

Statistical Manual of Mental Disorders (DSM) for defining each disorder. (4) The fourth section deals with the treatment of the disorder. It provides a useful table summarising the generic/brand name, typical dose in milligrammes, manufacturer and year first distributed, and some side effects of each drug. (5) The fifth and central section reviews the principal scientific evidence on the effectiveness and harmful side effects of each drug. There are detailed discussions of the latter including sexual dysfunctions and sleep disorders. Major studies, including meta-analyses, are included in the scientific review. Each fifth section features a table summarising the best research evidence available on each drug.

Special attention is given to official Food and Drug Administration (FDA) warnings regarding the dangerousness of nine anti-depressants (for those under 25 years of age) and for eleven anti-epileptics. These anti-depressants and anti-epileptics both raised the risk of suicidality to approximately twice that of placebos. Special attention is called to the Columbia University re-analysis of 4400 individuals with depression who were subjects in RCT studies, which led to the FDA warning for anti-depressants. Fully 4.0% of those under 25 years of age on anti-depressants experienced suicidality compared to only 2% of those on placebos. Regarding the anti-epileptics, in December 2008, after a review of 199 RCT studies involving 43 892 subjects, the FDA issued warnings on all eleven anti-epileptics drugs. Collectively, the 199 studies showed that 0.43% of those on the drugs developed suicidality compared to 0.22% of those on placebos.

Maris presents a fair-minded review of the scientific evidence. For example, he notes that there are no FDA warnings for anti-anxiety medications. He is an advocate for the use of lithium for bipolar disorders, given that the weight of the scientific evidence shows that they reduce the odds of suicidality. It is also emphasised that the degree of dangerousness of drugs in a category varies. For example, Maris is careful to note that of the nine anti-depressant drugs analysed in the Columbia study, the suicidal risk signal was driven mainly by one, Effexor. The seventh chapter deals with non-prescription drugs including alcohol, cocaine and the barbiturates, which are ones commonly used among suicidal persons. The final ch. 8 discusses many alternatives to drug therapies. Included are varieties of talk therapy such as cognitive-behavioural and dialectical behavioural treatments.

The book provides substantial detail on describing mental disorders and the drugs used in their pharmacological treatment. It also provides detailed and often critical analyses of their effectiveness and dangerousness. Dr Maris is well qualified to highlight the essential points on what he calls 'pillage', and he has a passion for the topic given his extensive first-hand experience in drug litigation. However, the work does not rigorously review the analyses of aggregated data on the associations between the rate of psychotropic drug use and suicide rates in society as a whole. This body of research has rather mixed findings and may require an additional book-length critical analysis.

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John Rhodes, *The End of Plagues: The Global Battle Against Infectious Disease* (New York, NY: Palgrave Macmillan, 2013), pp. xxii, 235, \$27.00, hardback, ISBN: 978-1-137-27852-4.

Ideologically, infectious diseases are a threat to neoliberalist ideals of individualism because the risk of infection reveals that the boundaries of the self are permeable and that

we are inescapably interconnected. Mandatory vaccination rubs up against an individual's right to make his or her own medical decisions. Recently in the media, deaths that could have been prevented through vaccination have reached headlines worldwide, with contemporary dissent for vaccines under intense scrutiny. *The End of Plagues* by John Rhodes is a timely publication that shows that misinformed dissent for vaccines has existed ever since the very first vaccine was administered in 1796.

While issues of personal liberty are at the forefront of debates about vaccination in developed countries, such issues are eclipsed in developing countries by more prominent discussions about access to resources. In settings where infectious diseases are endemic, Rhodes builds a favourable argument for vaccination, framed primarily by biological risk–benefit analyses. The dominance of the biomedical discourse naturalises the endemicity of infectious disease without adequate emphasis on how endemics are socially, economically and politically produced. In this regard, *The End of Plagues* is not paradigm changing. Rhodes perpetuates a biologically reductive narrative that draws upon extensive training and experience in immunology and vaccine discovery. Facts and figures abstract disease and objectify the patients. That said, what Rhodes does, he does well. The book, from a strictly biomedical perspective, offers a great picture of how vaccines were constructed, how quality control measures came to be regulated and how effective vaccine delivery programs have been developed.

Commendably, Rhodes describes the social and economic crises that can negatively impact upon disease control programs in countries like India, Pakistan, Bangladesh, Nigeria, Somalia, Ethiopia and Mali. These stories appear in the latter half of the book and highlight key challenges that have faced vaccination programs worldwide. From pragmatic day-to-day issues to broader political trouble, Rhodes offers the reader a good picture of the obstacles faced by contemporary healthcare workers. With historical detail extending back to Jenner's smallpox vaccine, *The End of Plagues* demonstrates how far we have come since the first arm-to-arm vaccine chains were orchestrated at the beginning of the nineteenth century.

The history of vaccine development is not linear and this is reflected in *The End of Plagues*. From paragraph to paragraph, Rhodes frequently jumps between timelines, countries, and diseases. This jumping around can be a little distracting. However, fast switching between historical biographies and scientific explanation evidences a sincere effort to be comprehensive. Rhodes also pleasantly dapples the text with his own personal anecdotes and romantic imagination. These moments are particularly engaging and memorable, such as when Rhodes talks about being exposed to tuberculosis:

... I ventured to tell Chris a joke. I can't remember what it was, but it certainly made him laugh. Helpless with laughter, he protested he'd laugh until he coughed up blood, 'You know,' he said, 'when you laugh too much and start to cough, and then you cough up blood.' (p. 97).

Rhodes visibly has an affinity towards England and the US, two countries he has called home. This affinity is revealed in his histories of smallpox in England and polio in the US. Rhodes' historiography is strongest in its accounts of these diseases. The first third of the book, some nine chapters, is dedicated to smallpox and Edward Jenner. The next two chapters charge through infectious diseases such as diphtheria, anthrax and tuberculosis, confronted notably by French and German scientists. The next forty pages are dedicated to polio and the achievements of Jonas Salk. Then, the book swiftly covers influenza and other diseases and mentions a host of other countries, but returns frequently to smallpox and polio. In the tales of smallpox and polio, Rhodes articulates how rivalries, politics and social networks operate in the development and promotion of vaccines. Discussion of

contemporary global health is richly prefaced by the wonderful accounts of the medical history of these two diseases. The medical histories of smallpox and polio are definitely the central feature of *The End of Plagues*.

In accounts of surveillance-containment strategies in South Asia and sub-Saharan Africa, deep cultural engagement is evidently an influential feature in the success of these programmes. In some ways, modern surveillance-containment is reminiscent of a contact-tracing model for smallpox developed by Charles Killick Millard in Leicester at the beginning of the twentieth century. The Leicester model was not, as Rhodes explains, originally designed with efficiency and effectiveness in mind. Millard was against compulsory vaccination, but advocated for the isolation of cases and the voluntary vaccination of doctors, nurses and case contacts. Many European cities had achieved herd immunity to smallpox through widespread vaccination, but Leicester at the time had a small subpopulation that blocked compulsory vaccination. Millard's predecessor in the role of Medical Officer of Health for Leicester had been an advocate for sanitation rather than vaccination. Millard's model, which would have been good to adopt were it about poor vaccine supply or even a lack of trained vaccinators, was an effective, culturally sensitive solution. While Rhodes focuses on surveillance-containment models using vaccines, modifications of this contact-tracing model are underway for diseases, such as tuberculosis, that lack an effective vaccine. In discussions of surveillance among present-day vulnerable populations, Rhodes points to deep cultural issues, but leaves them to the reader to explore. For example, ch. 21 closes with an Australian aboriginal remarking, 'Oh yes... we have a good clinic down in the valley... And if you don't take your kids down there they soon come after you' (p. 190). These telling glimpses beyond the facts and figures hint at issues difficult to capture on the page.

The End of Plagues succeeds in lucidly describing the complexity of the human immune system and the varied mechanisms of action of vaccines. The book touches upon some fascinating issues, such as zoonosis, but approaches such topics from an angle that seems to naturalise animal-human disease transmission without considering how zoonosis is manufactured by patterns of human settlement and behaviour. Throughout the book, a singular focus on disease eradication plays strongly into a monocausal explanation of disease causation. Though Rhodes carefully points out that not everyone infected falls sick and dies, only fleeting attention is paid to the variable factors that operate at multiple levels of complexity that cause infection to progress to disease. Rhodes passes up an opportunity to develop a multifactorial model of infectious disease that may perhaps do more justice to global health.

Medical histories are important, not least because they allow clinicians and researchers to assess the construction of knowledge in their discipline. For people working in public health or immunology, *The End of Plagues* is a worthwhile read. With optimism, Rhodes highlights the need for new vaccines, a better understanding of adjuvants and the desire to see the last of plagues, such as polio. This book will most likely please readers with some laboratory or clinical training or experience. Undergraduate biomedical students would also greatly benefit from reading this book. Rhodes finishes *The End of Plagues* by expressing the desire to converse with Edward Jenner. Readers will no doubt be left with the same desire to converse with an author who demonstrates an incredible wealth of knowledge and experience in his field.

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