PREHOSPITAL and DISASTER MEDICINE

Volume 41, Supplement 1, 2026



CAMBRIDGE UNIVERSITY PRESS

The Official Journal of the
World Association for Disaster and Emergency Medicine

https://doi.org/10.1017/S1049023X25101398 Published online by Cambridge University Press

EDITOR-IN-CHIEF
Jeffrey M. Franc, MD, MS(Stat), MSc, FCRP (EM), DSportMed
University of Alberta, Alberta, Canada

EMERITUS EDITORS-IN-CHIEF
Samuel J. Stratton, MD, MPH
University of California-Los Angeles
Los Angeles, California, USA

Marvin L. Birnbaum, MD, PhD
University of Wisconsin-Madison
Madison, Wisconsin, USA

MANAGING EDITOR
Ellen Johnson, MS

SECTION EDITORS
Emergency Medical Services

Darren Walter, FRCS(Ed) FCEM, FIMC
University Hospital South Manchester
Manchester, UK

Mass Gathering Medicine
Paul Arbon, PhD
School of Nursing and Midwifery
Flinders University
Adelaide, South Australia

Nursing
Elaine Daily, RN, BSN, FCCM, FAHA
Madison, Wisconsin, USA

ASSOCIATE EDITORS
David A. Bradt, MD, MPH
Royal Melbourne Hospital
Melbourne, Australia

Kimball Maull, MD, FACS
Department of Surgery
Hamad General Hospital
Doha, Qatar

Steven Rottman, MD
University of California-Los Angeles
Los Angeles, California, USA

Geert Synaeve, MD
Brussels, Belgium

EDITORIAL BOARD
Bruria Adini, PhD
Sackler Faculty of Medicine
Tel Aviv University
Tel Aviv, Israel

Carol Amaratunga, PhD
School of Child and Youth Development
University of Victoria Research
Association of the Justice Institute of British Columbia
Victoria, British Columbia, Canada

Yaron Bar-Dayan, MD, MHA
Israeli Defense Forces Home Front Command Or-Yehuda, Israel

Sue Anne Bell, PhD, FNP-BC
School of Nursing
University of Michigan
Ann Arbor, Michigan, USA

Tareg Bey, MD
The University of Texas MD Anderson Cancer Center
Houston, Texas, USA

Joost Bierens, MD, PhD
Amsterdam, The Netherlands

Richard A. Bissell, PhD
Center for Emergency Education and Disaster Research
University of Maryland-Baltimore
Baltimore, Maryland, USA

Stuart A. Bradin, DO, FAAP, FACEP
University of Michigan/Michigan Medicine Ann Arbor, Michigan, USA

Felipe Cruz-Vega, MD
Office of Social Security
Mexico City, Mexico

Joe Cuthbertson, MPH, MSc, MEH
Disaster Resilience Initiative
Monash University Australia

Robert A. DeLorenzo, MD, MSM, FACEP
Medical Corps
United States Army
San Antonio, Texas, USA

Romeo R. Fairley, MD
University of Texas Health San Antonio, Texas, USA

R. Paul Farrell, CD, MB, BCH, BAO, DA, LMCC
Kamloops, British Columbia, Canada

Erik S. Gaull
George Washington University
Washington, DC, USA

Michael Gunderson
Center for Systems Improvement
Lakeland, Florida, USA

Pinchas Halpern, MD
Critical Care and Emergency Medicine
Tel Aviv University
Tel Aviv, Israel

Keith Holtermann, MD
George Washington University
Washington, DC, USA

Mark Keim, MD
Centers for Disease Control and Prevention
Atlanta, Georgia, USA

Todd J. LeDuc, EMT-P
Broward Sheriff Fire Rescue
Ft. Lauderdale, Florida, USA

Lidia Mayner, PhD
School of Nursing and Midwifery
Flinders University
Adelaide, South Australia

Andrew Milsten, MD, MS, FACEP
University of Massachusetts
Emergency Medicine
Worcester, Massachusetts, USA

Jerry Overton
IAED Emergency Clinical Advice System & Standards Board
Salt Lake City, Utah, USA

Lynda Redwood-Campbell, MD, MPH
Department of Family Medicine
McMaster University
Hamilton, Ontario, Canada

Edward Ricci, PhD
Behavioral and Community Health Sciences
University of Pittsburgh
Pittsburgh, Pennsylvania, USA

Leonid Roshal, MD
Institute of Pediatrics
Academy of Medical Sciences
Moscow, Russia

Don Schramm
Disaster Management Center
University of Wisconsin-Madison
Madison, Wisconsin, USA

Carl Schultz, MD, FACEP
Center for Disaster Medical Sciences
University of California, Irvine
Irvine, California, USA

Erin Smith, PhD, MPH, MClinEpi
DART Centre Asia Pacific
C/O Phoenix Australia Centre for Posttraumatic Mental Health
Carlton, Victoria, Australia

Wayne Smith, BSC, MBChB, EMDM, FCEM(SA)
Division of Emergency Medicine
University of Cape Town
Cape Town, South Africa

Knut Ole Sundnes, MD
Baerum Hospital
Solo, Norway

Angelika T. Underwood, PA-C, MScDM
Bassett Healthcare Cooperstown, New York, USA

Darren Walter, MB, ChB, MPH
International Emergency Medicine, University of Manchester, UK

Richard Zoraster, MD, MPH
Kaneohe, Hawaii, USA

https://doi.org/10.1017/S1049023X25101398 Published online by Cambridge University Press

Editorial Office
World Association for Disaster and Emergency Medicine,
3330 University Avenue, Suite 130, Madison, WI 53705 USA
Telephone: (+1) (608) 819-6604; Facsimile (+1) (608) 819-6055;
E-mail: pdm@wadem.org

Editor-in-Chief
Jeffrey M. Franc, MD, MS(Stat), MSc,
FCRP (EM), DSportMed

Managing Editor
Ellen Johnson, MS

Editorial Assistant
Kelly Hutchinson, ND

Publishing and Production Office
Cambridge University Press
One Liberty Plaza
New York, NY 10006 USA

Advertising Sales
M. J. Mrvica Associates, Inc.
2 West Taunton Avenue
Berlin, NJ 08009
(856) 768-9360
mjmrvica@mrvica.com

Copyright © 2026 by the World Association for Disaster and Emergency Medicine. 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. Policies, request forms, and contacts are available at: http://www.cambridge.org/rights/permissions/permission.htm.

Prehospital and Disaster Medicine incorporates the Journal of the World Association for Emergency and Disaster Medicine and the Journal of Prehospital Medicine.

Aims and Scope: The principal mission of Prehospital and Disaster Medicine is the distribution of information relevant to the practice of out-of-hospital and in-hospital emergency medical care, disaster medicine, emergency public health and safety, and disaster mental health and psychosocial support.

Submissions: All manuscripts must be submitted through the Journal's online submission platform, ScholarOne Manuscripts, at http://mc.manuscriptcentral.com/pdm. Please review the Author Instructions and Author Checklist available online before finalizing a submission. All studies that include human subjects must be submitted for review or exemption to a formal human subjects ethics committee.

Indexing: PDM is covered by Clarivate Analytics services and indexed and abstracted in the Science Citation Index (also known as SciSearch®) and the Journal Citation Reports/ Science Edition. PDM is comprehensively indexed by the US National Library of Medicine (MEDLINE), Scopus®, Cumulative Index to Nursing and Allied Health (CINAHL), and Health Star Cumulative Index. Abstracts and search capability available at https://www.cambridge.org/core/journals/prehospital-and-disaster-medicine.

Statement of Peer Review Policy: PDM is a signatory with the International Committee of Medical Journal Editors (ICMJE) and the Committee On Publication Ethics (COPE). All scientific papers published in PDM are submitted to subject content and methods experts for peer review. Authors and reviewers are blinded (not aware of the identity of each other). Peer reviewers must declare that there is not a conflict of interest with any manuscript they agree to review. Peer review is accomplished by means of a standard scoring system and specific comments, the results and contents of which are returned to authors for their review.

https://doi.org/10.1017/S1049023X25101398 Published online by Cambridge University Press

23rd Congress on Disaster and Emergency Medicine

Governance of the Face of VUCA: the Power of Knowledge, Courage, and Solidarity in Health Systems

2-6 May 2025

Tokyo, Japan

More than 1,250 delegates from over 80 countries gathered at the Keio Plaza Hotel in Tokyo from 2 to 6 May 2025 for the 23rd Congress on Disaster and Emergency Medicine. The congress, co-hosted by the Japanese Association for Disaster Medicine (JADM), was one of the best-attended congresses in WADEM's history and featured a dynamic, engaging scientific program that included plenary sessions, workshops, roundtable discussions, oral and poster presentations, and simulation exercises.

The congress plenary speakers, Dr. Osamu Kunii, Prof. Sang Do Shin, Prof. Saini Yang, Dr. Masahiro Morikawa, Dr. Luca Pigozzi, Prof. April Llaneta, and Prof. Elizabeth Newnham gave exciting talks covering a wide range of topics such as mental health, Emergency Medical Teams (EMTs), primary care in disasters, disaster risk reduction (DRR), business continuity planning, technological innovations, and disaster resilience. The congress program also included several special sessions organized by the ARCH Project, WHO Kobe Centre, Kyoto University, Tohoku University, the International Committee of the Red Cross (ICRC), the World Society of Disaster Nursing, Prof. Jeffrey Franc, and New Orleans EMS and University Medical Center Trauma Center.

This supplement contains the abstracts accepted for presentation at the congress. All submitted abstracts were reviewed by at least two reviewers. Authors were asked to indicate if they had received an ethics approval from an accredited research ethics review committee (or Institutional Review Board; IRB) or if the data used in the abstract were from a publicly available source.

WADEM would like to acknowledge the hard work and dedication of the Congress Planning Committee, especially Prof. Yasuhiro Otomo, Prof. Shinichi Egawa, and Prof. Nahoko Harada.

https://doi.org/10.1017/S1049023X25101398 Published online by Cambridge University Press

VOLUME 41, SUPPLEMENT 1
MARCH 2026

Table of Contents

CAPACITY BUILDING s1
EDUCATION, TRAINING, RESEARCH s51
FAR AFIELD s107
HAZARDS AND EXPOSURE (HUMAN-INDUCED AND NATURAL) s123
HEALTH CARE WORKER SAFETY AND WELL-BEING s162
HUMANITARIAN AND POPULATION HEALTH s173
INTEGRATIVE HEALTH s197
MASS GATHERING AND EVENT MEDICINE s218
MEDICAL ASSISTANCE s234
NEW AND EXISTING TECHNOLOGIES s251
NURSING s275
"OUTSIDE THE BOX" s282

https://doi.org/10.1017/S1049023X25101398 Published online by Cambridge University Press