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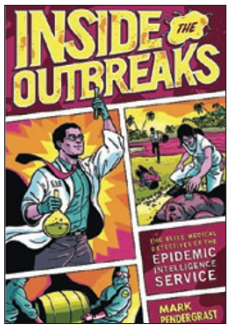

Inside the Outbreaks: The Elite Medical Detectives of the Epidemic Intelligence Service

Mark Pendergrast

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Reviewed by Anne-Emanuelle Birn

In late 2001, with the US on high alert after 9/11 and a spate of anthrax cases, a *New Yorker* cartoon depicted a partygoer gushing to her hostess, "and it was so typically brilliant of you to have invited an epidemiologist."

Mark Pendergrast's book serves just what the party ordered: a buffet of disease outbreak discoveries. Tracing the activities of the Epidemic Intelligence Service (EIS), the epidemiology fellowship program founded by the Centers for Disease Control and Prevention (CDC) in 1951, *Inside the Outbreaks* moves at a breathless clip. A whirlwind of vignettes covers news-grabbing outbreaks such as SIDS, West Nile virus, and food and water-borne diseases. Although this strategy is effective for time-circumscribed issues, the longer trails of EIS officers' ongoing involvement in cholera, polio and smallpox control and the identification and control of HIV/AIDS are delivered in disconcerting snippets.

Pendergrast portrays the heroic and mundane aspects of disease puzzles—most are cracked, either quickly or eventually, but some remain unsolved. Employing case-control methodology, the mostly young and unseasoned EIS epidemiologists drop everything to investigate each outbreak, whether in Milwaukee or Malaysia. They track down people who have developed disease (the cases) and compare them to people who have not despite exposure to the same risks (the controls). Because this entails household-to-household work, it is known as 'shoe-leather' epidemiology. EIS officers try to pinpoint the exact culprit of each outbreak, such as superabsorbent tampons causing toxic shock syndrome, or hospital sewage leaking cholera-laced excrement into Bangladeshi canals.

The Johns Hopkins epidemiologist Alexander Langmuir founded the EIS in the early Cold War, capitalizing on fears of biological warfare. Painted in both valiant and unflattering shades (he defended the Tuskegee syphilis study on scientific grounds), Langmuir was initially mocked by his colleagues. Why would an ambitious researcher focus on infectious diseases, which were expected to fizzle away with the postwar proliferation of antibiotics and vaccines? But "Langmuir's boys" never lacked for material; after his retirement, they took on chronic diseases and a slew of emerging infectious diseases, most notably AIDS.

Written for a broad audience, the book offers clear explanations and delightful details based on hundreds of interviews. We learn that the first Legionnaires' disease outbreak occurred during the 1976 swine flu panic, ultimately driving the policy for mass production of (unnecessary) vaccine. Such misguided moves may only be evident in hindsight.

The EIS has trained a who's who of public health leaders. D.A. Henderson headed the World Health Organization's smallpox eradication campaign, later becoming a Johns Hopkins dean and then a White House bioterrorism expert. Current CDC chief Thomas Frieden cut his EIS shoes on tuberculosis resurgence in early 1990s New York City, helping pioneer the use of directly observed therapy to address multidrug resistance. Lawrence Altman became the *New York Times*' chief medical correspondent. Karen Starko pieced together evidence linking salicylates (from aspirin) with Reye's syndrome in an article famously rejected by *The Lancet* (ultimately published by *Pediatrics*).

Early on, most EIS officers were men. Many joined to avoid the draft; the careers of others were almost derailed by McCarthyist witch hunts. More recently, the EIS has become far more diverse and includes international officers. The program's 3,000 alumni form a veritable global disease sleuth network—the go-to team for public health conundrums.

The soundbite approach to Pendergrast's topic makes his book easy to pick up and put down, but the breezy style has its limits. He only briefly touches on the broader conditions leading to outbreaks and fails to underscore that, in almost all cases, the EIS focuses on immediate causal agents at the expense of societal determinants of disease. Readers are left to struggle with hurried mentions of "volunteer" prisoners and patients used in EIS medical experiments, exculpating EIS researchers and never explicitly addressing if the subjects were really volunteers.

Coverage of international EIS activities is both inspiring and terrifying: service to Rwandan refugee camps, performing war epidemiology in the Balkans and controlling flesh-eating disease all demonstrate the commitment of EIS officers. But at times it is difficult to disentangle EIS activities from larger efforts. For example, Pendergrast presents the WHO smallpox campaign as an EIS-CDC affair. Troublingly, he echoes EIS views of incompetent Indian officials and the necessity of coercion to achieve eradication, even though the rich historical literature on the South Asian smallpox campaigns dispels such positions.

Back on the home front, the EIS has sought to understand heart disease, stroke and other chronic ailments using outbreak investigation methods. Alas, its focus has remained largely on behavioral aspects of, for example, diet and exercise, with far less attention to the structural and political factors involved, such as the underfunding of parks and mass transit. Likewise, whereas arsenic, lead paint, brown lung disease and pesticide poisoning all figure into the EIS's portfolio, there is no coverage of insidious, long-term occupational and environmental determinants of cancer and other diseases for which epidemiology sleuths are sorely needed.

All told, Pendergrast privileges anecdote over analysis, packing in a cornucopia of outbreak lore in a single volume. Although I finally learned why my father got rid of our pet turtle when I was a child (the EIS connected turtles to *Salmonella*), those in search of deeper political and social context to EIS discoveries will need to look elsewhere.

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