

PREHOSPITAL and DISASTER MEDICINE

Volume 33, Number 5

October 2018



WADEM

CAMBRIDGE
UNIVERSITY PRESS

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

Cambridge Core

Access
leading
journals in
your subject

Explore today at [cambridge.org/core](https://www.cambridge.org/core)

Cambridge **Core**



CAMBRIDGE
UNIVERSITY PRESS

Table of Contents

EDITORIAL

- The Hennepin Ketamine Study** 457
Samuel J. Stratton, MD, MPH

ORIGINAL RESEARCH

DISASTER HEALTH

- Hospital Surge Capacity during Expo 2015 in Milano, Italy** 459
Roberto Faccincani, MD, MScDM; Francesco Della Corte, MD, FP, Hon FESEM; Giovanni Sesana, MD; Riccardo Stucchi, MD, MScDM; Eric Weinstein, MD, MScDM, FACEP; Itamar Ashkenazi, MD; Pierluigi Ingrassia, MD, EMDM, PhD

- Acceptable Limitations on Paramedic Duty to Treat During Disaster: A Qualitative Exploration** 466
Erin Smith, PhD, MPH, MCLinEpi; Frederick M. Burkle, Jr., MD, MPH, DTM, PhD (Hon.), FAAP, FACEP; Kristine Gebbie, BSN, MN, DrPH, RN; David Ford, BAppSc, DipEd, MMedSc, PGDipCritCareParamed; Cécile Bensimon, PhD

- A Randomized Trial Comparing Telephone Tree, Text Messaging, and Instant Messaging App for Emergency Department Staff Recall for Disaster Response** 471
Valerie Homier, MD, MScDM, FRCPC; Raphael Hamad; José Larocque, RN, MScN; Pierre Chassé, RN, MScN; Elene Khalil, MDCM, FRCPC, FAAP; Jeffrey M. Franc, MD, MSc, FCFP(EM), D Sport Med, EMDM

- Epidemiological Evaluation of Dogs Rescued in the Fukushima Prefecture Following the Great East Japan Earthquakes of 2011** 478
Aki Tanaka, DVM, MPVM, PhD; Beatriz Martinez-Lopez, DVM, MPVM, PhD; Philip Kass, DVM, MPVM, MS, PhD

MASS GATHERINGS

- Prospective Evaluation of Point-of-Care Ultrasound at a Remote, Multi-Day Music Festival** 484
Ross Prager, MD; Colin Sedgwick, BSc; Adam Lund, MD, MEd, FRCPC (Emergency); Daniel Kim, MD, FRCPC (Emergency); Ben Ho, MD, CCFP (Emergency); Maja Stachura, MD, FRCP (Emergency), DTMH; Samuel Gutman, MD, CCFP (Emergency)

EMERGENCY MEDICAL SERVICES

- Prehospital Invasive Arterial Pressure: Use of a Minimized Flush System** 490
Jonas Karlsson, MD; Joacim Linde, MD; Christer Svendsen, MD, PhD, Professor; Mikael Gellerfors, MD

- Effects of Tactical Emergency Casualty Care Training for Law Enforcement Officers** 495
Heidie R. Rothschild, BS, MHA, DHS; Kathleen Mathieson, PhD, CIP

- Barriers to Providing Prehospital Care to Ischemic Stroke Patients: Predictors and Impact on Care** 501
Timmy Li, PhD, EMT-B; Jeremy T. Cushman, MD, MS, EMT-P; Manish N. Shah, MD, MPH; Adam G. Kelly, MD; David Q. Rich, ScD, MPH; Courtney M.C. Jones, PhD, MPH

- Self-Perception of Theoretical Knowledge and Practical Skills by Primary Health Care Physicians in Life-Threatening Emergencies** 508
José Antonio Cernuda Martínez, PhD; Rafael Castro Delgado, PhD; Elena Ferrero Fernández, PhD; Pedro Arcos González, PhD

Tourniquet Training Program Assessed by a New Performance Score 519
Thibault Martinez, MD; Sandrine Duron, MD, PhD; Jean-Vivien Schaal, MD; Yoann Baudoin, MD; Olivier Barbier, MD, MSc; Jean-Louis Daban, MD; Mathieu Boutonnet, MD, MSc; Sylvain Ausset, MD, PhD; Pierre Pasquier, MD, MSc

International Survey of Violence Against EMS Personnel: Physical Violence Report 526
Brian J. Maguire, Dr.PH, MSA, EMT-P; Matthew Browne, PhD; Barbara J. O'Neill, PhD, RN, BSN, PGCertNursEd; Michael T. Dealy, PhD; Darryl Clare, OAM; Peter O'Meara, PhD, MPP, BHA

Prehospital Airway Management Examined at Two Pediatric Emergency Centers 532
Jefferson Tweed, MS; Taylor George, DrPH, MHS, EMT-P; Cynthia Greenwell, BSN, RN; Lori Vinson, MSN, RN

COMPREHENSIVE REVIEWS

Impact of Patients Presenting with Alcohol and/or Drug Intoxication on In-Event Health Care Services at Mass-Gathering Events: An Integrative Literature Review 539
Makayla Bullock; Jamie Ranse, RN, FACN, FCENA, BN, PhD; Alison Hutton, RN, BN, MN, PhD, FACN

Emergency Department Response to Chemical, Biological, Radiological, Nuclear, and Explosive Events: A Systematic Review 543
Saydia Razak, MSc; Sue Hignett, PhD; Jo Barnes, PhD

SPECIAL REPORTS

Wisdom of the Crowd in Saving Lives: The Life Guardians App 550
Eli Jaffe, EMT-P, PhD; Ziv Dadon, MD; Evan Avraham Alpert, MD

Mortality at Music Festivals: An Update for 2016-2017 – Academic and Grey Literature for Case Finding 553
Sheila A. Turris, RN, PhD; Tracie Jones, RN, MA-DEM; Adam Lund, MD, FRCPC (Emergency)

BRIEF REPORT

Parent-Reported Child Reactions to the September 11, 2001 World Trade Center Attacks (New York USA) in Relation to Parent Post-Disaster Psychopathology Three Years After the Event 558
Betty Pfefferbaum, MD, JD; Zorica Simic, MS; Carol S. North, MD, MPE

Cover Artwork

I May Be the Seed that Needed Fire to Free Me, Acrylic Painting by Gayle Lorraine

Gayle Lorraine's abstract compositions are intuitive expressions of emotion rather than visual realities. With knife and brush, fluid gesture, and precise, delicate overlays, she strives to create balance, beauty, depth, and motion in her black and white acrylic paintings.

Recent works come about from personal rebuilding; a journey of suffering, grief, acceptance, and hope. As a therapeutic necessity, her artwork took a new direction after the traumatic experience of witnessing the life she knew and loved, consumed by a 70,000-acre wildfire in 2015.

In nature, some seeds need fire in order to germinate. Many ecosystems have evolved with fire as an essential contributor to habitat vitality and renewal. *I May Be the Seed that Needed Fire to Free Me* is a symbolic reminder of the regenerative gift of change and its power to enhance future potential.

Gayle Lorraine's work can be view at: www.gaylelorraine.com.

EDITOR-IN-CHIEF

Samuel J. Stratton, MD, MPH
University of California-Los Angeles
Los Angeles, California, USA

EMERITUS**EDITOR-IN-CHIEF**

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

Humanitarian Affairs

Frederick M. Burkle, MD,
MPH, DTM

Harvard Humanitarian Initiative
Harvard University
Cambridge, Massachusetts, USA

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

Oceania

Graeme McColl

Christchurch, New Zealand

Psychosocial

Gloria Leon, PhD

University of Minnesota
Minneapolis, Minnesota, USA

ASSOCIATE EDITORS

David A. Bradt, MD, MPH

Royal Melbourne Hospital
Melbourne, Australia

Wolfgang F. Dick, MD, PhD

Mainz, Germany

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

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

Frank Archer, MD

Department of Community
Emergency Health &
Paramedic Practice
Monash University
Melbourne, Australia

Jeffrey Arnold, MD

Department of Emergency
Medicine
Santa Clara Valley Medical Center
San Jose, California, USA

Yaron Bar-Dayam, 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

Saudi Arabia

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

Felipe Cruz-Vega, MD

Office of Social Security
Mexico City, Mexico

Robert A. DeLorenzo, MD,
MSM, FACEP

Medical Corps
United States Army
San Antonio, Texas, USA

Claude de Ville de Goyet, MD
Brussels, Belgium

R. Paul Farrell, CD, MB,
BCH, BAO, DA, LMCC

Kamloops, British Columbia,
Canada

Judith Fisher, MD

Edgbaston, Birmingham, UK

Erik S. Gaull

George Washington University
Washington, DC, USA

Michael Gunderson

American Heart Association
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 Johnson, MPA

Juneau, Alaska, 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

Paul Paris, MD

Center for Emergency Medicine
University of Pittsburgh
Pittsburgh, Pennsylvania, 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

James M. Shultz, PhD

Center for Disaster & Extreme
Event Preparedness
University of Miami
Miami, Florida, USA

Wayne Smith, BSc, MBChB,
EMDM, FCEM(SA)

Division of Emergency Medicine
University of Cape Town
Cape Town, South Africa

Caroline Spencer, BA, PhD

Accident Research Centre
Monash University
Melbourne, Australia

Knut Ole Sundnes, MD

Baerum Hospital
Solo, Norway

Takashi Ukai, MD

Hyogo Emergency Medical Center
Hyogo, Japan

Michael Van Rooyen, MD

Harvard Humanitarian Initiative
and Department of Emergency
Medicine, Brigham and
Women's Hospital
Boston, Massachusetts, USA

Richard Zoraster, MD, MPH

Kaneohe, Hawaii, USA

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

Samuel J. Stratton, MD, MPH

Managing Editor

Ellen Johnson, MS

Editorial Assistant

Sarah Karleskint

Publishing, Production, and Advertising Office

Cambridge University Press
One Liberty Plaza
New York, NY 10006 USA
USAdSales@cambridge.org

Copyright © 2018 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>.

Printed in United States of America on acid-free paper.

Postmaster: Send address changes in the USA and Canada to *Prehospital and Disaster Medicine*, Subscription Department, Cambridge University Press, One Liberty Plaza, New York, NY 10006, USA.

Periodical postage rate paid at New York, NY and additional mailing offices.

Prehospital and Disaster Medicine (Print ISSN 1049-023X; Electronic ISSN 1945-1938) is published bimonthly in the months of February, April, June, August, October, and December for the World Association for Disaster and Emergency Medicine. PDM 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.

2018 Subscription Information: Institutions print and electronic: US\$764.00 in the USA, Canada, and Mexico; UK£466.00+VAT elsewhere. Institutions electronic only: US\$563.00 in the USA, Canada, and Mexico; UK£345.00+VAT elsewhere. Individuals print and electronic: US\$222.00 in the USA, Canada, and Mexico; UK£136.00+VAT elsewhere. Individuals electronic only: US\$161.00 in the USA, Canada, and Mexico; UK£92.00+VAT elsewhere. Single Part: US\$146.00 in the USA, Canada, and Mexico; UK£89.00+VAT elsewhere. Prices include postage and insurance. Airmail or registered mail is extra. Back volume prices are available upon request. Claims of non-receipt or damaged issues must be filed within three months of cover date.

Subscription Offices: (for USA, Canada, and Mexico) Cambridge University Press, One Liberty Plaza, New York, NY 10006, United States; (for UK and elsewhere) Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge CB2 8BS, UK.

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.