# Modeling to Inform Infectious Disease Control (Chapman Hall/CRC Biostatistics Series)

*Niels G. Becker*
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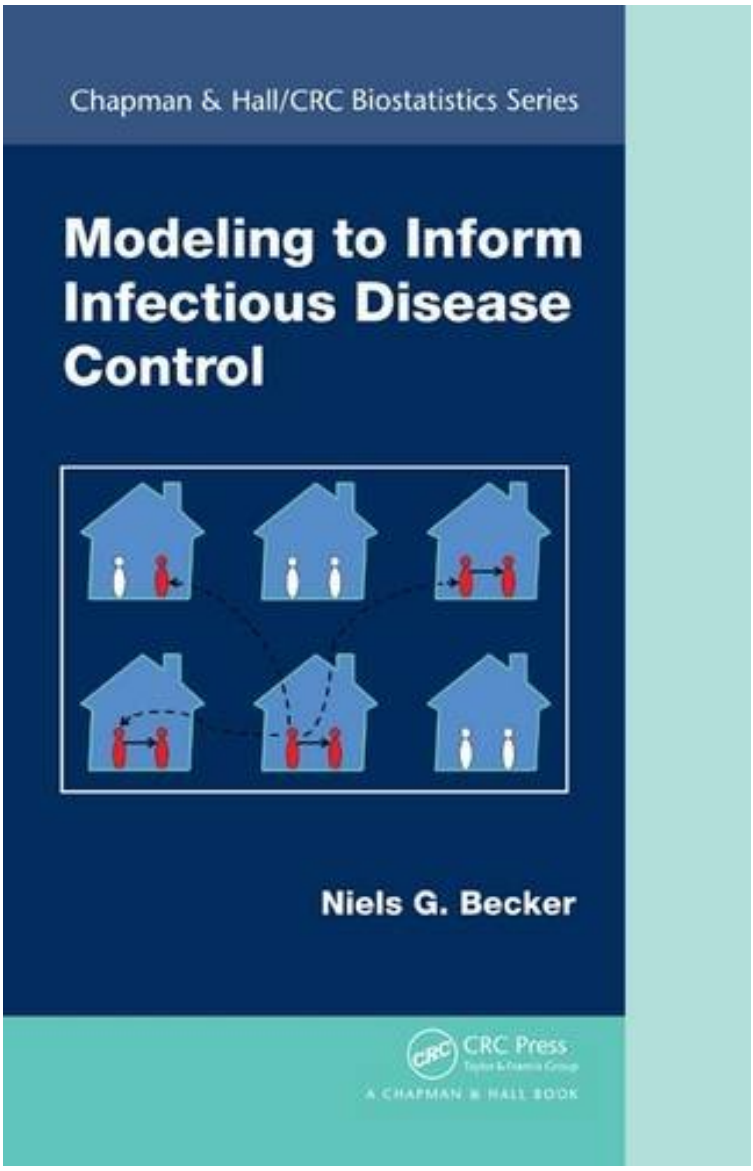




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**Niels G. Becker : Modeling to Inform Infectious Disease Control (Chapman Hall/CRC Biostatistics Series)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Modeling to Inform Infectious Disease Control (Chapman Hall/CRC Biostatistics Series):

Effectively Assess Intervention Options for Controlling Infectious Diseases Our experiences with the human immunodeficiency virus (HIV), severe acute respiratory syndrome (SARS), and Ebola virus disease (EVD) remind us of the continuing need to be vigilant against the emergence of new infectious diseases. Mathematical modeling is increasingly used in the management of infectious disease control as a way to assess interventions relatively quickly, cheaply, and safely. Modeling to Inform Infectious Disease Control shows readers how to take advantage of these models when developing strategies to mitigate infectious disease transmission. The book presents a way of modeling as well as modeling results that help to guide the effective management of infectious disease transmission and outbreak response. It discusses the requirements for preventing epidemics and ways to quantify the impact of preventative public health interventions on the size and dynamics of an epidemic. The book also illustrates how data are used to inform model choice. Accessible to readers with diverse backgrounds, this book explains how to gain insight into the management of infectious diseases through statistical modeling. With end-of-chapter exercises and glossaries of infectious disease terminology and notation, the text is suitable for a graduate-level public health course. Supplementary technical material is provided at the end of each chapter for readers with a stronger background in mathematics and an interest in the art of modeling. In addition, bibliographic notes point readers to literature in which extensions and more general results can be found.

"This book provides an accessible introduction to the use of mathematical models to inform infectious disease management. The core material is designed to be read by someone with a modest knowledge of mathematics, possessing the ability to interpret an algebraic formula and [understand] what it means to solve an equation; some additional knowledge of basic statistics is stated as being useful. The core material is complemented by more technical supplementary material at the end of each chapter, for readers with greater knowledge of mathematics. Exercises are included in each chapter which support the material and would be suitable for use as part of an introductory courseThe language in the book is direct and clear, and the material is well motivated. Overall, this book is a valuable resource to those new to infectious disease (stochastic) modelling. It is rather unique in the level of assumed knowledge, the probabilistic foundation (including handling of branching process and stochastic household model results), the provision of tangible and realistic insight into how these models inform public health management, and the integration of data. To achieve this all within just over 200 pages is a great feat."Joshua V. Ross School of Mathematical Sciences, The University of Adelaide, in Australian New Zealand Journal of Statistics, 2016 "This new book seeks to fill an important gap in the literature on infectious disease modeling, namely separating the now well-developed mathematical and statistical theory of infectious diseases from its public health application to infectious disease control. Professor Becker bridges the two worlds by presenting a logical succession of simple models that relate to some of the pressing questions arising in outbreak control. The approach is very effective and has resulted in an engaging volume that, in my estimation, will become a classic of the literature and thus a worthy successor to the authors earlier landmark volume on the subject. It will be essential reading for a broad range of scientists working on infectious diseases, notably statisticians, modelers, and epidemiologists with an interest in quantitative methods."Paddy Farrington, The Open University, UKAbout the AuthorNiels G. Becker is an emeritus professor of biostatistics at the Australian National University, where he was the director of the National Centre for Epidemiology and Population Health from 2007 until 2011. Dr. Becker has published more than 150 peer-reviewed articles. His research interests include the control of infectious diseases, triggers of adverse health events, and the analysis of foodborne disease data.