screening, genomics of drug resistance, gene therapy, and stem cell research. The last chapter of the book provides useful, categorized online resources for genomics information that a student and professional of the discipline would find very helpful.

Public Health Genomics: The Essentials imparts a general introduction to the field for a number of audiences. The book is comprehensive on the topic but in a broad manner. The theme of each chapter is threaded consistently throughout the book so readers know where they have been and where they are going on this tour of public health genomics. Examples are provided for students of public health and genetic counseling with emphasis given for the latter audience. Overall, *Public Health Genomics: The Essentials* is a well-written, concise book that provides an introduction to an emerging discipline.

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