

# DISASTER MEDICINE and PUBLIC HEALTH PREPAREDNESS

An Official Publication of the Society for Disaster Medicine and Public Health, Inc



## IN THIS ISSUE:

Nurses' Resilience in Disasters

Surge Capacity in Public Health Emergencies

Is There a Better Way to Provide Search and Rescue?

Nationwide Survey on Hospital Preparedness in Japan

**SPECIAL SECTION: HEALTH CARE COALITIONS**

**SDMPH**  
SOCIETY FOR DISASTER MEDICINE & PUBLIC HEALTH

**CAMBRIDGE**  
UNIVERSITY PRESS

medical  
reserve  
corps



# Office of the U.S. Surgeon General Division of the Civilian Volunteer Medical Reserve Corps



## *What can MRC volunteers do?*

- Support local public health, while advancing the priorities of the U.S. Surgeon General by:
  - ✓ Promoting disease prevention
  - ✓ Improving health literacy
  - ✓ Eliminating health disparities
  - ✓ Enhancing public health preparedness
- Assist local hospitals and health departments with surge personnel needs
- Participate in mass prophylaxis and vaccination exercises and community disaster drills
- Train with local emergency response partners
- And much more...

***Connect with your local MRC unit today!***

**[www.MedicalReserveCorps.gov](http://www.MedicalReserveCorps.gov)**

The Tower Building  
1101 Wootton Parkway, Suite 200  
Rockville, MD 20852  
240.453.2839 • [MRCcontact@hhs.gov](mailto:MRCcontact@hhs.gov)



***Volunteers Building Strong, Healthy, and Prepared Communities***

# Disaster Medicine and Public Health Preparedness

## Editor-in-Chief

**James J. James, MD, DrPH, MHA**

Chief Executive Officer,  
Society for Disaster Medicine and  
Public Health, Inc., USA

## Deputy Editor

**David Markenson, MD, MBA**

Chief Medical Officer  
Sky Ridge Medical Center  
Senior Fellow and Medical Director  
Center for Disaster Medicine  
New York Medical College

## Associate Editors

**Elizabeth Ablah, PhD, MPH**

Associate Professor, University of  
Kansas-Wichita, School of Medicine

**Daniel J. Barnett, MD, MPH**

Assistant Professor,  
Department of Environmental  
Health Sciences, Johns Hopkins  
Bloomberg School of Public Health

**Charles W. Beadling, MD, FAAFP, IDHA,  
DMCC**

Director, Center for Disaster and  
Humanitarian Assistance Medicine  
Uniformed Services University of the  
Health Sciences

**Rita V. Burke, PhD, MPH**

Assistant Professor of Research Surgery  
and Preventive Medicine Pediatric Surgery,  
Children's Hospital Los Angeles

**Laura J. Cavanaugh, MD, FAAP**

Pediatrician, Private Practice, USA

**Jennifer L. Chan, MD, MPH**

Assistant Professor, Department  
of Emergency Medicine, Northwestern  
Feinberg School of Medicine

**Anat Gesser-Edelsburg, PhD**

Head of Health Promotion Program, School  
of Public Health, Faculty of Social Welfare  
and Health Science, University of Haifa

**Edbert B. Hsu, MD, MPH**

Director of Training,  
Johns Hopkins Office of Critical Event  
Preparedness and Response

**Stephanie Kayden, MD, MPH**

Director, International Emergency  
Medicine Fellowship, Brigham and  
Women's Hospital

**Frederick C. Nucifora Jr., DO, PhD, MHS**

Department of Psychiatry and  
Behavioral Science, Johns Hopkins  
University School of Medicine

**Michael J. Reilly, DrPH, MPH,  
NREMT-P, CEM**

Director, Center for Disaster Medicine  
Associate Professor of Environmental  
Health Science and Emergency Medicine  
New York Medical College

**Rebecca Zukowski, PhD, RN**

Associate Academic Dean and Nursing  
Division Chairperson, Mount Aloysius College

## Managing Editor

**Alice O'Donnell**

HJF, National Center for Disaster Medicine  
and Public Health  
Editorial support provided by the National  
Center for Disaster Medicine and Public Health

## Copyeditor

**Jennifer Holmes**

## Editorial Board

**John Armstrong, MD, FACS**

Associate Professor of Surgery,  
USF Health, University of South Florida

**Frederick M. Burkle Jr., MD, MPH, DTM,  
FAAP, FACEP**

Senior Fellow, Harvard Humanitarian  
Initiative, Harvard School of Public Health

**Cham E. Dallas, PhD**

Director, Institute for Health Management  
in Mass Destruction Defense, University of  
Georgia & Medical College of Georgia

**Linda C. Degutis, DrPH, MSN**

Director, National Center for Injury  
Prevention and Control, Centers for Disease  
Control and Prevention

**Lewis R. Goldfrank, MD**

Herbert W. Adams Professor and Chair,  
Department of Emergency Medicine,  
New York University  
Medical Director, New York City Poison Center

**John L. Hick, MD**

Associate Professor of Emergency  
Medicine, Hennepin County Medical  
Center, University of Minnesota

**James G. Hodge, Jr., JD, LLM**

Lincoln Professor of Health Law and Ethics  
Director, Public Health Law and Policy  
Program, Sandra Day O'Connor College of  
Law, Arizona State University

**Gabor Kelen, MD, FRCP(C), FACEP**

Professor and Chair, Department of Emergency  
Medicine, Johns Hopkins University

**Thomas D. Kirsch, MD, MPH, FACEP**

Associate Professor, Director of the  
Center for Refugee and Disaster  
Response, The Johns Hopkins  
School of Medicine/Bloomberg  
School of Public Health

**William Lanier, MD**

Professor of Anesthesiology, Mayo Clinic

**Yasuhiro Otomo, MD, PhD**

Director, Trauma and Acute Critical  
Care Medical Center  
Professor and Chairman,  
Tokyo Medical and Dental University  
Hospital of Medicine, Japan

**Betty Pfefferbaum, MD, JD**

Chairman, Department of Psychiatry  
and Behavioral Sciences, University of  
Oklahoma Health Sciences Center

**Irwin Redlener, MD**

Director, National Center for Disaster  
Preparedness, Columbia University

**Charles L. Rice, MD**

President, Uniformed Services University  
of the Health Sciences

**Hou Shi-ke, MD**

Institute for Disaster & Emergency  
Medicine of PAPF  
Affiliated Hospital of Logistic University,  
Tianjin City, China

**W. Craig Vanderwagen, MD**

RADM, US Public Health Service, retired  
Senior Partner, Martin, Blanck,  
and Associates

## Statistical Editors

**Guohua Li, MD, DrPH**

M. Finster Chair in Anesthesiology  
and Epidemiology, Columbia  
University College of Physicians and  
Surgeons

**Michael A. Stoto, PhD**

Professor, Health Services Administration  
and Population Health, Georgetown University  
School of Nursing and Health Studies

## Chair of Global Committee

**Raymond E. Swienton, MD, FACEP**

Co-director of EMS, Disaster Medicine and  
Homeland Security Section, University of  
Texas Southwestern

## Associate Board

**Erik Auf der Heide, MD, MPH, FACEP**

Agency for Toxic Substances  
and Disease Registry,  
US Department of Health and  
Human Services

**Joseph A. Barbera, MD**

Co-director, Institute for Crisis,  
Disaster, and Risk Management,  
The George Washington  
University

**Donna F. Barbisch, DrHA, MPH**

Director, Institute for Global and Regional  
Readiness

**Steven M. Becker, PhD**

Professor, College of Health Sciences  
Old Dominion University

**Georges Benjamin, MD, FACP**

Executive Director, American Public Health  
Association

**John Brownstein, PhD**

Associate Professor, Clinical and Public Health  
Informatics, Boston Children's Hospital

**Arthur Cooper, MD, MS, FACS, FAAP, FCCM**

Director of Trauma & Pediatric Surgical  
Services, Harlem Hospital Center

**Asha Devereaux, MD, MPH**

Chair, American College of Chest  
Physicians Disaster Response  
Network

**Edward Eitzen, MD, MPH**

Senior Partner, Biodefense and Public  
Health Programs, Martin, Blanck and  
Associates

**Mikael Eliasson, MD, PhD**

Strategic Marketing Leader,  
General Medicine, GE Healthcare

**Joshua Epstein, PhD**

Director, Center on Social and  
Economic Dynamics, The Brookings  
Institution

**J. Christopher Farmer, MD, FCCM**

Associate Dean, Critical Care Medicine,  
Mayo Clinic College of Medicine

**Richard Garfield, RN, DrPH**

Henrik H. Bendixen Professor of  
Clinical International Nursing, Columbia  
University

**Jeffrey Hammond, MD, MPH**

Clinical Professor of Surgery, Robert Wood  
Johnson Medical School

**D.A. Henderson, MD, MPH**

Center for Biosecurity, University of  
Pittsburgh Medical Center

**David Joyner, MD**

Vice Chairman/CMO, Salus Healthcare  
International

**David Lakey, MD**

Commissioner, Texas Department of State  
Health Services

**E. Brooke Lerner, PhD**

Department of Emergency Medicine,  
Medical College of Wisconsin

**Jonathan Links, PhD**

Director, Center for Public Health  
Preparedness, Johns Hopkins Bloomberg  
School of Public Health

**Craig H. Llewellyn, MD, MPH, MSTMH,  
FACPM**

Emeritus Professor of Military Medicine,  
Emergency Medicine, Preventative  
Medicine & Surgery, Uniformed Services  
University School of Medicine

**Darrell E. Lovins, DO, MPH, FACOFP**

Associate Dean, Clinical Sciences,  
William Carey University

**Anthony Macintyre, MD**

Visiting Associate Professor,  
Institute for Crisis, Disaster, and  
Risk Management, The George  
Washington University

**John Mutter, PhD**

Professor of International and  
Public Affairs, The Earth Institute  
at Columbia University

**Kobi Peleg, PhD, MPH**

Director, Israel National Center for Trauma  
and Emergency Medicine

**Cheryl Peterson, RN, MSN**

Senior Policy Fellow, American Nurses  
Association

**Steven J. Phillips, MD**

Director, Specialized Information Services,  
Associate Director, National Library of  
Medicine, US Department of Health  
and Human Services

**Louis Rowitz, PhD**

Professor, Community Health Sciences,  
School of Public Health, University of  
Illinois at Chicago

**Joseph Scanlon**

Professor Emeritus and Director,  
Emergency Communications and  
Research Unit, Carleton University

**R. Tom Sizemore III, MD**

Principal Deputy Director, Office of  
Preparedness and Emergency Operations,  
US Department of Health and Human  
Services

**Robert Ursano, MD**

Professor/Chair, Department of Psychiatry,  
Uniformed Services University of the Health  
Sciences

**Jeb Weisman, PhD**

Director of Strategic Technologies,  
National Center for Disaster Preparedness,  
Columbia University

**Kevin Yeskey, MD**

Senior Advisor for Emergency Public Health,  
MDB, Inc.

**Global Committee****Michael Christian, MD, FRCP(C)**

Department of Medicine, University of  
Toronto, Canada

**Herman Delooz, MD, PhD, FCCM, FCEM (dist)**

Research Group on Disaster Medicine,  
Free University of Brussels

**Natalia Gudzenko, MD**

Laboratory for Cancer Epidemiology, Research  
Center for Radiation Medicine, Ukraine

**Keqin Rao, MD, MPH**

Director, National Center for Health Statistics  
and Information, Ministry of Health, China

**Alessandra Rossodivita, MD EMDM**

San Raffaele Hospital Scientific Foundation,  
Milan, Italy

**Nobhojit Roy, MD, MPH**

Bhabha Atomic Research Center Hospital,  
Mumbai, India

# Disaster Medicine and Public Health Preparedness

DECEMBER 2015

Vol 9/No 6

## On the Cover

---

- 599** Health Care Coalitions: The Georgia Approach  
Curtis Harris

## Editorial

---

- 600** All For One, One For All  
James J. James

## Brief Reports

---

- 601** Resilience of Nurses in the Face of Disaster  
Stephanie B. Turner
- 605** Cross-Sectional Study of the Impact of a Natural Disaster on the Delivery of Gynecologic Oncology Care  
Gizelka David-West, Fernanda Musa, Melissa K. Frey, Leslie Boyd, Bhavana Pothuri, John P. Curtin and Stephanie V. Blank
- 609** Ambulance Dispatches From Unaffected Areas After the Great East Japan Earthquake: Impact on Emergency Care in the Unaffected Areas  
Akihito Hagihara, Daisuke Onozuka, Takashi Nagata, Takeru Abe, Manabu Hasegawa and Yoshihiro Nabeshima
- 614** Disaster Vulnerability of Hospitals: A Nationwide Surveillance in Japan  
Sae Ochi, Shigeaki Kato, Kenichi Kobayashi and Yasuhiro Kanatani
- 619** Managing Community Resilience to Climate Extremes, Rapid Unsustainable Urbanization, Emergencies of Scarcity, and Biodiversity Crises by Use of a Disaster Risk Reduction Bank  
Deon V. Canyon, Frederick M. Burkle, Jr and Rick Speare

## Original Research

---

- 625** Exposure to the World Trade Center Disaster and 9/11-Related Post-Traumatic Stress Disorder and Household Disaster Preparedness  
Lisa M. Gargano, Kimberly Caramanica, Sarah Sisco, Robert M. Brackbill and Steven D. Stellman
- 634** Assessing the Capacity of the US Health Care System to Use Additional Mechanical Ventilators During a Large-Scale Public Health Emergency  
Adebola Ajao, Scott V. Nystrom, Lisa M. Koonin, Anita Patel, David R. Howell, Prasith Baccam, Tim Lant, Eileen Malatino, Margaret Chamberlin and Martin I. Meltzer

## Concepts in Disaster Medicine

---

- 642** Using Professional Organizations to Prepare the Behavioral Health Workforce to Respond to the Needs of Pediatric Populations Impacted by Health-Related Disasters: Guiding Principles and Challenges  
Ginny Sprang and Miriam Silman
- 650** Notes from Nepal: Is There a Better Way to Provide Search and Rescue?  
Kobi Peleg

## Health Care Coalitions Special Section

---

- 653** Coalitions and Health Care Emergency Management  
Chad Priest and WC Vanderwagen

## Editorials

---

- 654** Documentation of Coalitions Can Improve the Process, But Will it Lead to Better Outcomes?  
Craig Vanderwagen and Chad Priest
- 655** Perspectives From the Assistant Secretary for Preparedness and Response  
Nicole Lurie

## Brief Report

---

- 657** Gulf Coast Resilience Coalition: An Evolved Collaborative Built on Shared Disaster Experiences, Response, and Future Preparedness  
Tonya Cross Hansel, Howard J. Osofsky, Jennifer Langhinrichsen-Rohling, Anthony Speier, Tim Rehner, Joy D. Osofsky and Glenn Rohrer

TABLE OF CONTENTS

## Original Research

- 666** Physician Emergency Preparedness: A National Poll of Physicians  
Gillian K. SteelFisher, Robert J. Blendon, Amanda S. Brulé, Keri M. Lubell, Loretta Jackson Brown, Dahna Batts and Eran Ben-Porath
- 681** Medical Surge Capacity in Atlanta-Area Hospitals in Response to Tanker Truck Chemical Releases  
Curtis Harris, William Bell, Edward Rollor, Tawny Waltz, Pam Blackwell and Cham Dallas
- 690** Contributions of Health Care Coalitions to Preparedness and Resilience: Perspectives From Hospital Preparedness Program and Health Care Preparedness Coalitions  
Joie Acosta, Stefanie Howard, Anita Chandra, Danielle Varda, Sara Sprong and Lori Uscher-Pines
- 698** In Preparation or Response: Examining Health Care Coalitions Amid a Changing Economic and Political Landscape  
Mark E. Dornauer
- 704** Identifying Indirect Benefits of Federal Health Care Emergency Preparedness Grant Funding to Coalitions: A Content Analysis  
Chad Priest and Benoit Stryckman

## Concepts in Disaster Medicine

- 712** Transforming Health Care Coalitions From Hospitals to Whole of Community: Lessons Learned From Two Large Health Care Organizations  
Scott Cormier, Michael Wargo and Walter Winslow
- 717** Optimizing Health Care Coalitions: Conceptual Frameworks and a Research Agenda  
Nathaniel Hupert, Karen Biala, Tara Holland, Avi Baehr, Aisha Hasan and Melissa Harvey

## Commentaries

- 724** The Office of Health Affairs and Our Role in Health Security  
Kathryn Brinsfield and Sally Phillips
- 726** The US Department of Veterans Affairs and Sustainable Health Care Coalitions  
Aram Dobalian
- 728** Preparedness 3.0: Addressing the Future  
Georges C. Benjamin

## Letter to the Editor

- 730** MMRS Coalitions: Continuing Their Efforts  
David N. Gerstner and Brandon P. Sobera

## Thank You to Reviewers

- 731** Reviewers

## CONTACT INFORMATION

## Editorial Office

NCDMPH  
11300 Rockville Pike, Suite 1000  
Rockville, MD 20852  
P: 240-833-4429  
E: [dmpjournal@gmail.com](mailto:dmpjournal@gmail.com)

Edited from the Offices of the National Center for Disaster Medicine and Public Health (NCDMPH) located at the Uniformed Services University of the Health Sciences (USUHS) under a cooperative enterprise agreement between USUHS and The Society for Disaster Medicine and Public Health. The views expressed in each article are those of the author and do not necessarily reflect the official policy or position of NCDMPH, USUHS, the Department of Defense, or the United States Government.

## Manuscript Submission and Instructions for Authors

May be found online at <http://mc.manuscriptcentral.com/dmp>

## DMPHP Reprints &amp; Permissions

## Article Reprints/E-prints Inquiry

For use by commercial entities or educational institutions:  
[special\\_sales@cambridge.org](mailto:special_sales@cambridge.org)

## Permissions Inquiry

For rights and permissions inquiries, please visit [www.cambridge.org/about-us/rights-permissions](http://www.cambridge.org/about-us/rights-permissions)

## Advertising

For details about advertising rates and opportunities in *Disaster Medicine and Public Health Preparedness*, or to request a media pack, please contact M. J. Mrvica Associates, 2 West Taunton Avenue, Berlin, NJ 08009; Phone: 856-768-9360; Fax: 856-753-0064; Email: [mjmrvica@mrvica.com](mailto:mjmrvica@mrvica.com).

## Subscription Rates and Service

## Subscription Information

*Disaster Medicine and Public Health Preparedness* (ISSN: 1935-7893; EISSN: 1938-744X) is published bi-monthly by Cambridge University Press, 32 Avenue of

the Americas, New York, New York 10013. Copyright © 2015 by the Society for Disaster Medicine and Public Health, Inc.

## Annual Subscription Rates

Annual institutional print and electronic subscription rates: US \$600.00 in the USA, Canada and Mexico; UK £375.00 + VAT elsewhere. Institutional electronic rates only: US \$460.00.00 in the USA, Canada and Mexico; UK £287.00 + VAT elsewhere. Prices include surface postage and insurance.

Information on *Disaster Medicine and Public Health Preparedness* and all other Cambridge journals is available at <http://www.cambridge.org/>. Full text for this journal may be found at <http://journals.cambridge.org/dmp>.

When citing this journal, please abbreviate as *Disaster Med Public Health Preparedness*.

Indexed in MEDLINE.

*Disaster Medicine and Public Health Preparedness* participates in the Health InterNetwork Access to Research Initiative (HINARI), which provides free or very-low-cost online access to major journals in biomedical and related social sciences to local, nonprofit institutions in developing countries. Please visit [www.who.int/hinari](http://www.who.int/hinari) for more information.

## Copyright ©2015 Society for Disaster Medicine and Public Health, Inc.

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying or otherwise, without permission in writing from Cambridge University Press, except when permission is obtained through a bona fide copyright clearinghouse, such as the Copyright Clearance Center (USA) or the Copyright Licensing Agency (UK). For further information please visit <http://us.cambridge.org/information/rights/> or <http://www.cambridge.org/uk/information/rights/>.

Periodicals postage paid at New York, NY, and additional mailing offices. Return Postage Guaranteed. **Postmaster:** Send address changes in the USA and Canada to: *Disaster Medicine and Public Health Preparedness*, Cambridge University Press, Journals Fulfillment Dept., 100 Brook Hill Drive, West Nyack, NY 10994-2133.