

# PREFACE

This book is both a comprehensive introduction to the concepts and principles of epidemiology, and an application of those principles to healthcare management. The book could be a stand-alone text for a course that introduces students to the field of epidemiology and provides applications to management, a course that seeks to apply epidemiologic principles to management, or a basic introduction to epidemiology course.

The second edition of *Managerial Epidemiology* represented a significant departure from the first edition, in that it removes the paradigm that was used in the first edition. In the first edition, managerial epidemiology was discussed as the application of epidemiologic principles organized around the functions of a manager. In the second edition, the book was structured according to basic principles first, then specific applications to management. This third edition builds on the foundation of the second edition but adds even more application content.

The third edition has two major changes:

1. Chapter 18 was coauthored by my colleague and friend Dr. James Holsinger, who is an expert on healthcare leadership. This new chapter discusses how epidemiology is both relevant and critical to public health and health services leadership.
2. New case studies provide a variety of options for learning and teaching via cases:
  - Most chapters have new case exercises at the end, with answers at the end of the book.
  - We retained the case studies integrated throughout the text, with answers included in the text. These in-chapter case studies are conceived and operationalized as an important part of the didactic process. They build on the theory and principles covered in the chapters and present additional content not presented within the chapters. A number of the in-chapter cases include step-by-step instructions on solving problems. The student is therefore encouraged to integrate the theory and application throughout his or her reading of the book.

- Another major change in this edition is the section of 15 “capstone” cases at the end of the book. The answers to these cases are housed in the Health Administration Press instructors’ website. These cases are larger and more comprehensive than the cases in each chapter. They should represent a capstone or integrative experience for the students. These cases can be used by instructors as exercises, problem sets, or exam questions. I personally use most of these cases as a substitute for lectures in my case-based epidemiology courses. Rather than using 100 PowerPoint slides to teach the concepts of study design, I prefer to use the capstone case on obesity and endometrial cancer, in which the principles and methods of case-control and cohort studies are integrated into a specific case.

We made a number of smaller changes throughout the book in addition to updating many of the statistics, such as incidence and prevalence rates, and replacing, updating, or eliminated some of the exhibits:

- In the infectious disease chapter, Chapter 2, we replaced the herd immunity figure and added three exercises at the end of the chapter.
- In the planning chapter, Chapter 4, we updated Case Study 4.1 and included a new section of Healthy People 2020, and two exercises at the end of the chapter.
- For the chapter on quality measurement (Chapter 5) we brought on Sarah Wackerbarth, one of my colleagues and an expert in this area to review, revise, and add more recent content.
- Statistics, exhibits, and case studies were updated in the mortality chapter (Chapter 6), and four problems were added at the end of the chapter.
- Case studies and exhibits were updated or replaced in Chapter 7, and two problems were added at the end of the chapter.
- In the finance chapter (Chapter 8) we added a section on accountable care organizations and a problem at the end of the chapter based on the Society of Actuaries’ forecast of the implications of the Affordable Care Act. The more in-depth case based on their report is in one of the capstone cases at the end of the book.
- Minor changes were made to the cost-effectiveness chapter (Chapter 9), including the elimination of one case and the addition of three problems at the end of the chapter.
- The statistics chapter (Chapter 10) was updated by adding a section of multivariate models and analysis.
- In the case-control studies chapter (Chapter 11) we included the methods behind the calculation of the prevalence ratios and prevalence

difference in the cross-sectional studies section and added three problems at the end of the chapter.

- In the cohort studies chapter (Chapter 12) we expanded the section on disease burden and added four problems at the end of the chapter.
- Three exercises were added to the end of the randomized trial chapter (Chapter 13), and a couple of graphics were eliminated and incorporated in the text. Chapter 14 had minor updates and three end-of-chapter exercises were included.
- Chapter 15 (on cardiovascular disease) was updated by myself and the coauthors, and end-of-chapter exercises were added. The AIDS chapter (Chapter 16) was entirely rewritten and updated by a new author from the Centers for Disease Control and Prevention.
- We have added population health content to many of the chapters.

In an effort to encourage the instructor to embrace the case-study approach to teaching, Health Administration Press maintains online instructors' resources for this textbook. The answer guides for the capstone cases are available only in the instructors' resources. These cases are larger and more comprehensive than the cases in each chapter. The capstone cases can be used as exercises, problem sets, or exam questions. Most of these cases can also be used as a guide for instructors who want to implement a case-based approach to teaching. For access information to the instructors' resources, write to [hapbooks@ache.org](mailto:hapbooks@ache.org).

I have numerous people to thank for their contributions of time, energy, and enthusiasm. I extend a heartfelt thanks to all of my coauthors. Tom Tucker, you are my friend and colleague. You are always so supportive and complimentary. Thank you for getting me interested in being a "disease detective" nearly 20 years ago now. Scutch, I appreciate your continued support and involvement with this third edition. I trust your insight and judgment and appreciate the incredible timeliness of your edits and additions. Glyn Caldwell, you have retired so many times now, but I truly miss engaging in regular dialogues with you about the latest outbreak. Thank you for your help with updating the infectious diseases chapter. Sarah Wackerbarth, I appreciate your willingness to step up to the plate on short notice and help me update the quality of care measurement chapter. I value and respect your contributions to making this chapter even better. Jeff Jones, I have you to thank for updating the maps in the descriptive epidemiology and cardiovascular chapter. Your quick response was appreciated. Keith Boles, my colleague and friend from the University of Missouri, thank you for reviewing the financial management chapter. Mary Kay, your multivariate analysis updates to the statistics chapter were definitely needed and much appreciated. John Lewis, thank you for your help with the cohort studies chapter. I value your

input. Kevin Pearce, you authored most of the clinical epidemiology chapter with a clever and insightful case study model. We have known each other for nearly 20 years now. I respect you and trust your judgment as both a friend and as my primary care physician. Steve Browning, my colleague and friend from the University of Kentucky, your understanding and ability to communicate epidemiological methods is admirable. Thanks again for your help with the cardiovascular disease chapter. Irene Hall, my former project officer, Kathleen McDavid Harrison, was instrumental in recruiting you to update the HIV/AIDS chapter. Thanks to both of you for your willingness to participate in this project on such short notice. Suzanne Tyas, I miss our friendship and collaboration, since you moved from the University of Kentucky back to Canada. I truly value your expertise in both epidemiology and gerontology. Thank you for engaging with Iris Gutmanis in updating the Alzheimer's disease chapter. Jim Holsinger, we have known each other for a number of years, since you were chancellor at the University of Kentucky. I respect you for a number of reasons, including both faith and family. You are probably *the* expert on public health leadership. Thank you for your help with the epidemiology and leadership chapter. Rob Edwards, thank you for your interest in this fascinating field and your helpful additions of population health content.

To my wife of more than 41 years, we have been on an incredible adventure together. I can think of no one in this world that I would rather share this life with. Thank you for supporting me in so many ways and at so many times. The staff of Health Administration Press is to be commended for their encouragement and support, particularly Janet Davis, acquisitions editor, with whom I must have exchanged hundreds of e-mails. Amy Carlton, the project manager, provided an unbelievable amount of critical review, not just of spelling and grammar. Your wordsmithing is invaluable. And finally, as a man of faith I acknowledge my limitations, confess to errors of commission or omission in the text, and attribute the occasional insight or brilliance to Someone other than me.

Steven T. Fleming