

# EMERGENCY PUBLIC HEALTH

## *Preparedness and Response*

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Barb House, Barb Mews  
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**Production Credits**

Publisher: Michael Brown  
Associate Editor: Catie Heverling  
Editorial Assistant: Teresa Reilly  
Associate Production Editor: Kate Stein  
Senior Marketing Manager: Sophie Fleck  
Manufacturing and Inventory Control Supervisor: Amy Bacus  
Composition: Achorn International  
Art: diacriTech  
Cover Design: Kristin E. Parker  
Cover Image: FEMA/Andrea Booher  
Printing and Binding: Malloy, Inc.  
Cover Printing: Malloy, Inc.

**Library of Congress Cataloging-in-Publication Data**

Emergency public health : preparedness and response / edited by G. Bobby Kapur and Jeffrey P. Smith.  
p. ; cm.

Includes bibliographical references and index.

ISBN-13: 978-0-7637-5870-7 (pbk.)

ISBN-10: 0-7637-5870-1 (pbk.)

1. Disaster medicine—United States. 2. Disaster planning—United States. I. Kapur, G. Bobby. II. Smith, Jeffrey P.

[DNL: 1. Disaster Planning—United States. 2. Public Health—United States. 3. Civil Defense—United States. 4. Emergencies—United States. 5. Interinstitutional Relations—United States. 6. Public Policy—United States. WA 295 E543 2011]

RA645.5.E4965 2011

363.34'8—dc22

2010017338

6048

Printed in the United States of America

14 13 12 11 10 9 8 7 6 5 4 3 2 1

# Dedication

For Jayne, Arjun, and Dylan. My strength and peace amidst all of life's complexities.

—G. BOBBY KAPUR



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# Preface

After the SARS outbreak in 2003, Hurricane Katrina in 2005, and the Haitian earthquake in 2010, public health professionals, first responders, and medical providers questioned the effectiveness of preparedness and response activities for these large-scale emergencies, and almost everyone asked, “Is this the best we can do?” Recent domestic and international events have revealed the complex issues that arise from public health emergencies such as natural disasters, infectious disease epidemics, and terrorist events. Although international organizations, countries, or local governments may possess the emergency supplies and personnel for a region in crisis, on many occasions they are unable to deliver this assistance in a timely or coordinated manner. During an emergency, public health professionals face specific challenges: to conduct rapid needs assessments for matching resources with actual needs on the ground, to make critical decisions based on limited data, and to implement monitoring and surveillance techniques for tracking the results of the assistance. Recognizing these challenges and responding to public health crises with the appropriate knowledge and skills will increase the effectiveness of interventions made by public health and healthcare infrastructures.

The public health crises of the 21st century have demonstrated the need for enormous coordination among multiple entities for good outcomes. Historically, these preparedness and response activities have mostly been within the domain of local, state, and national government agencies. However, the private sector and nongovernmental organizations (NGOs) are playing larger roles in recent crises for multiple reasons. Often, the government may be limited in the immediate resources available to respond to an emergency or these agencies may not be able to provide assistance rapidly, and the private sector and NGOs may be able to deliver aid quickly through

well-established formal and informal networks. In addition, as was seen in the 2010 Haitian earthquake, the government facilities may be disrupted or destroyed during the event, and other organizations are needed to fill the void left by the lack of government capacity. Once the government, private sector, and NGOs enter the emergency setting, communication and clarity of responsibilities are fundamental for stabilizing the affected community and for beginning relief efforts.

Although multiple books have been written on the topic of disaster medicine, this is the first book in the growing field of emergency public health. Unlike disaster medicine that focuses primarily on the medical treatment of specific conditions that occur during disasters, emergency public health encompasses the broad components of preparedness, response, and mitigation through a public health perspective for communities and nations that are at risk for large-scale emergencies. In addition, emergency public health explores the interactions and contributions of multiple sectors such as the government, non-governmental organizations, private enterprises, and individuals before, during, and after a public health emergency.

Most of the contributing authors in this book are emergency medicine physicians with public health degrees. These experts combine their public health and clinical experiences to give the reader a balance of both theory and practice on how to prepare and respond to public health emergencies. The book is divided into eight sections to address the breadth and depth of emergency public health:

1. Government and Public Health Emergencies
2. Private Sector and Nongovernmental Organizations
3. Public Health Tools during Emergencies
4. Infectious Diseases
5. Terrorism
6. Natural Disasters
7. Industrial Emergencies
8. Special Populations and Issues

The chapters are structured to provide the reader with a systematic and case-based approach to the topics. Each chapter begins with a detailed case study and then follows with historical perspectives to learn from prior experiences. The chapter then provides valuable information on specific preparedness, response, and mitigation interventions. The chapter then reviews the case study to offer a detailed analysis. Each chapter concludes with a list of important on-line resources.

The primary objectives of this book are simple: to help improve how we prepare and respond to public health crises and to decrease the morbidity, mortality, and suf-

fering of those individuals affected by large-scale emergencies. As public health professionals, first responders, and healthcare providers, we possess the obligation to achieve the highest level of public health security within the communities we serve.

G. BOBBY KAPUR  
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# Foreword

## What Is Emergency Public Health?

The concept of emergency public health, while not new, is being defined and described in greater detail than in the past. In this book, the authors have focused on the nature of public health emergencies, as well as the role that various sectors have in responding to them. They describe tools that are common to public health, and identify some of the issues that are faced in preparing for and responding to public health emergencies. Defining emergency public health through the use of these examples provides a basis for understanding the concepts that are critical to the field—prevention, preparation, intervention, and recovery—as well as the critical need to take a multidisciplinary approach to public health emergencies.

In an environment in which we discuss public health emergencies, we need to discuss emergency public health as a specialty area within public health, much as environmental health, infectious disease, or injury prevention and control can be seen as public health specialty areas, and to provide a basis for its practice and research. Core competencies in emergency public health, currently under development, will take an all-hazard approach, and will cover the spectrum of prevention, protection, response and recovery, and will provide a foundation for advanced competencies in the specialty area of emergency public health. This multidisciplinary field will draw from the core values of the disciplines that contribute to it, and, at a minimum may serve the common mission of many of the disciplines: to improve health within the population. In addition, emergency public health can enhance the effectiveness with which health knowledge and technologies are applied in addressing public health emergencies. A core value of promoting equity in health will allow the field to decrease disparities in preventing, preparing for, intervening in, and recovering from public health emergencies.

For those who ask the question, “Why now? And why a new field of public health?” many of the answers are contained in the following chapters. The continued development of the science and practice of emergency public health through education, research and multidisciplinary collaboration is critical to ensuring health security, to responding to public health emergencies, and to ensuring that populations have access to prevention of, preparation for, intervention in and recovery from public health emergencies.

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From 2005 to 2009, Dr. Kapur was the Director of the International Emergency Medicine and Global Public Health Fellowship Program for the Department of Emergency Medicine at The George Washington University. During this time, Dr. Kapur designed and taught one of the nation's first courses in emergency public health for law enforcement officials from local and national agencies. In addition, he developed and implemented emergency medicine and public health training programs for international physicians, nurses and primary healthcare workers.

Dr. Kapur's research has focused on the preparedness and response to terrorist bombing events. Collaborating with the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF), he authored one of the most comprehensive assessments of bombing events in the United States, analyzing 20 years of ATF bombing data, and he has recently published a pre-hospital care algorithm for the management of bombing victims.

Dr. Kapur's projects have included establishing emergency medicine training programs in Beijing, New Delhi, and Kolkata. Dr. Kapur also provided leadership and oversight for a three-year program with the Emergency Medicine Association of Turkey to train nearly 2,500 physicians across Turkey in evidence-based medicine. He

has also worked with partners globally on the development of emergency public health systems with an emphasis on low-cost, high-yield strategies.

Dr. Kapur has served as the Chair of the Section of International Emergency Medicine for the American College of Emergency Physicians and as Chair of the Committee of International Emergency Medicine for the Society of Academic Emergency Medicine.

Dr. Kapur earned his Bachelor of Arts degree in English Literature and Policy Studies from Rice University, his Doctor of Medicine degree with a concentration in medical ethics from Baylor College of Medicine, and his Master of Public Health in Global Health from Harvard University. Dr. Kapur completed his Emergency Medicine residency training at Yale University and his International Emergency Medicine fellowship at Harvard University and Brigham and Women's Hospital.

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