Oxford Textbook of Infectious Disease Control: A Geographical Analysis from Medieval Quarantine to Global Eradication


The authors are academic geographers interested in spatial statistics identifying geographical factors that cause diseases to be endemic or epidemic in different locations. [Endemic relates to a disease or condition regularly found among particular people or in a certain area, whereas epidemic is a widespread occurrence of an infectious disease in a community at a particular time.] The authors are professors in Nottingham and Cambridge. They deal with spatial measures for controlling the spread of infectious disease epidemics, with current and historical examples over seven centuries around the globe and overlaps somewhat with their previous publication [1]. Case studies on influenza, measles and poliomyelitis as well as on newer diseases such as SARS or avian influenza are included, to integrate theory, data and spatial analysis in the context of global demographic and health policy change.

Chapter 1 details control measures in the Italian ports of Venice, Genoa and Ragusa (Dubrovnik) from the 14th to 18th centuries, which were mainly based on quarantine and isolation. Cordon sanitaires prevented ships landing other than at designated ports, enforced by gunboats at sea, beach surveillance towers and guard posts and isolation facilities or lazarettos (military hospitals) with dedicated cavalry units on land. Confinement in lazaretto was grim and often lethal.

Chapter 2 covers disease classification and surveillance, starting with Farr and d’Espine’s list [basis to International Classification of Disease (ICD)], which followed the International Statistical Congress in Brussels in 1853. Disease surveillance can be traced from the Roman era to its modern origins in the Bills of Mortality for London in 1532, published annually from 1606. Mortality and morbidity data became more sophisticated, national and international in scope, leading to the foundation of the World Health Organization (WHO) in 1948. The disease monitoring and parallel immunization programmes of the WHO, notably the eradication of smallpox in 1976 and the near eradication of poliomyelitis, are documented and contrasted with modern rapidly updated online morbidity registers.

Chapter 3 looks at quarantine and isolation measures in the UK and the USA in the 19th and 20th centuries. Geographical control measures were challenged by advancements in transport, which reduced journey times (frequently shorter than the incubation times of most infections). Scientific developments breaking the cycle of disease transmission with vaccination is addressed in Chapter 4. Human (smallpox, poliomyelitis and measles) and animal data (equine influenza) are presented, with brief coverage of examples like the Australian ring vaccination strategy for equine influenza.

Chapter 5 revisits the WHO global eradication campaigns, notably smallpox and sociopolitical resistance to poliomyelitis eradication in some countries. Immunization best controls diseases confined to humans, whereas zoonotic or insect-borne disease with intermediate hosts require environmental or vector control interventions. Failures in WHO eradication programmes for malaria, yellow fever and yaws may result from (i) lack of biological or technical feasibility, (ii) inadequate economic justification or support for eradication (not malaria) and (iii) insufficient societal and political support. The possibility of such global eradication programmes for measles is outlined.

Finally, Chapter 6 applies a spatial approach to infection epidemiology, disease modelling and public health intervention evaluation. From the implications of the basic reproduction number $R_0$, they consider a spatial analogue of this for geographical analysis of various human data sets. They also fit a SIR (simplified infection) model and the Swash–Backwash model to these human data sets.

There is some overlap between chapters, and technical explanation in Chapter 6 is variable, but this is an elegant publication with clear illustrations, maps and graphs. It is a useful interesting read and fairly priced as research or reference text for occupational physicians.

Rating

★★☆☆☆ (Reference only)
Reference


Peter Noone

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**Handbook of Personalized Medicine: Advances in Nanotechnology, Drug Delivery and Therapy**


The development of the *Handbook of Personalized Medicine* is timely. Medicine and health have evidently moved on and continue to progress and develop at a pace. Gone are the days, perhaps, when medical treatments for patients were developed and designed as a ‘one size fits all’ solution. Much more is now understood about individual differences in the way in which diseases develop and specifically also about individual differences in response to treatments. This book represents an exceedingly comprehensive and detailed account of these developments, with the aim of integrating certain of these approaches into every day clinical practice.

The creation of this book has been no small achievement. At over 1400 pages, excluding a very comprehensive reference list, it is at first perhaps a little daunting to pick up and read. However, its structure is clearly laid out, contributing authors clearly stated and the periodic use of comprehensive tables, graphs and colour figures undoubtedly improve its understanding.

The large number of chapters deal with a diverse range of associated concepts, ranging from more basic considerations including nanotechnologies *per se*, nanomedicines, medical imaging techniques, boron neutron capture therapies in cancer work, bioinformatics, systems biology, genetically determined drug responses, through to molecular biomarkers for personalized medicine, pharmacogenomics, pharmacotyping in drug prescriptions and finally information-based medicine systems and electronic support for prescribing.

Each chapter, authored by a subject expert, contributes both individually and to the bigger story painted by this book. In other words, the interested reader can read chapters in isolation. Various chapters also offer differing perspectives on a given subject area, and certain chapters offer multiple perspectives.

An example of the latter is seen in the chapter that deals with nanotechnology applied to personalized medicine. Following a fascinating technical section reviewing the use of nanotechnologies in medicine, various views on the way forward are offered. First, a physician offers the overall view that personalized medicine offers ‘tremendous potential to deliver timely, appropriate prevention and care’ while detailing various scientific, information and training requirements that will need to be addressed. A regulator then offers a complimentary view; that regulation should be at the level of the product and its effects judged in trials, not at the technology level. A patient offers a final personal view; as a treated survivor of cancer, they are upbeat about the new possibilities for patient care afforded by personalizing therapeutic approaches.

Perhaps more relevant to the occupational health professional is the exploration of future ways in which medicine will be practised. While it is conceded that medicine has changed dramatically over the last few decades, further radical change is inevitable with the introduction of more efficient and effective treatments. The end chapters deal with such visions; how information-based medicine will improve patient care and, for example, how electronic support systems may help the physicians of tomorrow. Guidance is also given relating to developing personalized health care delivery today, using information already available to us all.

This book has been a massive undertaking to produce and portrays a journey from the most basic considerations through to the medical practice of the future.

**Rating**

★★☆☆ (Reference only)

David Fishwick