Essential Readings in Infectious Disease Epidemiology

Manya Magnus, PhD, MPH
The George Washington University
School of Public Health and Health Services
Department of Epidemiology and Biostatistics
Washington, DC
I would like to thank Mike Brown for building a supportive environment for textbook innovation at Jones and Bartlett, LLC. While writing this text, as well as its sibling, Essentials of Infectious Disease Epidemiology, I was given creative latitude in their approach—something that is unusual and greatly appreciated. Supporting new modalities of public health education is more essential today than ever before, and Mike's unique approach to educational materials and textbook writing allows the author to explore innovations and methods to their fullest. Dr. Richard Riegelman, the Essentials series editor, has been a wonderful support as well, being a proponent for public health education in general and epidemiology in specific. Katey Birtcher and the production team at Jones and Bartlett continue their never-ending assistance at all steps of writing and production. I am indebted to the authors of books, research, and articles who have taught me so much, especially the resources available through the Centers for Disease Control and Prevention, the Health Resources Services Administration, and the National Institutes of Health, without which many of the vivid examples would not be available. I am doubly indebted to my many teachers—formal and informal—encountered along the way, who taught me to delve into not just the “what” but the “how” that this book discusses with you today. Tremendous thanks are given to my father, Dr. Richard E. DeLeon, for sharing with me the joy of questioning and thinking and learning how much fun it can be to avoid the easy answers to questions in science (and life). This text is written in loving memory of my grandmother, Dr. Ida Russakoff Hoos (1912–2007), with gratitude for being an amazing role model, mentor, and friend.

To my husband, Magus Magnus, and children, Hero and Gryphon Magnus: love always, and thanks for everything.
Manya Magnus, PhD, MPH, is an Associate Professor in the Department of Epidemiology and Biostatistics, with a secondary appointment as Associate Professor in the Department of Health Policy, at The George Washington University School of Public Health and Health Services. Dr. Magnus is co-director of the School’s MPH Epidemiology Program and co-director of the Graduate Certificate in HIV/AIDS Studies. Dr. Magnus received her BA from the University of California, San Diego and her MPH and PhD from Tulane University. Always interested in integrating research with clinical care, Dr. Magnus has collaborated on a variety of epidemiologic studies, including randomized-controlled clinical trials and observational and evaluation studies. She now applies epidemiologic methodology to evaluate national programs in local- and state-level studies, including CDC-sponsored behavioral surveillance, and Special Projects of National Significance funded by the HIV/AIDS Bureau of the Health Services Resources Administration. Dr. Magnus also participates in a variety of other HIV- and STD-related research activities. The primary focus of her research is HIV/AIDS among women, children, adolescents, and other vulnerable populations and includes clinical trials, observational studies, and innovative approaches to evaluation research.

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**ABOUT THE EDITOR:**

Richard Riegelman, MD, MPH, PhD, is professor of Epidemiology-Biostatistics, Medicine, and Health Policy and founding dean at The George Washington University School of Public Health and Health Services in Washington, DC.
We are born knowing how to perceive; we are not born knowing how to read, interpret, or critically evaluate. Nevertheless, these skills—together with our perception—enable us to move beyond the superficial gleaning of information that is ordinarily done in one’s day-to-day life. The difference between reading the newspaper or a relaxing novel and science is the ability to critically evaluate research. This skill informs the development of studies, their implementation, analysis, interpretation, and dissemination. As public health practitioners, you also need to be able to participate in the scientific community, in the science, through an understanding of what research has been conducted in the past. This will enable you to do everything from your own projects—even just a literature review—to understanding and sharing their public health implications. In order to do this, you must be able to understand not only the findings of a given study or report but also understand the methods undertaken to gather the data on which the findings and interpretations are based. This is a skill distinct from just reading, and one that takes practice, much as learning a foreign language.

This is an active text, one designed to engage you in the thinking process as you hone your critical evaluation skills. There aren’t any answers; there is only the process of thinking and of thinking deeper. The format of this text is to provide you with focused readings, guiding questions, and exercises based upon the readings; the thinking process you go through for each will give you practice in critical evaluation. The articles in this reader are not all “landmark” articles in infectious disease epidemiology (though some are). Criteria for inclusion in this reader were simple: Each article or exercise was selected to provide you with at least one skill in critical evaluation of the literature. Think of this text as training wheels—articles and pieces of scientific writing in infectious disease epidemiology paired with exercises to get you thinking. Soon you will begin to ask your own questions when reading other articles and resources. All of the facets explored in this reader should enhance your epidemiologic toolkit and allow you to be a better epidemiologist as well as a better reader of the scientific literature.

For those of you using this reader in conjunction with the Essentials of Infectious Disease Epidemiology textbook, you will find articles referenced in the text provided here in expanded form. This book should echo and deepen understanding from that more introductory book. For those of you using this reader in conjunction with other epidemiologic textbooks or on its own, you will find that it is self-sufficient in its ability to convey central concepts and exercises and will likely parallel the concepts presented in other epidemiologic educational resources.
How to Use This Book

This reader is designed to be used by individuals but is also a wonderful study guide for pairs or groups; think of the exercises as conversation starters to get your group going. Whether you opt to address the exercises by yourself, in pairs, or in groups, do not stop when you reach the end of the questions: Delve deeper into each article or resource so that you can become an expert in each and every one of these chapters. Like a good book or movie, you will see that each article may be read many times over. At different points in your career—now, 5 years from now, 20 years from now—you will see different things in the methods of each article or resource. The ease with which you will be able to find methodologic flaws, errors, strengths, limitations, and more in each study will grow with the passing years—again, like learning a language. At first it will be harder, but it will become easier, in some ways, with practice. At the same time, you may find that the more subtle aspects—those that you come to with time—are that much harder to reckon with. Thus, the challenges will continue, never cease, as you hone your critical evaluation skills.

Enjoy as you embark on these exciting exercises!

~Manya Magnus, PhD, MPH