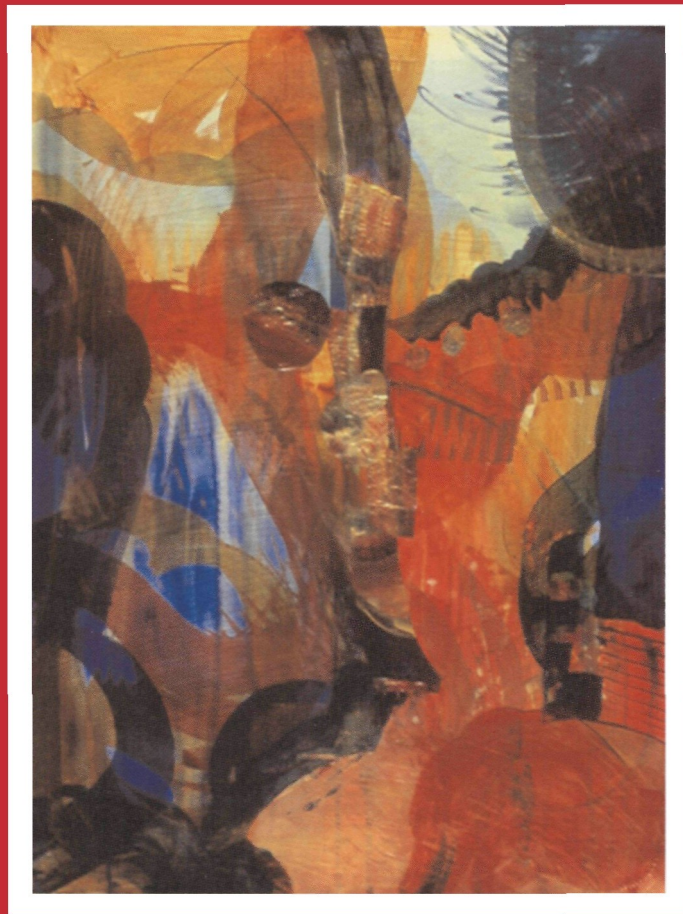


# PREHOSPITAL and DISASTER MEDICINE

Médecine Pré-Hospitalière et Médecine de Catastrophe  
Medicina Prehospitalaria y de Catástrofes  
病院にかかるときの処置と  
災害医療

Volume 20, Number 1

January–February 2005



<http://pdm.medicine.wisc.edu>

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

# Super Light. Super Powers.



**ZOLL** M Series  
Defibrillator Monitor Pacemaker

**Same lightweight unit.  
Dynamic new powers.**

When you are off to the rescue, you need a lot of capabilities. 12-lead. EtCO<sub>2</sub>. AED. Pulse Oximetry. And Rectilinear Biphasic waveform. Get them all in one small unit. The M Series. Ready to go anywhere. Easy to use anytime. Equipped to handle any situation. The M Series Defibrillator Monitor Pacemaker. It's eleven pounds of superpower. From ZOLL. Call **800-348-9011** or visit **www.zoll.com**

©2000 ZOLL Medical Corporation, Burlington, MA 01803

**ZOLL**  
*It's about time.*

# Table of Contents

---

## Editor's Corner

- Growth and Change** ..... 1  
*Marvin L. Birnbaum, MD, PhD*

## Editorial

- Demystifying Bioterrorism: Misinformation and Misperceptions** ..... 3  
*Eric Noji, MD, MPH; Tress Goodwin; Michael Hopmeier*

## Original Research

- Predictors of Emotional Adjustment Following Traumatic Injury:  
 Personal, Social, and Material Resources** ..... 7  
*Matthew J. Cordova, PhD; Robyn Walser, PhD; Janet Neff, RN, MN; Josef I. Ruzek, PhD*

- The Incident Command System in Disasters:  
 Evaluation Methods for a Hospital-based Exercise** ..... 14  
*Tamara L. Thomas, MD; Edbert B. Hsu, MD, MPH; Hong K. Kim, MPH; Sara Colli, EMT;  
 Guillermo Arana, MD; Gary B. Green, MD, MPH*

- Public Hospital Preparations for SARS Outbreak: Experience of Alexandra Hospital** ..... 24  
*Francis Chun Yue Lee, FRCSEd (A&E), FAMS; Wei Keong Wee, MBBS (Singapore), MBA;  
 Azman Johan, MRCP (UK), FCCP, FAMS*

- Current Status of International Emergency Medicine Fellowships in the United States** ..... 32  
*Gregory H. Bledsoe, MD, MPH; Chayan C. Dey, MD, MPH; Christopher Kabrbel, MD;  
 Michael J. VanRooyen, MD, MPH*

- Successful Development and Implementation of a Tactical Emergency Medical Technician  
 Training Program for United States Federal Agents** ..... 36  
*Terigi J. Ciccone, MD; Phillip D. Anderson, MD; Chon A.D. Gann, LPN, EMT-T, IDM;  
 J. Michael Riley, EMT-P; Michael Maxwell, EMT-P; Robert Hopkins, EMT-P; Gregory Ciottone, MD*

- Triage Decisions of United Kingdom Police Firearms Officers  
 Using a Multiple-Casualty Scenario Paper Exercise** ..... 40  
*Tim Kilner, BN, RN, SRP, PGCE, DipIMC RCSEd;  
 F. John Hall, MB, ChB, DRCOG, DFFP, DipIMC RCSEd*

## Comprehensive Review

- Effects of Prehospital Spinal Immobilization: A Systematic Review of  
 Randomized Trials on Healthy Subjects** ..... 47  
*Irene Kwan, MSc; Frances Bunn, MSc*

## Special Report

- Information Technology and Public Health Management of Disasters—  
 A Model for South Asian Countries** ..... 54  
*Dolly Mathew, MD*



## Continuing Education

*Frederick C. Cuny Memorial Series*

**Disasters and Development: Part 2: Understanding and Exploiting**

**Disaster-Development Linkages** .....61

*Rob S. Stephenson; Charles DuFrane*

**Disasters and Development: Part 3: Assessing Trade-offs in Investing in Vulnerability Reduction** ..66

*Rob S. Stephenson; Charles DuFrane*

## Abstracts

**Spanish Translations of Selected Abstracts** .....70

*Translated by Graciela Zapata*

## Erratum

**Editorial Office**  
University of Wisconsin-Madison USA

**Editor-in-Chief**  
Marvin L. Birnbaum, MD, PhD

**Editorial Assistant**  
Wendy Dopkin

**Production Editor**  
Wendy Dopkin

**Production Consultant**  
Donna Schaan

**Advertising**  
Mary Duss

**Subscriptions**  
Mary Duss

**Web Editor**  
Wendy Dopkin

**Editorial Interns**  
Erin K. Rushmer, *Lead Intern*  
Dana L. Schmidman

**Publisher**  
World Association for Disaster and  
Emergency Medicine  
Madison, Wisconsin USA

*Prehospital and Disaster Medicine* (ISSN 1049-023X) is published bimonthly in the months of January, March, May, July, September, and November by 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:** Submit manuscripts and editorial inquiries to: Marvin L. Birnbaum, PhD, MD, Editor, *Prehospital and Disaster Medicine*, Clinical Science Center, 600 N. Highland Ave, Mail Code 6733, Madison, WI 53792 USA; Telephone (+1) (608) 263-9641; Facsimile (+1) (608) 265-9290; E-mail: mlb@medicine.wisc.edu or pdm@medicine.wisc.edu.

**Subscription Information:** One year (six issues)—Institutions: [US] \$400; Individuals: \$100; International subscribers add \$6 per year for postage. Claims of non-receipt or damaged issues must be filed within three months of cover date. POSTMASTER: Send address changes to *Prehospital and Disaster Medicine*, PO Box 55158, Madison, WI 53705-8958 USA.

**Advertising Information:** Mary Duss; *Prehospital and Disaster Medicine*, Clinical Science Center, 600 N. Highland (6733), Madison, WI 53792 USA; E-mail: pdm@medicine.wisc.edu.

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://pdm.medicine.wisc.edu>.

Copyright © 2005 by the World Association for Disaster and Emergency Medicine. Periodicals postage paid at Madison, WI and at additional mailing offices.

## ADVERTISING POLICY AND GUIDELINES

### General Statement

*Prehospital and Disaster Medicine* (PDM) is a scientifically based, peer-reviewed, medical journal. It is the policy of the Editorial Board of PDM that all advertising material be sound scientifically, and thus, meet the following guidelines:

1. Claims must be supported scientifically, and references provided—either within the advertisement or made available upon request;
2. Every effort must be directed to minimize the likelihood of possible erroneous interpretations of the claims; and
3. Advertisements should be aimed at a sophisticated, medical audience.

Further information and rates available at our website: <http://pdm.medicine.wisc.edu>.

### Review

Each advertisement considered for publication is submitted to the Editorial Office for review. Any advertisement that does not meet the guidelines will be returned to the advertiser with suggestions for revisions; the Editorial Office is available for consultation at any time.

Use of these guidelines and the process used for review add to the credibility of PDM and of the product.

Questions may be directed to Marvin L. Birnbaum, MD, PhD, Editor-in-Chief; (+1) (608) 263-9641;

E-mail: [mlb@medicine.wisc.edu](mailto:mlb@medicine.wisc.edu).

## Statement of Ownership – Management and Circulation – Required by 39 U.S.C. 3685

1. Publication title: *Prehospital and Disaster Medicine*
2. Publication number: 1049-023X
3. Filing date: 10 September 2004
4. Issue frequency: Bimonthly
5. Number of issues published annually: 6
6. Annual subscription price: \$100.00 Individual/\$400.00 Institution
7. Mailing address of known office of publication: 3330 University Avenue, Suite 300, (Dane County) Madison, WI 53705-2167 USA
8. Mailing address of the headquarters of the general business office of the publisher: Same
9. Publisher: The World Association for Disaster and Emergency Medicine, 3330 University Avenue, Suite 300, (Dane County) Madison, WI 53705-2167 USA, Editor: Marvin L. Birnbaum, 3330 University Avenue, Suite 300, Madison, WI 53705-2167 USA
10. Owner: World Association for Disaster and Emergency Medicine, 3330 University Avenue, Suite 300, Madison, WI 53705 USA
11. Known: bondholders, mortgages, and other security holders owning or holding 1% or more of total amount of bonds, mortgages or other securities: None
12. The purpose and function and nonprofit status of this organization and the exempt status for federal income tax purposes have not changed during the preceding 12 months.

## Extent and Nature of Circulation:

- A. Total copies: 900-avg. per issue during proceeding 12 months/900 last issue
- B. Paid/Requested Circulation: Outside country mail subscriptions 398
- C. Others mailed through USPS 373
- D. Free distribution outside the mail 20
- E. Copies not immediately distributed 109 (used for education and promotion)

I certify that all information furnished is true and complete.

Marvin L. Birnbaum, MD, PhD, Editor-in-Chief and Director of the WADEM Business Office

## INFORMATION FOR READERS

### Subscription Prices (6 issues)

<b>Institutional</b>	[US]	\$400
<b>Individual</b>		\$100

"Institutional Subscribers" are defined as multiple reader subscribers and include public and private libraries, schools, hospitals, and clinics; city, county, state, provincial, and national government bureaus and departments; and all commercial and private institutions and organizations.

Individual subscriptions must be in the name of, billed to, and paid by individuals.

**Send all subscription orders to: *Prehospital and Disaster Medicine*, PO Box 55158, Madison, WI 53705-8958 USA.**

**Subscription by E-mail: [pdm@medicine.wisc.edu](mailto:pdm@medicine.wisc.edu); call (+1) (608) 263-2069; or fax (+1) (608) 265-3037. Credit cards are welcome.**

### Change of Address or Missing Issues

Inform the *Prehospital and Disaster Medicine* office as soon as possible when you plan to move. (Four to six weeks notice is

required for uninterrupted service.) Send (1) old address; (2) new address; and (3) effective date of change.

Address other questions about your subscription to *Prehospital and Disaster Medicine*.

### Back Issues

A limited supply of back issues not included in your subscription is available. Available back issues are listed on the website or a list can be obtained without charge from the *Prehospital and Disaster Medicine* office.

### On-Line Version

Issues are posted on the *Prehospital and Disaster Medicine* website. Except for the two most current issues, articles can be downloaded without charge. The two most current issues are password protected for subscribers.

### Abstracts

All of the abstracts of papers through the most recent volume are available on the *Prehospital and Disaster Medicine* website.

## INSTRUCTIONS FOR AUTHORS

### Organization of Manuscripts

Manuscripts in one of five different categories can be submitted for review and publication in *Prehospital and Disaster Medicine* (PDM): (1) Original Research; (2) Special Report; (3) Comprehensive Review; (4) Case Report; or (5) Brief Report. All manuscripts submitted for publication must include an abstract that summarizes the work. Other types of manuscripts must have the approval of the Editor before being submitted or may be invited by the Editor or a member of the Editorial Board. All Abstracts submitted by the Secretariat of a Congress will be edited by the Editorial Staff into the best English possible prior to

publication. The characteristics specific to each of these categories are described briefly below:

1. **Original Research**—structured research that uses quantitative and/or qualitative data collection methods and analyses to establish a hypothesis or prove a cause: effect relationship(s) is included in this category. The manuscript must be structured as follows:

**Abstract**—Concise summary in the following format (*not to exceed 375 words*):

**Introduction:** need for the study.

**Hypothesis/Problem:** what was tested (experimental studies only)  
If qualitative, statement of problem addressed.

**Methods:** summary of methods used with subsections as appropriate (type of subjects, number of subjects, study design, statistical tests). If the work is qualitative, the types of instruments used and the scope and type of work must be described. If a disaster is involved, the dates, type of event, location, scope, magnitude, and numbers of casualties and deaths must be summarized in tabular form for indexing.

**Results:** summary of principal findings.

**Conclusion:** implications of findings.

**Introduction**—Provide justification for the effort with appropriate references annotated. If quantitative, the concluding sentence should define the hypothesis. If qualitative, the problem being addressed should be stated clearly.

**Methods**—Descriptive to a degree that other investigators would be able to reproduce the study. Statistical methods used must be annotated. Approval by an Institutional Review Committee must be included when appropriate.

**Results**—Results must be written in text and may be accompanied by tables and figures. The text must explain all data included in tables and figures, but should not be unnecessarily redundant. All direct results from the study must appear in this section. No discussion of the results may be included.

**Discussion**—The Discussion should provide an interpretation of the Results in terms of meaning and application. Results should not be repeated. Computations or extrapolations that may help explain the results may be provided. Limitations of the study should be defined and suggestions for future research should be included. References that support or negate explanations provided are appropriate.

**Conclusion**—The findings in terms of implications for the practice of prehospital, emergency, and/or disaster (humanitarian) medicine should be summarized in a few sentences.

2. **Special Report**—describes some aspect of our Science or activities that provide information necessary for the progression of the science. The *Introduction* should highlight the problem being addressed and the reasons that it needs to be addressed. Sections of the report should be subtitled. The presentation should include citations as to the sources of the material and should be followed by a *Discussion* that includes the significance of the report in terms of the science. The manuscript should be finished with the *Conclusions* reached.
3. **Comprehensive Review**—a review of the literature to be used to clarify areas in which there seems to be disagreement. Comprehensive reviews seek to establish the evidence-base for the area being addressed. The format used should be identical to that described for Special Reports.
4. **Case Report**—uses one or more cases of specific patients or events/responses to highlight a current aspect of medical care or of a phenomenon. Case reports also may have value in the development of definitive research projects by the same or other investigators. The *Introduction* should describe the reasons for the report. The actual *Case Report(s)* should be described in the next section, and like the above, the *Discussion* should describe the significance of the reports including a comprehensive review of the pertinent

literature. The *Conclusion* should be similar to the format noted above.

5. **Brief Report**—a short report that may predict a trend, but the work does not meet all of the criteria required for Original Research. Preliminary reports also are included in this category. The format used should be identical to that used for the Original Research described above.

## General Submission Requirements

**Manuscripts**—Manuscripts are preferred in electronic form (disk, CD, or e-mail) with a cover letter, cover page and manuscript. Electronic format: the cover letter, cover page, and manuscript should be sent as separate electronic files on one diskette or CD in Word or WordPerfect as Rich Text Format (RTF) files. Please label the diskette or CD and include the paper's title and the primary author's surname. Electronic files may be submitted to our office via e-mail to the following address: pdm@medicine.wisc.edu. If the manuscript is submitted by mail, please include paper version of the cover letter, cover page, and one paper copy of the manuscript to accompany the disk. If submitting the article in paper form only, please send one cover letter, the cover page, and manuscript. However, if electronic format is not available, we will accept manuscripts in paper form.

**Previous Publication**—A manuscript will be considered only if it has not been published previously and is not under consideration for publication elsewhere.

**Copyrights**—After acceptance for publication, the copyright to the manuscript, including all tables and figures, rests with *Prehospital and Disaster Medicine*.

**Cover Letter**—Each manuscript should be accompanied by a signed cover letter from the primary author who attests to the original nature of the material, that the paper has not been published elsewhere, is not under consideration by any other publication, and that the authors agree to transfer copyright to *Prehospital and Disaster Medicine* if accepted for publication. The institution(s) in which the work was performed, the sponsoring institution(s), and the respective departments must be annotated. If the work was supported all or in part by grants or endowments, the granting institution(s) should be indicated. If the paper has been, or is to be presented in a forum orally or as a poster, indicate the title of the forum, sponsoring institution, and the date of presentation. Specify the name of the author with whom any correspondence should be directed, and, correspondence street address, telephone number, facsimile (fax) number, and e-mail address if appropriate. Abbreviations for groups of words may be used only for unusually cumbersome titles or for commonly accepted abbreviations. Whenever such abbreviations are used, they must be annotated with the initial mention of words within the manuscript followed by the abbreviation in parentheses. In addition, list eight or more keywords or phrases in alphabetical order separated by semicolons to facilitate indexing or electronic searches.

**Cover Page**—Include a cover page that includes the title of the paper, first names, middle initials, last names, and highest academic degrees of all authors. Reiterate from the cover letter the name of the author with whom any correspondence should be directed and

the street address, telephone number, facsimile (fax) number, and e-mail address if appropriate. Do not indicate author names or institutions anywhere in the manuscript other than on the cover page.

**Language**—All manuscripts must be submitted in English. Also, do not use *I*, *We*, or *Our* when describing the researchers. The fact that the research was conducted by the authors is implicit.

**Paper, Margins, and Type Style**—Manuscripts should be submitted on plain white paper, letter size up to A4, 8.27" by 11.69" (210 mm by 297 mm). *Do not right justify the margins.* Use standard type styles. Double space all text.

**Generic Names**—Whenever possible, use generic names. Brand names may be indicated parenthetically and the name and location of the manufacturer must be provided in parentheses followed by a generic description of the medication, drug, product, or equipment.

**References**—References should be cited in the sequential order in which they appear in the text. All references should be parenthetically cited by full-sized Arabic numbers in the text, tables, and legends for illustrations. Titles of journals referenced must be annotated using standard *Index Medicus* abbreviations and must be underscored. Unpublished data or personal communications should be indicated in parentheses directly following the reference and should include the dates of such correspondence (Personal Communication, Safar P, October 1989). The following format for references should be used:

*Journals*—White SJ, Hamilton WA, Veronesi JF: Comparison of field techniques used to pressure infuse intravenous fluids. *Prehosp Disast Med* 1991;6: 429–434.

*Books*—Schwartz GR, Safar P, Stone JH, et al (eds), *Principles and Practice of Emergency Medicine*. 2d ed. Philadelphia: WB Saunders Co., 1985, pp 1198–1202.

*Chapters*—Lindberg R: Pathology of Head Injuries. In: Cowley RA, Trump BF (eds), *Pathophysiology of Shock*. Baltimore: Williams and Wilkins, 1982, pp 588–592.

*Website*—International Crisis Group: Impact of the Bali bombings. In: *Indonesia Briefing*, Jakarta/ Brussels. Available at [www.crisisweb.org/projects/asia/indonesia/reports/A400804\\_24102002.pdf](http://www.crisisweb.org/projects/asia/indonesia/reports/A400804_24102002.pdf). Accessed 09 June 2003.

**Tables**—Tables must be numbered as referenced in the text and each typed on a separate page, placed at the end of the manuscript. Do not include tables in the body of the text.

**Figures**—Illustrative materials must be of professional quality, should be submitted as large as possible, up to 8.27" by 11.69" (A4 210 mm by 297 mm), and be at least **600 dpi resolution**. Color illustrations must be discussed with the editor. All graphs and charts must be saved in a JPG format and are to include a legend.

**Permissions**—Illustrations or tables from other publications must be accompanied by written permission from the author and publishers of the document in which they originally appeared.

**Publication Schedule**—Manuscripts should be published within 6 to 9 months of acceptance and receipt of revisions.

#### Additional Information

Contact Marvin L. Birnbaum, MD, PhD, Editor, *Prehospital and Disaster Medicine*, Clinical Science Center, 600 N. Highland (6733), Madison, WI 53792 USA, (+1) (608) 263-9641; E-mail: [mlb@medicine.wisc.edu](mailto:mlb@medicine.wisc.edu).

**Visit our Website:** <http://pdm.medicine.wisc.edu>.

## Erratum

We regret to inform the readers that there have been two errors in recently printed issues of *Prehospital and Disaster Medicine*. The corrections are as follows:

1. The author of the abstract in Woody J, Larkin G: Psychological impact of terrorism. *Prehosp Disast Med* 2004;19(S1):s8 was incorrectly written as Jim Woody. Dr. Woody's given name is Jay. We apologize for this error.
2. On page 355 of Volume 18, Number 4 (October–December 2003), the reported mean time interval between first and final pain score assessment was incorrectly reported. The correct information is as follows:

The mean value of the time differences between  $T_0$  and  $T_{end}$  was  $23.1 \pm 11.8$  minutes.

Please note that this error does not affect the reliability or validity of any of the other results reported in this paper. It also should be noted that the confidence intervals (CI) reported in this paper apply to the mean, rather than the median scores. Although the mean score is reported, the CI for the mean follows the median score.

**Cover Artwork:** *Hidinite Revisited*,  
By Peg Warren  
Mixed Media on Paper, 22 x 30

Peg Warren is a mixed media artist living in North Carolina. For 15 years, she supplied paintings for the furniture manufacturer's showrooms at the North Carolina Furniture Market in High Point. The North Carolina Zoo also has used Warren's art for educational materials, including a print series of endangered and threatened animals. At present, she is represented by galleries in Charlotte and Asheville, North Carolina. She can be contacted by email at [bobpeg2@rtmc.net](mailto:bobpeg2@rtmc.net) or by phone at (+1) (336) 461-3030.