Book Review

Essentials of Public Health Biology: Biologic Mechanisms of Disease and Global Perspectives

Title: ***Essentials of Public Health Biology: Biologic Mechanisms of Disease and Global Perspectives***
Authors: Loretta DiPietro, Julie Deloia, and Victor Barbiero
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Reviewer: Arnauld Nicogossian, MD, FACP. Distinguished Senior Fellow, Schar School of Policy and Government, George Mason University.
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Advances in human genome and availability of large-scale population health databases promise a more rational approach to workers' health, disease prevention, and treatment, based on individual biological variability (Khouri 1996). The environment has become a significant health factor in triggering a genomic response and occasionally inducing pathological changes (Rappaport 2016).

Many vulnerable population subgroups are now afforded screening for diseases such as Tay-Sachs (Benson & Therrell 2010), sickle cell, phenylketonuria, and Thalassemia. Healthcare providers and public health planners are now equipped with clinical assays to screen and identify pre-symptomatic conditions, stemming from gene mutations leading to post-birth, late life potential risks, and forensic testing in legal cases. Nutrition and some medications can alter the intestinal flora, leading to disease. The developing field of nutrigenomics (Comerford & Pasin 2017; Neeha & Kinth 2013) has the potential to promote nutrition to reduce the risk of diet-related diseases. The United States adopted the *Newborn Screening Saves Lives Act* of 2007 (NBSSLA), providing federal guidance to states for newborn screening, parental and provider education, and community outreach, which are examples of such prevention practices.

Since 1963, the field of public health biology has been maturing and many universities are now offering academic training, which brings together

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the traditional disciplines of epidemiology, population health, prevention, environmental health, and genetics.

Essentials of Public Health Biology is the first edition of a concise, informative, and extensively illustrated textbook, which is supported by web-based teaching materials available to instructors and students. The book is divided into two sections and nineteen chapters.

Chapter formats are standardized, and include key terms, discussion questions and, in many instances, implications to public health. It is well referenced, with up-to-date citations. The authors and contributors are well-published academics in the disciplines of public health and biology.

This much needed textbook is designed as an introductory text for undergraduates and as part of the Master's of Public Health core studies. The authors of the textbook intend to highlight the genetic principles in health and disease and their interactions with environmental factors. This textbook fulfills the authors' aim to bring together the genetic and environmental causation of health risks and promote evidence-based interventions.

The first section of the textbook provides an introduction to the basic genetic and molecular concepts for health and disease. The reader is introduced to the important subject of risk communication and risk management. The second section deals with communicable and non-communicable diseases of major concern to public health practitioners. Future editions of this textbook should include a standalone chapter on ethical considerations in the use of genetics in public health, especially addressing topics such as discrimination based on the epidemiological information, and the protection of large-scale health information databases; these topics would markedly enhance the textbook.

Arnauld Nicogossian, MD, FACP

References

Benson Jane M., & Bradford L. Therrell Jr. 2010. "History and Current Status of Newborn Screening for Hemoglobinopathies." *Semininars in Perinatology* 34 (2): 134-44.

Comerford, Kevin B., & Gonca Pasin. 2017. "Gene-Dairy Food Interactions and Health Outcomes: A Review of Nutrigenetic Studies." *Nutrients* 9 (7): 710.

Jeanmonod, Rebecca, & Donald Jeanmonod. 2019. "Inborn Errors of Metabolism." In *StatPearls*. Treasure Island: StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK459183/.

Khouri, Muin J. 1996. "From Genes to Public Health: The Applications of Genetic Technology in Disease Prevention." Am*erican* J*ournal of* Public Health 86 (12): 1717–22.

Neeha, V. S., & Priyamvadah Kinth. 2013. "Nutrigenomics Research: A Review." *Journal of Food Science and Technology* 50 (3): 415–28.

Prüss-Ustün, Annette, Emilie van Deventer, Pierpaolo Mudu et al. 2019. "Environmental Risks and Non-Communicable Diseases," *BMJ* 364: l265.

Rappaport, M. Stephen. 2016. "Genetic Factors are not the Major Causes of Chronic Diseases." *PLoS ONE* 11 (4): e0154387. https://doi.org/10.1371/journal.pone.0154387.