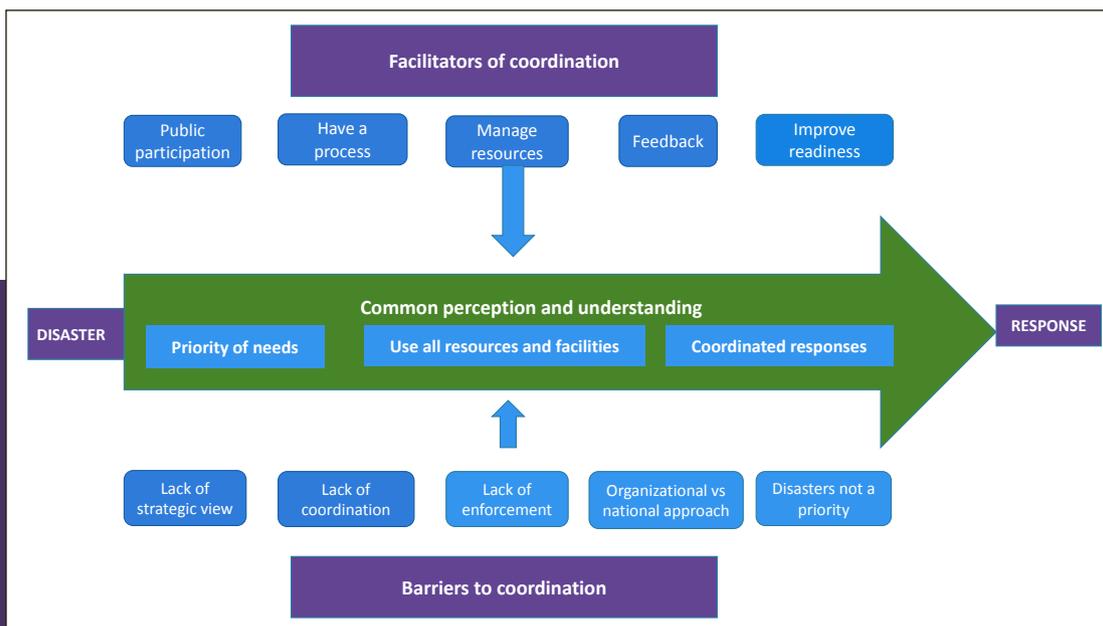


DISASTER MEDICINE and PUBLIC HEALTH PREPAREDNESS

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



IN THIS ISSUE:

Barriers to and Facilitators of Inter-Organizational Coordination in Response to Disasters

Zika Considerations and Controversies

Pregnant Women's Awareness of Social Capital After the Japanese Tsunami

Testing the START Triage Protocol in Italy

Controlling Tuberculosis in the United States

Lessons From New York State's Preparedness Efforts for Ebola

CAMBRIDGE
UNIVERSITY PRESS



NCDMPH
National Center for Disaster Medicine & Public Health

SDMPH
SOCIETY FOR DISASTER MEDICINE & PUBLIC HEALTH



LEARNING IN DISASTER HEALTH 2017

Register & Submit Your Abstract **TODAY** at
usuhs.edu/ncdmph

The only National level workshop of its kind
addressing learning & disaster health

Register at **NO COST**

Submit an abstract to share your disaster
health research and scholarly practice!

For more information, go to: <https://hjf.cvent.com/DHES2017>

September 7, 2017 • Washington DC Metro Area

Join the conversation!

#DHES2017

usuhs.edu/ncdmph

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

Vice President,
Graduate Medical Education,
Sky Ridge Medical Center,
Denver, Colorado

Associate Editors

Elizabeth Ablah, PhD, MPH

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

Daniel J. Barnett, MD, MPH

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

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

Associate Professor, Military and Emergency
Medicine, Uniformed Services University of the
Health Sciences, Bethesda, MD

Sandra C. Bibb, DNSc, RN, FAAN

Dean and Professor, College of Health
Professions, Wichita State University,
Wichita, Kansas

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

Mike Clarke, PhD

Professor, Queens University,
All Ireland Methodology Hub, Belfast, UK

Linda C. Degutis, DrPH, MSN

Executive Director, Defense Health Horizons
Chief Science Officer, The Avielle Foundation,
Atlanta, GA

Betty Duggan

Director, NYC Medical Reserve Corps, Office of
Emergency Preparedness and Response, NYC
Department of Health and Mental Hygiene

Anat Gesser-Edelsburg, PhD

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

Shinichi Egawa, MD, PhD

Division of International Cooperation for
Disaster Medicine, IRIDeS, Tohoku University,
Sendai, Japan

Brian W. Flynn, EdD

Department of Psychiatry, Center for the Study of
Traumatic Stress, Uniformed Services University
of the Health Sciences, Bethesda, MD

Dan Hanfling, MD

Inova Health System, Falls Church, VA

Ebert 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

Joshua C. Morganstein, MD

Commander, U.S. Public Health Service
Department of Psychiatry, Center for the Study of
Traumatic Stress, Uniformed Services University
School of Medicine, Bethesda, MD

Stephen S. Morse, PhD

Professor of Epidemiology & Director,
Infectious Disease Epidemiology Certificate,
Mailman School of Public Health,
Columbia University, New York, NY

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

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

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 Pro-
gram, 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

Executive Director, National Center for
Disaster Medicine and Public Health,
Rockville, MD

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

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 Uni-
versity School of Medicine

Darrell E. Lovins, DO, MPH, FACOFF

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 Deloof, 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

JUNE 2017

Vol 11/No 3

On the Cover

- 277** Working Above and Below the Arrow in Disaster Response
Kevin Scott Yeskey

Editorial

- 278** Update on the Society for Disaster Medicine and Public Health
James J. James

Policy Analysis

- 279** Zika Virus: A Review of Management Considerations and Controversies at Six Months
Laura Singer, Kelly G. Vest and Charles W. Beadling

Brief Reports

- 285** "Providing a Roof" and More to Communities Affected by Typhoon Haiyan in the Philippines: the Médecins Sans Frontières Experience
Engy Ali, Marie-Christine Ferir, Tony Reid, Henry Gray, Wilma Van Den Boogaard, Christopher Gonzales and Rony Zachariah
- 290** Clinical Update on Dengue, Chikungunya, and Zika: What We Know at the Time of Article Submission
Liang E. Liu, Meaghan Dehning, Ashley Phipps, Ray E. Swienton, Curtis A. Harris and Kelly R. Klein
- 300** Relationship Between Long-term Flooding and Serious Mental Illness After the 2011 Flood in Thailand
Takeshi Yoda, Katsunori Yokoyama, Hiromi Suzuki and Tomohiro Hirao
- 305** Testing the START Triage Protocol: Can It Improve the Ability of Nonmedical Personnel to Better Triage Patients During Disasters and Mass Casualties Incidents?
Stefano Badiali, Aimone Giugni and Lucia Marcis

Original Research

- 310** Disaster Preparedness Among University Students in Guangzhou, China: Assessment of Status and Demand for Disaster Education
Yibing Tan, Xiaolan Liao, Haihao Su, Chun Li, Jiagen Xiang and Zhaoyang Dong
- 318** Barriers to and Facilitators of Inter-Organizational Coordination in Response to Disasters: A Grounded Theory Approach
Mohammadkarim Bahadori, Hamid Reza Khankeh, Rouhollah Zaboli, Ramin Ravangard and Isa Malmir
- 326** Emergency Preparedness Safety Climate and Other Factors Associated With Mental Health Outcomes Among World Trade Center Disaster Evacuees
Martin F. Sherman, Robyn R. Gershon, Halley E. M. Riley, Qi Zhi, Lori A. Magda and Mark Peyrot
- 337** Controlling Tuberculosis in the United States: Use of Isolation and Other Measures Throughout the Country
Rebecca Katz and Andrea Vaught
- 343** Informal Networks in Disaster Medicine
Fadl Bdeir, John W Crawford and Liaquat Hossain

TABLE OF CONTENTS

- 355** Pregnant Women's Awareness of Social Capital in the Great East Japan Earthquake-Affected Areas of Miyagi Prefecture: The Japan Environment and Children's Study
Hidekazu Nishigori, Toshie Nishigori, Kasumi Sakurai, Satoshi Mizuno, Taku Obara, Hirohito Metoki, Zen Watanabe, Noriyuki Iwama, Mami Ishikuro, Nozomi Tatsuta, Ichiko Nishijima, Junichi Sugawara, Shinichi Kuriyama, Ikuma Fujiwara, Takahiro Arima, Kunihiko Nakai, Fumiaki Takahashi and Nobuo Yaegashi, the Japan Environment & Children's Study Group

Concepts in Disaster Medicine

- 365** First Successful Pre-Distribution of Stable Iodine Tablets Under Japan's New Policy After the Fukushima Daiichi Nuclear Accident
Mayo Ojino, Sumito Yoshida, Takashi Nagata, Masami Ishii and Makoto Akashi
- 370** Preparing the Health System to Respond to Ebola Virus Disease in New York City, 2014
Jay K. Varma, David J. Prezant, Ross, Wilson, Celia Quinn, Glenn Asaeda, Nicholas V. Cagliuso, Sr, Jennifer L., Rakeman, and Marisa Raphael
- 375** Research on Modularized Design and Allocation of Infectious Disease Prevention and Control Equipment in China
Xin Zhao, Yun-dou Wang, Xiao-feng Zhang, Shu-tian Gao, Li-jun Guo and Li-na Sun
- 383** Lessons From New York State's Preparedness Efforts for Ebola
Howard A. Zucker, Dennis Whalen and Kenneth E. Raske

Report from the Field

- 389** The Sewol Ferry Disaster: Experiences of a Community-Based Hospital in Ansan City
Jong-Hak Park, Hanjin Cho, Joo Yeong Kim, Joo-Hyun Song, Sungwoo Moon, Sang Hoon Cha, Byung-Min Choi, Chang-Su Han, Young-Hoon Ko and Hongjae Lee
- 394** Deployment of Medical Relief Teams of the Indian Army in the Aftermath of the Nepal Earthquake: Lessons Learned
Ashutosh Chauhan and Bhushan Kumar Chopra

CONTACT INFORMATION

Editorial Office

NCDMPH
11300 Rockville Pike, Suite 1000
Rockville, MD 20852
P: 240-833-4429
E: 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 & Permissions

Article Reprints/E-prints Inquiry

For use by commercial entities or educational institutions:
special_sales@cambridge.org

Permissions Inquiry

For rights and permissions inquiries, please visit 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.

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, One Liberty

Plaza, New York, NY 10006. Copyright © 2017 by the Society for Disaster Medicine and Public Health, Inc.

Annual Subscription Rates

Annual institutional print and electronic subscription rates: US \$662.00 in the USA, Canada and Mexico; UK £414.00 + VAT elsewhere. Institutional electronic rates only: US \$507.00 in the USA, Canada and Mexico; UK £316.00 + VAT elsewhere. Prices include surface postage and insurance. The electronic version of the journal is a free benefit to members of the Society.

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://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 Institute 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 for more information.

Copyright ©2017 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., One Liberty Plaza, New York, NY 10006.