



## Book review

**The CDC Field Epidemiology Manual (Fourth Edition)**

**Sonja A. Rasmussen, Richard A. Goodman (Eds.). The CDC Field Epidemiology Manual (Fourth Edition), Oxford University Press, New York, NY (2019), p. 498 pp \$55.00. ISBN 978-0-19-062424-8.**

This book provides a broad overview of a wide variety of topics important for field investigations beginning with a detailed definition of field epidemiology (Chapter 1) and concluding with a review of specific types of investigations (Chapters 20–25). The book is organized into two main sections: The Field Investigation (Chapters 1–12) and Special Considerations (Chapters 13–25).

As its name implies, The Field Investigation section focuses on initiating and conducting a field investigation. Chapter 3 broadly covers the steps involved in a field investigation, such as confirming that an outbreak warrants investigation, identifying a case definition, developing hypotheses, planning a systematic evaluation, and communication of findings. Subsequent chapters go into more detail on collecting data (Chapter 4), technologies that can be used for data collection, management, and analysis (Chapter 5), how to describe and present epidemiologic data (Chapter 6), study design (Chapter 7), quantitative data analysis and interpretation (Chapter 8), laboratory collaboration (Chapter 9), qualitative data (Chapter 10), public health interventions (Chapter 11), and communicating with the public during an outbreak (Chapter 12). This section of the book is a very straightforward practical guide for conducting field investigations rather than a comprehensive review of foundational principles. For example, Chapter 6 includes the extremely pragmatic and useful Box 6.3 on “Guidelines for Arranging Data in Tables.” The chapter also includes “Guidance Regarding Preparing Charts” in Box 6.12, another very useful addition. Chapter 8 (Analyzing and Interpreting Data) also includes recommendations for presentation of data in tables. Most texts on epidemiology do not provide specific guidelines for how to present data in tables, nor is this often taught in basic courses. The chapter on study design (Chapter 7) does not comprehensively cover all study designs (e.g., there is no mention of cross-sectional studies), and the bulk of the chapter focuses on the case–control study design. This is appropriate for the purposes of a practical guide in field epidemiology. Chapter 8 does mention cross-sectional studies in regard to measuring prevalence rather than incidence. Analyzing and interpreting the data are covered at a high level in Chapter 8. Equations and examples for calculating common measures of association, such as the relative risk and odds ratio, are provided and explained in a straightforward manner. A practical explanation of the basis and interpretation of statistical tests of significance and confidence intervals is also provided; this could be particularly useful for those without a strong statistical background. Although short, the chapter on qualitative data (Chapter 10) is a valuable

addition to the book. Qualitative data are generally not part of standard epidemiology training, but as Box 10.1 (“Qualitative Research During the Ebola Virus Disease Outbreaks in Parts of West Africa (2014)”) highlights, qualitative data collection and analysis are increasingly recognized as essential elements in outbreak investigations.

The second section, on Special Considerations, covers a diverse set of topics ranging from legal authority for conducting investigations (Chapter 13), Geographic Information Systems (GIS; Chapter 17), outbreak settings (Chapters 18–19), and different types of investigations (e.g., environmental, occupational, disasters, and so on; Chapters 20–25). Chapter 13 provides a broad overview of the legal authority granted to federal and state governments to conduct epidemiologic field investigations and order an appropriate public health response (e.g., quarantine, vaccination). Chapters 14 and 15 cover co-ordination and practical considerations during investigations that involve multiple jurisdictions, including multistate and multinational investigations. In such multijurisdictional investigations, Emergency Operation Centers and Incident Management Systems are often needed, which is covered in Chapter 16. Chapter 17 is organized as steps in conducting an investigation using GIS. Clearly, not every investigation using GIS would need to use each step, but the organization makes it easy to find specific information that is sought, and the chapter provides a good overview of what is possible with GIS. Chapter 18 is also organized as steps in an investigation of healthcare-associated infections, whereas Chapter 19 covers practical and legal implications for investigations in community settings, such as schools, workplaces, and detention facilities. The remaining chapters cover considerations in specific types of investigations, including environmental (Chapter 20), occupational (Chapter 21), natural and human-made disasters (Chapter 22), enteric disease (Chapter 23), intentional release of biologic or toxic agents (Chapter 24), and suicide, violence, or injury (Chapter 25).

With an overview this broad, in-depth discussion of topics is inevitably compromised, particularly on interpretation and analysis of data. As such, this book would be most useful as a reference manual for field investigators who have already completed more rigorous training in the fundamentals of epidemiology. Chapters are fairly short and easy to read. The editors have made good use of bullet points, boxes, tables, and figures for highlighting the most important material and outlining critical elements of a field investigation so that readers can quickly find what they are looking for. Chapters are standalone so that it is not necessary to read the book cover-to-cover. Although this results in some redundancy, given the likelihood that readers would be consulting chapters on an as-needed basis, this redundancy is beneficial. For example, both Chapters 7 and 8 cover when it is appropriate to use the odds ratio instead of the risk ratio. With the broad overview of topics covered, in-depth detail is sacrificed; therefore, this book

may not be of much benefit to senior-level field epidemiologists or epidemiologists engaged in research. However, the book also covers a lot of material not covered in traditional epidemiology texts or courses, making it a useful addition to the library of any epidemiologist wanting to learn more about field epidemiology.

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