Book Review

**Deadly Outbreaks**

By Alexandra M. Levitt


Most people first learn what epidemiology entails from reports on disease outbreaks. Whether in the mainstream media, blockbuster movies, or occasional articles in the *New Yorker*, these reports command our attention when outbreaks occur and warrant our reflection when the outbreaks end. Alexandra Levitt adds to the bookshelf of real-life medical detective stories with *Deadly Outbreaks*, a collection of stories of 7 investigations by the Centers for Disease Control and Prevention that were led by Epidemiology Intelligence Service officers and trainees. Levitt covers a 3-decade period from 1976 to 2007, choosing some classic infectious outbreaks, such as the West Nile virus outbreak in New York in 1999, and some less typical scenarios, like the forensic investigation of infant deaths in a Toronto hospital in 1981. She offers a personal accounting, complete with pictures of the investigators and their families, and a “where are they now” epilogue.

Bioterrorism lurks in the background for many of these outbreaks, especially in the early stages of investigation. It is tempting to see the shadow of the September 11, 2001, terrorist attacks as a new and even temporary feature of outbreak epidemiology, but actually the US public health network has deep roots in the Cold War. For the Centers for Disease Control and Prevention in particular, strong public and government support for disease surveillance owes much to the arguments that national defense requires a public health network and a cadre of infectious disease epidemiologists available to respond. Indeed, in most of these real-life narratives, public health officials had to explicitly consider and rule out deliberate exposure of a target group (very sick children) of the population at large to a biological or chemical agent.

Levitt writes for a general audience, and she struggles to strike the right balance between technical terms (“medical detective” generally precedes “epidemiologist”) and definitions of recurring topics (defining a case-control study). These editorial choices and the repeated explanations of the Epidemiology Intelligence Service make each chapter a stand-alone essay. Of course, some of the precision and the directness of the original report gets lost in the summarizing and simplifying of the case studies. One can imagine an undergraduate audience for either the book or a few of its chapters, for example, in a general survey of public health. For those readers, it would be useful to pair this accounting with a recent report in the peer-reviewed medical literature (1).

One wonders whether outbreak investigations of the future will look like the 7 that Levitt describes. As she correctly warns in the epilogue, new global outbreaks have arisen and will continue to arise, and new pathogens will emerge; however, she implies that the modernized shoe-leather epidemiologic approach of the last 3 decades will work well into the foreseeable future. It is equally likely that the ongoing shift in technologies will lead instead to a more fundamental shift in approach. One recent compilation describes the many electronic, social-networking, and nontraditional sources of information that modern biosurveillance uses to detect the emergence of an epidemic (2). What we loosely call “Big Data” changes not only the volume of material through which epidemiologists search for signal but also the way the search proceeds. Especially for readers seeking an introduction to the world of infectious disease epidemiology, it is worth looking at recent Institute of Medicine reports and other overviews of the rapidly changing methods of global biosurveillance.

One satisfying thread that runs through Levitt’s book is the frequency of resolution. Most of the mysteries do get solved. Indeed, most of these epidemics end because government officials take direct action based on good medical evidence. Even when the case is not fully resolved, the reader nonetheless gains renewed appreciation for the commitment made by scientists to protect the community. Books like this one play a vital role in communicating the need for public health infrastructure at home and strong international cooperation. For all epidemiologists and public health practitioners who study the causes of disease in the absence of clear outbreaks, medical detective stories still give the best short-hand answers to common questions about what epidemiology does and why it works.

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**REFERENCES**


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