

GUEST EDITORIAL PREFACE

Special Issue on Geospatial Applications in Disease Surveillance

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IN THIS ISSUE

There has been much progress in the development of geographic information systems (GIS), geocoding services, mapping, and geographic technology standards (Wellar, 2010). Developments in the last decade have resulted in a dramatic increase in the use of geographic theories, data, methods, and tools in numerous areas of biomedical and public health research. However, most public health applications do not take full advantage of the latest developments in spatial and spatiotemporal data analysis and modeling, or the new types of geographic data and computing resources that are becoming available (Blatt, 2013).

In this issue, we present four articles which highlight the public health challenges in the major phases of disease surveillance – namely, the detection, understanding, and response to disease outbreaks – and ways in which geographers can play an active role in this important

research question. The introductory review article discusses the major developments in disease surveillance and identifies a number of public health opportunities requiring a thoughtful geographical response. The remaining three research articles describe how current geographical perspectives and analyses contribute to our understanding of disease surveillance. The article by Jess Joseph Wetherilt Behrens and Chester G. Moore uses geographic data in Monte Carlo simulations to demonstrate how human travel plays a significant role in the dispersal of *Aedes aegypti*, the mosquito that is responsible for the dengue fever and yellow fever. The article by Ila Agnihotri, PK Joshi, and Neeraj Tiwari presents a six-year study of tuberculosis in 1,965 villages of the Almora district in Uttarakhand, India. By working with public health agencies in India, the authors were able to comment on the success of existing tuberculosis prevention and control measures throughout the Almora district. Finally, the

article by Shaun Langley, Joseph Messina, and Sue Grady presents a novel conceptual model for integrating volunteered geographic information (VGI) and participatory GIS in the surveillance of African trypanosomiasis. The two-way communication between researchers and the public has tremendous potential for enhancing the role of public participation in other surveillance areas as well.

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