PREHOSPITAL and DISASTER MEDICINE

Volume 32, Number 5

October 2017





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

Cambridge Core



OCTOBER 2017

Table of Contents

EDITORIAL The Revised International Guidelines for Ethical Health-Related Human Research
ORIGINAL RESEARCH
DISASTER HEALTH AND MEDICINE Categorization and Analysis of Disaster Health Publications: An Inventory
Are Dutch Hospitals Prepared for Chemical, Biological, or Radionuclear Incidents? A Survey Study
Basic Disaster Life Support (BDLS) Training Improves First Responder Confidence to Face Mass-Casualty
Incidents in Thailand
Disaster Metrics: A Comprehensive Framework for Disaster Evaluation Typologies
Survey of Preventable Disaster Deaths at Medical Institutions in Areas Affected by the Great East Japan Earthquake: Retrospective Survey of Medical Institutions in Miyagi Prefecture
EMERGENCY MEDICAL SERVICES
When is a Cardiac Arrest Non-Cardiac?
On-Scene and Final Assessments and Their Interrelationship Among Patients Who Use the EMS on Multiple Occasions
Utilization Criteria for Prehospital Ultrasound in a Canadian Critical Care Helicopter Emergency Medical Service: Determining Who Might Benefit
Clinical Information Transfer between EMS Staff and Emergency Medicine Assistants during Handover of Trauma Patients

ii Table of Contents

GLOBAL HEALTH	
Fatalities from Firearm-Related Injuries in Selected Governorates of Iraq, 2010-2013	
Oleg O. Bilukha, MD, PhD	
An Assessment of Climate Change Impacts on Los Angeles (California USA) Hospitals, Wildfires	
Highest Priority	
MASS GATHERING HEALTH AND MEDICINE	
Mass-Gathering Medical Care in Electronic Dance Music Festivals	
COMPREHENSIVE REVIEW	
No Calm After the Storm: A Systematic Review of Human Health Following Flood and Storm Disasters	
BRIEF REPORT	
Assessing Coagulation by Rotational Thromboelastometry (ROTEM) in Rivaroxaban-Anticoagulated Blood Using Hemostatic Agents	
Ionathan Rar, MD: Alexa David, M Ed: Tarek Khader, RA: Mary Mulcare, MD: Christopher Tedeschi, MD, MA, FAWM	

Editorial Office

World Association for Disaster and Emergency Medicine (WADEM), Madison, Wisconsin USA

> Editor-in-Chief Samuel J. Stratton, MD, MPH

> > Managing Editor Ellen Johnson, MS

Editorial Assistant Sarah Karleskint

Publisher

Cambridge University Press One Liberty Plaza New York, NY 10006 Prehospital and Disaster Medicine (ISSN 1049-023X) is published bimonthly in the months of February, April, June, August, October, December, by Cambridge University Press for the World Association for Disaster and Emergency Medicine. Prehospital and Disaster Medicine incorporates the Journal of the World Association for Emergency and Disaster Medicine and the Journal of Prehospital Medicine.

Editorial Information: All manuscripts must be submitted through the Journal's online submission platform, ScholarOne Manuscripts: http://mc.manuscriptcentral.com/pdm.

2017 Subscription Information: Institutions print and electronic: US\$727.00 in the USA, Canada, and Mexico; UK£443.00+VAT elsewhere. Institutions electronic only: US\$536.00 in the USA, Canada, and Mexico; UK£328.00+VAT elsewhere. Individuals print and electronic: US\$211.00 in the USA, Canada, and Mexico; UK£129.00+VAT elsewhere. Individuals electronic only: US\$153.00 in the USA, Canada, and Mexico; UK£87.00+VAT elsewhere. Single Part: US\$139.00 in the USA, Canada, and Mexico; UK£85.00+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.

Comprehensively indexed by the National Library of Medicine (MEDLINE), Cumulative Index to Nursing and Allied Health (CINAHL) and Health Star Cumulative Index. The database is available online via BRS, Data-Star, and DIA-LOG, and on CD-ROM through CD Plus, Compact Cambridge and Silver Platter. Abstracts and search capability available on the Internet at http://journals.cambridge.org/PDM.

Copyright @ 2017 by the World Association for Disaster and Emergency Medicine.

Cover Artwork

Woven, Oil on Canvass by Tiina Maria Kemppinen

Tiina Maria Kemppinen is currently living in Helsinki, Finland.

Kemppinen has been inspired by distorted words since her mother had a stroke a few years ago. The stroke caused her aphasia: a communication disorder that affects the production and comprehension of speech. All of a sudden, she was mute, unfamiliar, and intimidating. Making art was her way to deal with the earth-shattering experience.

In her paintings there are words, but something has happened so they are impossible to read. Different kinds of figures, shapes, and traces appear when the letters are scattered. For her, her paintings deal with the topic of disaster in both personal and global levels. Words can be lost because of aphasia, but sometimes there just aren't the right words to communicate what we want to say.

Her work can be viewed at her website: www.tiinakemppinen.com.

EDITORIAL BOARD Prehospital and Disaster Medicine

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 BC, 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

San Jose, California, USA

Yaron Bar-Dayan, MD, MHA

Israeli Defense Forces Home Front Command Or-Yehuda, Israel

Joost Bierens, MD, PhD

Amsterdam, The Netherlands

Tareg Bey, MD

Saudi Arabia

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

Judith Fisher, MD

Washington, DC, USA

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 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

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

Knut Ole Sundnes, MD

Baerum Hospital Solo, Norway

Takashi Ukai, MD

Hyogo Emergency Medical Center Hyogo, Japan

Michael Van Rooven, MD

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

Richard Zoraster, MD, MPH

Kaneohe, Hawaii, USA

Aims and Scope: The mission of *Prehospital and Disaster Medicine* (PDM) is the distribution of information relevant to the practice of out-of-hospital and in-hospital emergency medical care, disaster health, and public health and safety. PDM provides an international forum for the reporting and discussion of scientific studies, both quantitative and qualitative, that have relevance to the above practices. The major objectives are: (1) the improvement of the types and quality of the care delivered to patients with perceived medical emergencies and to victims of multi-casualty accidents or disasters, including the public health and safety aspects of such events; and (2) the prevention and/or mitigation of the occurrence of such events and of the effects of these events upon the human population and environment.

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

Publishing, Production, and Advertising Office: Cambridge University Press, One Liberty Plaza New York, NY 10006, United States; USAdSales@cambridge.org.

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.

2017 Subscription Information: 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 by Cambridge University Press, One Liberty Plaza New York, NY 10006, United States/Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge CB2 8BS, UK for the World Association for Disaster and Emergency Medicine. 2014 Annual subscription rates: Institutions print and electronic: US\$727.00 in the USA, Canada, and Mexico; UK£443.00+VAT elsewhere. Individuals print and electronic: US\$211.00 in the USA, Canada, and Mexico; UK£129.00+VAT elsewhere. Individuals print and electronic only: US\$153.00 in the USA, Canada, and Mexico; UK£87+VAT elsewhere. Single Part: US\$139.00 in the USA, Canada, and Mexico; UK£85.00+VAT elsewhere. Prices include postage and insurance. Airmail or registered mail is extra. Back volume prices are available upon request.

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.

Indexing: National Library of Medicine (MEDLINE), Cumulative Index to Nursing and Allied Health (CINAHL), and Heath Star Cumulative Index.

© World Association for Disaster and Emergency Medicine 2017. 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. Permission to copy (for users in the United States) is available from Copyright Clearance Center Transactional Reporting Service, 222 Rosewood Drive, Danvers, MA 01923, USA. http://www.copyright.com, email: info@copyright.com.

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.