



# An Introduction to Infectious Disease Modelling

By *Emilia Vynnycky, Richard White*

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Mathematical models are increasingly being used to examine questions in infectious disease control. Applications include predicting the impact of vaccination strategies against common infections and determining optimal control strategies against HIV and pandemic influenza.

This book introduces individuals interested in infectious diseases to this exciting and expanding area. The mathematical level of the book is kept as simple as possible, which makes the book accessible to those who have not studied mathematics to university level. Understanding is further enhanced by models that can be accessed online, which will allow readers to explore the impact of different factors and control strategies, and further adapt and develop the models themselves.

The book is based on successful courses developed by the authors at the London School of Hygiene and Tropical Medicine. It will be of interest to epidemiologists, public health researchers, policy makers, veterinary scientists, medical statisticians and infectious disease researchers.

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## **An Introduction to Infectious Disease Modelling By Emilia Vynnycky, Richard White Bibliography**

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### **Editorial Review**

#### Review

This book has grown out of the experience of the authors teaching such a course for several years at the London School of Tropical Medicine and Hygiene. The Contents are very comprehensive, with chapters on basic terminology concerning infections and transmission, models based on difference equations, models based on differential equations, basic output from models, age patterns, stochastic modelling, contact patterns, models for sexually transmitted infections, some special topics (varicella vaccination and boosting, serotype replacement, tuberculosis control, HIV/STI co-infection) and an appendix on mathematical matters. The basic ideas are illustrated by many examples and case studies, among which several related to very up to date research and references. All relevant keywords and modern catchwords related to infectious disease modelling are mentioned and explained. \* European Journal of Public Health \* This is an excellent text book and readers can be assured that 'it does exactly what it says on the tin': provide a thorough introduction to infectious disease modelling. I will be turning to [it] for reference frequently for its clear explanations and topical worked examples. \* Sexually Transmitted Infections \* This is a book that really introduces non-specialists to the growing field of Mathematical Epidemiology. I am sure that public health specialists, epidemiologists, clinicians, veterinarians, statisticians, mathematicians, economists, and even professional modellers will profit from this book. I recommend it to all my students and now to the readers of *Epidemiology and Infection*

#### About the Author

Emilia Vynnycky obtained a BA in Mathematics from Oxford University, followed by an MSc in Operational Research from Southampton University and a PhD in Infectious Disease Modelling at the London School of Hygiene and Tropical Medicine (LSHTM), where she subsequently worked as a Lecturer until 2003. She is now senior scientist in the Modelling and Economics Unit at the Health Protection Agency (HPA), Centre for Infections. Emilia has worked on modelling the transmission and control of several different infectious diseases including tuberculosis, rubella, pandemic and seasonal influenza, measles and HIV. Emilia has also led the development of the LSHTM/HPA Infectious Disease Modelling MSc module and summer short course since its inception in 2001 with Richard White, and is currently an honorary Lecturer at LSHTM. Richard White obtained a BSc (Physics) from Durham University and an MSc (Medical Demography) and PhD (Infectious Disease Modelling) from the London School of Hygiene and Tropical Medicine. He is now Senior Lecturer in Infectious Disease Modelling in the Centre for the Mathematical Modelling of Infectious Diseases at LSHTM and a Medical Research Council Methodology Research Fellow. Richard has worked extensively in recent years using mathematical modelling and classical epidemiological techniques to understand the epidemiology and control of sexually transmitted infections/HIV and other infectious diseases in developing countries. Richard is currently involved in modelling projects on the transmission and control of many infectious diseases including HIV, tuberculosis, herpes simplex virus-2, influenza, human papillomavirus and rift valley fever, in places as diverse as Senegal and Soho. He is associate editor of the journal *Sexually Transmitted Infections*.

### **Users Review**

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