



1st ed. 2019, XVI, 209 p. 181 illus. in color.

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A. Pastore y Piontti, N. Perra, L. Rossi, N. Samay, A. Vespignani

# Charting the Next Pandemic

Modeling Infectious Disease Spreading in the Data Science Age

- Introduces the most recent framework to contagion process modeling
- Features different levels of readability (from the simplest introductory one to the expert algorithmic one) according to the background of the reader
- Technical details are reported in specific 'infoboxes'
- Contains an atlas of possible pandemics that can be explored by the reader and related to past and future events

This book provides an introduction to the computational and complex systems modeling of the global spreading of infectious diseases. The latest developments in the area of contagion processes modeling are discussed, and readers are exposed to real world examples of data-model integration impacting the decision-making process. Recent advances in computational science and the increasing availability of real-world data are making it possible to develop realistic scenarios and real-time forecasts of the global spreading of emerging health threats. The first part of the book guides the reader through sophisticated complex systems modeling techniques with a non-technical and visual approach, explaining and illustrating the construction of the modern framework used to project the spread of pandemics and epidemics. Models can be used to transform data to knowledge that is intuitively communicated by powerful infographics and for this reason, the second part of the book focuses on a set of charts that illustrate possible scenarios of future pandemics. The visual atlas contained allows the reader to identify commonalities and patterns in emerging health threats, as well as explore the wide range of models and data that can be used by policy makers to anticipate trends, evaluate risks and eventually manage future events. Charting the Next Pandemic puts the reader in the position to explore different pandemic scenarios and to understand the potential impact of available containment and prevention strategies. This book emphasizes the importance of a global perspective in the assessment of emerging health threats and captures the possible evolution of the next pandemic, while at the same time providing the intelligence needed to fight it. The text will appeal to a wide range of audiences with diverse technical backgrounds.

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