The purpose of this symposium is to continue working toward solutions for disaster health education challenges.

**Date:**
- Thursday, May 14, 2020, 8:00 AM – 5:00 PM ET
- Friday, May 15, 2020, 8:00 AM – 12:30 PM ET

**Venue:**
American Geophysical Union, 2000 Florida Avenue, NW, Washington, DC 20009

The National Center for Disaster Medicine and Public Health (NCDMPH) is the Nation’s academic center of excellence leading domestic and international disaster health education and research efforts.

In 2019 NCDMPH convened its first annual “Disasters and Health: State of Science” meeting. To continue the conversation surrounding important issues enabling and constraining an evidence-based approach to disaster preparedness and response, we are pleased to announce this year’s **Disasters and Health: State of Education** symposium.

The objectives of the symposium are to:

• Describe the current state of disaster health education
• Recognize challenges facing disaster health education
• Identify priorities for the way forward in addressing these challenges.

The Disasters and Health: State of Education symposium will convene leading disaster health educators from the following groups: federal agencies, health organizations, foundations, academia, non-governmental organizations, researchers, as well as the general public. We aim to spark ideas and lay the groundwork for ongoing, interprofessional engagement on the issue of disaster health education/training.

Over the course of one and a half days, we will engage the community through general sessions, panel presentations, interactive discussion groups, and Q&A.

Follow us on linkedin.com/in/ncdmph and sign up on our listserve http://bit.ly/2m6hf7s for further information as it becomes available. Partial agenda already posted.

Email: ncdmph-event@usuhs.edu Tel: 1+301-400-4211

---

**National Disaster Life Support™ Foundation**

The NDLS courses are unique in that they are:

- **Competency-Based**
- **Standardized**
- **Multi-Disciplinary**
- **All-Hazards**

Over 100 training centers offer the courses globally.

- More than 105,000 graduates.
- 2,500 Instructors.
- Recognized for continuing education credit.
- Recently revised for current content.

Endorsed by the National Disaster Life Support Education Consortium.

For more information contact:
info@ndlso.org

To locate a course near you:
http://register.ndlso.org
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 Editors
David Markenson, MD, MBA
Medical Director, Center for Disaster Medicine, New York Medical College, Valhalla, NY

Jeff Schlegelmich, MPH, MBA
Deputy Director, National Center for Disaster Preparedness, Earth Institute, Columbia University, New York, NY, USA

Eric S. Weinstein MD, MSc, DM
Attending Emergency Physician, Lexington Medical Center, Research Associate, CRIMEDIM, Novara, Italy

Associate Editors
Elizabeth Abiah, PhD, MPH
Associate Professor, University of Kansas-Wichita, School of Medicine, Wichita, Kansas, USA

Lisa Baker
Samford University, College of Health Sciences, Birmingham, Alabama, USA

Daniel J. Barnett, MD, MPH
Associate Professor, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

Charles W. Beadling, MD, FAAP, IDHA, DMCC
Associate Professor, Uniformed Services University of the Health Sciences, Bethesda, Maryland, Principal Investigator of the African Peacekeeping Rapid Response Partnership (APRRP) program at the USUHS Center for Global Health Engagement, USA

Sandra C. Bibb, DNSc, RN, FAAN
Dean and Professor, College of Health Professions, Wichita State University, Wichita, Kansas, USA

Rita V. Burke, PhD, MPH
Assistant Professor of Research Surgery and Preventive Medicine Pediatric Surgery, Children’s Hospital Los Angeles, California, USA

Frederick M. Burkle, Jr., MD, MPH, DTM, FAAP, FACEP
Harvard School of Public Health, Cambridge, Massachusetts, USA

Laura J. Cavanaugh, MD, FAAP
Pediatrician, Private Practice, Atlanta, Georgia, USA

Jennifer L. Chan, MD, MPH
Assistant Professor, Department of Emergency Medicine, Northwestern Feinberg School of Medicine, Chicago, Illinois, USA

Mike Clarke, PhD
Professor/Director of MRC Methodology Hub, School of Medicine, Dentistry and Biomedical Sciences, Center for Public Health Institute for Health Sciences, Queens University, Belfast, UK

Cham E. Dallas, PhD
Professor and Director, Institute for Disaster Management, Department of Health Policy and Management, University of Georgia, Medical College of Georgia, Augusta, Georgia, USA

Linda C. Degutis, DrPH, MSN
Executive Director, Defense Health Horizons Chief Executive Officer, The Avielle Foundation, Atlanta, Georgia, USA

Betsy Duggan
Director, NYC Medical Reserve Corps, Office of Emergency Preparedness and Response, NYC Department of Health and Mental Hygiene, New York, USA

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, Maryland, USA

Anat Gesser-Edelsburg, PhD
Head of Health Promotion Program, School of Public Health, Faculty of Social Welfare and Health Science, University of Haifa, Israel

Dan Hanfling, MD
Inova Health System, Falls Church, Virginia, USA

Edbert B. Hsu, MD, MPH
Director of Training, Johns Hopkins Office of Critical Event Preparedness and Response, Baltimore, Maryland, USA

Stephanie Kayden, MD, MPH
Director, International Emergency Medicine Fellowship, Brigham and Women’s Hospital, Boston, Massachusetts, USA

Anthony J. Masys, PhD
Associate Professor, Director of Global Disaster Management, Humanitarian Assistance and Homeland Security, University of South Florida College of Public Health, Tampa, Florida, USA

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, Maryland, USA

Stephen S. Morse, PhD
Professor of Epidemiology & Director, Infectious Disease Epidemiology Certificate, Mailman School of Public Health, Columbia University, New York, New York, USA

Frederick C. Nucifora Jr., DO, PhD, MHS
Department of Psychiatry and Behavioral Science, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

Michael J. Reilly, DrPH, MPH, NREMT-P, CEM
Center for Disaster Medicine, New York Medical College, Valhalla, New York, USA

Managing Editor
Alice O’Donnell
Henry Jackson Foundation, National Center for Disaster Medicine & Public Health, Rockville, Maryland

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

Editorial Board
John Armstrong, MD, FACS
University of South Florida, USA

Lewis R. Goldfrank, MD
New York University / New York City Poison Center, USA

John L. Hick, MD
University of Minnesota, USA

James G. Hodge, Jr., JD, LLM
Arizona State University, USA

Gabor Kelen, MD, FRCP(C), FACEP
Johns Hopkins University, USA

William Lanier, MD
Mayo Clinic, USA

Yasuhiro Otomo, MD, PhD
Tokyo Medical and Dental University Hospital of Medicine, Japan

Betty Pflegerbaum, MD, JD
University of Oklahoma Health Sciences Center, USA

Irwin Redlener, MD
Columbia University, USA

Hou Shi-ke, MD
Affiliated Hospital of Logistic University, Tianjin City, China

W. Craig Vanderwagen, MD
Martin, Blanck, and Associates, USA

Statistical Editors
Guohua Li, MD, DrPH
Columbia University College of Physicians and Surgeons, USA

Michael A. Stoto, PhD
Georgetown University School of Nursing and Health Studies, USA

https://doi.org/10.1017/dmp.2020.22 Published online by Cambridge University Press
## On the Cover

1. Caribbean Strong  
   Lucy Crespo, José F. Cordero and Leslie Maas

### Editorial

3. Documenting the Public Health Impacts of the Serial Hurricanes of 2017  
   James J. James and José F. Cordero

### Letter to the Editor

5. Exploring the Impact of Hurricane Maria on Parents and Health Care Personnel of a Neonatal Intensive Care Unit in Puerto Rico  
   Liza C. Sánchez-Plazas, Inés García-García and Lourdes García-Fragoso

### Commentary

7. Community Lifeline Framework for Leveraging Stabilization in Response and Recovery to Major Hurricanes  
   Judy Kruger

### Policy Analysis

10. The Medical, Public Health, and Emergency Response to the Impact of 2017 Hurricane Irma in Cuba  
   Tanya L. Zakrison, Davel Milian Valdés and James M. Shultz

18. Long-Term Public Health Responses in High-Impact Weather Events: Hurricane Maria and Puerto Rico as a Case Study  
   Charles W. Cargo and Jacy McGaw-Césaire

### Brief Report

23. The Correlation of English Language Proficiency and Indices of Stress and Anxiety in Migrants from Puerto Rico after Hurricane Maria: A Preliminary Study  
   Yonatan Carl, Rosa L. Frias, Sara Kurtevski, Tamara González Copo, Ana R. Mustafa, Cristina M. Font, Andrew R. Blundell, Elsa C. Rodríguez and Ruth Sacasa

28. Lessons Learned from a Medical Response Team 45 Days Post Hurricane Maria in Puerto Rico  
   Jessica M. Gordon, Deidee Orriola, Mary Unangst, Federico Gordon Jr and Yazmin E. Rodríguez Vellon

34. Medical Consultations After Typhoon Haiyan in a Field Hospital in the Philippines  
   Julita Gil Cuesta, Jonas Adrian Frank van Loenhout, Maria Lourdes de Lara Banquesio, Masniza Mustaffa and Debarati Guha-Sapir

39. Hurricane Impact on Emergency Services and Use of Telehealth to Support Prehospital Care  
   David M. French, Greg A. Hall, Todd McGeorge, Michael Haschker, Joseph G. Brazeal and Ragan Dubose-Morris

44. Monitoring Emergency Department Visits From Puerto Rico in the Aftermath of Hurricane Maria Using Syndromic Surveillance – New York City, 2017  
   Priscilla W. Wong and Hilary B. Parton

### Original Research

49. Disaster-Related Shelter Surveillance During the Hurricane Harvey Response – Texas 2017  
   Amy Helene Schnall, Arianna Hanchey, Nicole Nakata, Alice Wang, Zuha Jedd, Herminia Awa, Christina Tan, Tegan Boehner, Tesfaye Bayleyegn and Mary Casey-Lockyer

56. Home Health Service Provision After Hurricane Harvey  
   Sue Anne Bell, Jennifer Horowitz and Theodore Iwashyna

63. Injury-Related Emergency Department Visits After Hurricane Maria in a Southern Puerto Rico Hospital  
   Verónica M. Frasqueri-Quintana, Carene A. Oliveras García, Laura E. Adams, Xiomara Torres-Figueroa, Rafael Iván Iriarte, Kyle Ryff, Liliana Sánchez-González, Vivian Pérez Gómez, Nicole M. Pérez-Rodríguez, Luisa I. Alvarado and Gabriela Paz-Bailey

71. Does Preparedness Matter? The Influence of Household Preparedness on Disaster Outcomes During Superstorm Sandy  
   Lauren A. Clay, James B. Goetschius, Mia A. Papas, Joseph Trainor, Nuno Martins and James M. Kendra
TABLE OF CONTENTS

103 Understanding Associations Between Hurricane Harvey Exposure and Mental Health Symptoms Among Greater Houston-Area Residents
Kristin Bevelacqua, Rehana Rasul, Samantha Schneider, Maria Guzman, Vishnu Nepal, Deborah Banerjee, Joann Schulte and Rebecca M. Schwartz

111 A Spatial and Temporal Investigation of Medical Surge in Dallas–Fort Worth During Hurricane Harvey, Texas 2017
William Stephens, Grete E. Witt, Erica Adams Lennert, NoelleAngelique M. Molinari and Tanya Telfair LeBlanc

119 Hurricanes Harvey, Irma, and Maria: Exploring the Role of Home-Based Care Programs
Tamar Wyte-Lake, Maria Olver, Rachel Johnson-Koenike, Darlene Davis and Aram Dobalian

125 Assessing Characteristics of Unplanned School Closures that Occurred in the United States in Response to Hurricane Harvey in 2017
Ashley M. Jackson and Farouk Ahmed

Concepts in Disaster Medicine

130 Promoting Integrated Mental Health Care Services in Disaster Response Programs: Lessons Learned After the Impact of Hurricane Maria in Puerto Rico
Julio C. Jiménez Chávez, Esteban Viruet Sánchez, Fernando J. Rosario Maldonado, Axel J. Ramos Lucca and Barbara Barros Cartagena

Systematic Review

139 Social Media Use in Emergency Response to Natural Disasters: A Systematic Review With a Public Health Perspective
Kamalich Muniz-Rodriguez, Sylvia K. Ofori, Lauren C. Bayliss, Jessica S. Schwind, Kadiatou Diallo, Manyun Liu, Jingjing Yin, Gerardo Chowell and Isaac Chun-Hai Fung

Report from the Field

150 Provider-Guided Emergency Support for Persons Living With Type 1 Diabetes During Hurricanes Harvey, Irma, and Maria
Karen Dimentstein, Carlos Alberto Leyva Jordán, Stephen W. Ponder, Della Lorraine Matheson, Jay M. Sosenko, Zelde Espinel and James M. Shultz

155 The Caribbean Strong Summit: Building Resilience With Equity
Leslie Maas Cortés, Melanie Z. Rodriguez-Rivera, James J. James and José F Cordero

158 A Philanthropic Approach to Supporting Emergent Disaster Response and Recovery
Jeffrey Schlegelmilch, Jonathan Sury, Jeremy Brooks and Thomas Chandler

CONTACT INFORMATION

Editorial Office
NCDMPHP
11300 Rockville Pike, Suite 1000
Rockville, MD 20852
P: 240-839-4029
E: dmphpjournal@gmail.com

Edited from the Offices of the National Center for Disaster Medicine and Public Health (NCDMPHP) 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 NCDMPHP, 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. Mvinca Associates, 2 West Taunton Avenue, Berlin, NJ 08009; Phone: 856-768-9360; Fax: 856-753-0064; Email: mjmvinca@mvinca.com.

Subscription Rates and Service

Annual Subscription Rates
Annual institutional print and electronic subscription rates: US $768.00 in the USA, Canada and Mexico; UK £480.00 + VAT elsewhere. Institutional electronic rates only: US $588.00 in the USA, Canada and Mexico; UK £367.00 + 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 ©2020 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 clearance house, such as the Copyright Clearance Center (USA) or the Copyright Licensing Agency (UK). For further information please visit http://ius.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. 


https://doi.org/10.1017/dmp.2020.22 Published online by Cambridge University Press