International Emergency Medicine: A Review of the Literature From 2008

Suzanne Lippert, MD, MS, Adam C. Levine, MD, MPH, Joseph Becker, MD, Mark Foran, MD, Stephanie Rosborough, MD, MPH, and Kris Arnold, MD, MPH, on behalf of the International Emergency Medicine Literature Review Group

Abstract

As the specialty of emergency medicine (EM) continues to evolve in countries around the world, and as interest in international emergency medicine (IEM) continues to grow within the United States, the IEM Literature Review Group recognizes a need for a high-quality, consolidated, and easily accessible evidence base of literature. In response to that need, the group created an annual publication that strives to provide readers with access to the highest quality and most relevant IEM research. This publication represents our fourth annual review, covering the top 26 IEM research articles published in 2008. Articles were selected for the review according to explicit, predetermined criteria that include both methodologic quality and perceived impact of the research. It is our hope that this annual review will act as a forum for disseminating best practices while also stimulating further research in the field of IEM.

ACADEMIC EMERGENCY MEDICINE 2009; 16:1335–1340

Keywords: international emergency medicine

From the Department of Emergency Medicine, Alameda County Medical Center (SL), Oakland, CA; the Department of Emergency Medicine, Brigham and Women's Hospital (ACL, MF, SR), Boston, MA; the Department of Emergency Medicine, Yale University (JB), New Haven, CT; and ArLac Health Services (KA), Boston, MA.

Received May 15, 2009; revision received June 12, 2009; accepted June 12, 2009.

The authors declare that they have no conflict of interest with regard to the publication of this work. No external financing was provided for this literature review.

The International Emergency Medicine Literature Review Group consists of (in alphabetical order) Maya Arii, MD, Department of Emergency Medicine, Yale University, New Haven, CT; Kris Arnold, MD, MPH, ArLac Health Services, Boston, MA; Joseph Becker, MD, Department of Emergency Medicine, Yale University, New Haven, CT; Suzanne Bentley, MD, Department of Emergency Medicine, Mount Sinai Hospital, New York, NY; Michael Blake, MD, MPH, Department of Emergency Medicine, George Washington Hospital, Washington, DC; Nichole Bosson, MD, Department of Emergency Medicine, Bellevue Hospital, New York, NY; Juliana Capatosto, MD, Department of Emergency Medicine, New York Methodist Hospital, New York, NY; Nina Chicharoen, MD, Department of Emergency Medicine, Caritas Good Samaritan Medical Center, Brockton, MA; Anne Daul, MD, Department of Emergency Medicine, Carolinas Medical Center, Charlotte, NC; Abiola Fasina, MD, Department of Emergency Medicine, Mount Sinai Hospital, New York, NY; Mark Foran, MD, Department of Emergency Medicine, Brigham and Women's Hospital, Boston, MA; Jack Forrest, MD, Department of Emergency Medicine, University of Florida, Jacksonville, FL; Maria Glenn, MD, Department of Emergency Medicine, Carolinas Medical Center, Charlotte, NC; Ashish Goel, MD, All India Institute of Medical Sciences, LHMC and RML Hospital, New Delhi, India; Vineet Gupta, MD, Department of Medicine, UPMC Mercy Hospital, Pittsburgh, PA; Tomislav Jelic, MD, Department of Emergency Medicine, University of Manitoba, Winnipeg, Manitoba, Canada; Sandeep Johar, DO, MS, Department of Emergency Medicine, University of Rochester, Rochester, NY; C. Ryan Keay, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO; Adam Levine, MD, MPH, Department of Emergency Medicine, Brigham and Women's Hospital, Boston, MA; Suzanne Lippert, MD, MS, Department of Emergency Medicine, Alameda County Medical Center, Oakland, CA; Kevin Lunney, MD, PhD, MHS, Department of Emergency Medicine, UCSF Fresno, Fresno, CA; Marlow Macht, MD, MPH, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO; Dan Millikan, MD, Department of Emergency Medicine, University of Michigan, Ann Arbor, MI; Amelia Pousson, MD, Department of Emergency Medicine, Christiana Care, Newark, DE; Stephanie Rosborough, MD, MPH, Department of Emergency Medicine, Brigham and Women's Hospital, Boston, MA; Amritha Raghunathan, MD, Division of Emergency Medicine, Stanford University, Palo Alto, CA; and Zachary Tebb, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO.

Address for correspondence and reprints: Suzanne Lippert, MD, MS; e-mail: suzanne.lippert@gmail.com.

doi: 10.1111/j.1553-2712.2009.00565.x
ISSN 1069-6563
PII ISSN 1069-6563583

From South Africa to Sweden, and from Mexico to Singapore, 2008 saw significant growth in the number of emergency medicine (EM) training programs across the world.[1–4] The number of international emergency medicine (IEM) fellowships in the United States now tops 20,[5] suggesting continued academic interest in this still very nascent field. At the same time, disasters such as last year's earthquake in the Sichuan Province of China and the recent outbreak of H1N1 influenza act as painful reminders of the continued importance of disaster and pandemic preparedness.

As the specialty of EM continues to evolve in countries around the world, and as interest in IEM continues to grow within the United States, the IEM Literature Review Group strives to provide readers with access to the highest quality and most relevant IEM research. Our review, now in its fourth year, annually compiles a diverse array of articles, drawn from a variety of different fields and encompassing several different languages, which have the potential to impact some aspect of IEM. This review is not intended to serve as a systematic review for clinical guidance, nor is it a comprehensive repository of all literature relevant to IEM. Instead, we hope that it will help IEM academics and practitioners alike stay up to date on the latest research in the field, while also spurring ideas for further research and collaboration.

One of the most difficult aspects of conducting a review of the IEM literature remains defining the boundaries of the field. As the field of IEM continues to evolve, so do the categories and subcategories within it. This year, we divided all IEM articles into one of four categories that seemed to best represent the variety of literature within the field: pandemic response, disaster and humanitarian response, emergency care in resource-poor settings, and EM development. Pandemic response includes articles related to preparation for and response to disease outbreaks. Disaster and humanitarian response encompasses several different domains, including disaster assessment, organizational response, treatment guidelines, mitigation, and ongoing monitoring, as well as the delivery of care in refugee camp settings. Emergency care in resource-poor settings includes the provision of care for acute conditions at the hospital, clinic, and community level in low- and middle-income countries. EM development covers interventions at the local and national level to systematize and professionalize the delivery of emergency services, both in the out-of-hospital and in the hospital arenas.

METHODS

As the review has grown, we have continued to modify our search and selection process to complete the most comprehensive search and refine our selection of top articles. Similar to prior years, our search included both a list of ''international'' terms, including *world health, developing countries, international, global, tropical medicine, third world, middle-income countries,* and *low-income countries*, as well as a set of ''emergency'' terms, including *emergency medicine, emergency medical services, prehospital, acute disease, critical illness, emergencies, wounds and injuries, relief work, rescue work, disasters, refugees, disease outbreaks, multiple trauma, triage, humanitarian, war, vulnerable populations, conflict,* and *emergency treatment*.[6]

In the first half of the year we performed an Ovid search of Medline for articles published between January 1, 2008, and June 30, 2008, containing at least one ''international'' term and one ''emergency'' term. In the second half of the year we performed a similar search using PubMed, which allows a search for specific publication dates, for articles published between July 1, 2008, and December 31, 2008. We limited our search to articles published in English, French, German, Spanish, Italian, and Japanese, based on the language capabilities of our team of reviewers. The Ovid search from the first half of the year produced 245 articles, while the PubMed search from the second half of the year produced 1,585 articles. Of the 1,830 articles retrieved through these searches, 1,755 were in English, 28 were in French, 24 were in German, nine were in Japanese, nine were in Spanish, and five were in Italian.

In addition, our reviewers performed a hand search of all the articles published in *Academic Emergency Medicine*, the *Annals of Emergency Medicine*, *Bulletin of the World Health Organization*, the *Emergency Medicine Journal*, the *Journal of Emergency Medicine*, the *Lancet*, and *Prehospital and Disaster Medicine* in 2008. These journals were selected for detailed investigation because, in the prior years of our review, each of these journals had published more than five articles that were selected for full review. The hand search identified an additional 3,417 articles.

The 5,247 articles captured by our search were divided up among our 22 reviewers, with each citation and abstract reviewed by at least two reviewers. A total of 229 articles deemed by at least one reviewer to be relevant to the field of IEM were selected for full text review.

Each article selected for full text review was initially categorized either as an original research article or as an editorial or review article. We created separate scoring systems for grading each of the two categories of articles. The scoring systems each included five different quality measures consisting of three methodologic criteria and two impact criteria adapted from our prior reviews (Table 1).[6] The total scores for each article from the two separate reviewers were then averaged together to create a final combined score for each article.

For our final review, we chose to include articles with a final score of 21.5 or higher. Twenty-six articles met this criterion and were formally reviewed by both an EM resident with international experience and a faculty editor with extensive knowledge and experience in the field of IEM.

RESULTS

The articles chosen for final review are listed alphabetically by the name of the lead author under the category designations in Table 2.[7–32] An annotated bibliography including a summary and critical analysis of each article can be found in Data Supplement DS1 (available as supporting information in the online version of this paper).

Table 1
Review Criteria

	Original Research Articles	Review or Editorial Articles
Clarity	Does the study have a clear hypothesis or specific purpose?	Does the study have a clear hypothesis or specific purpose?
Study design and statistics/ Breadth and depth	How strong was the study design (randomized controlled trial vs. prospective cohort vs. cross-sectional survey)? What types and degree of bias were present in the study? Were the statistical tests used appropriately for the study design?	Does the article provide enough context and background information? Does the article provide sufficient detail to allow the reader to gain expertise in the subject?
Ethics/Bias	Does the study adhere to the Declaration of Helsinki? Adequacy of consent procedures? Confidentiality? Study subject protection? Was the study approved by a local or international institutional review board or both?	Does the article provide a balanced perspective on the topic?
Importance	What is the importance of the study objective? Are the results of the study generalizable to a wide variety of settings?	Is the objective of the article meaningful and relevant to global health and IEM? Is the information provided generalizable to a wide range of settings?
Impact	Would nongovernmental organizations, United Nations agencies, or individual IEM physicians change their practice based on these results?	Would nongovernmental organizations, United Nations agencies, or individual IEM physicians change their practice based on these results?

DISCUSSION

As in past years, the 26 articles selected for review span a broad diversity of topics, testifying to the incredible breadth of IEM.[6,33] Within the diversity of topics this year, however, four major categories emerged that may serve to better define the boundaries of this continually evolving subspecialty of EM. These categories include pandemic response, disaster and humanitarian response, emergency care in resource-poor settings, and EM development. The truly international efforts that contributed to many of the articles highlighted in this year's review suggest that as IEM matures, practitioners will form increasingly complex collaborations that will contribute to a more unified and sophisticated set of best practices for the field of EM.

Pandemic response exemplifies this type of complex multilateral coordination and cooperation. McDougall et al.,[31] in their examination of the SARS and avian influenza experiences, recommend means of ensuring that pandemic response collaboration is transparent, reciprocal, and equitable. In complementary analyses, Wilson et al.[32] use data from the SARS outbreak, the Rift Valley Fever outbreak in Kenya, and the Venezuelan equine encephalitis outbreak to score the severity of social disruption as an aid in determining the appropriate scale of the response, while Barrett and Brown[30] emphasize the essential role that securing public trust plays in effectively managing an outbreak.

Analogous to pandemic response in the need for an international collaborative effort, disaster and humanitarian response relies on cross-cultural solutions and the capacity to rapidly assess the medical needs of a population affected by natural disasters or conflict. Byers et al.[7] discuss the emergency medical services system within the United Kingdom for responding to disasters complicated by hazardous materials, offering suggestions for improving efficiency and the safety of personnel. Greenough et al.[9] employ a population-based epidemiologic assessment of the characteristics and health care status of the Red Cross–sheltered population after hurricane Katrina, providing a valuable resource for disaster planners seeking a means of effectively guiding resource allocation and treatment interventions in the setting of a natural disaster. Miller and Arquilla,[11] whose work is also based on experiences during hurricane Katrina, offer other recommendations for patients, providers, and disaster planners to minimize exacerbations of chronic disease after a natural disaster. Additional means of needs assessments were also explored, such as the validation of the SF-8 instrument in the population of internally displaced persons of northern Uganda.[12] Disaster management must also rely on the effective training of hospital personnel, as delineated in the evaluation by Collander et al.[8] of the Hospital Disaster Life Support (HDLS) course, which incorporates a variety of key skills designed to minimize the impact, financial burden, and poor outcomes that commonly result from disaster situations. Iserson et al.[10] explore the ethical dilemmas facing emergency health care providers when confronted with a disaster or pandemic and suggest that a quality system of risk communication is central to support those providers in the decision to remain and fulfill their professional responsibilities.

Emergency care in resource-poor settings often requires adaptability and innovation exemplified by the use of motorcycle ambulances in Malawi[19] and the evolving role from first responders to general medics witnessed by the work of Wisborg et al.[24] with Iraqi villagers trained as lay health care workers. Several additional authors assessed the role of community health workers in different settings, including interventions in rural Pakistan and Bangladesh aimed at reducing neonatal and perinatal mortality[14,15] and interventions in Iran in which local villagers were trained in prehospital trauma care.[22] An understanding

Table 2
Top 26 IEM Articles of 2008

Category	Author	Title	Journal
Disaster and humanitarian response	Byers et al.[7]	Clinical care in the ''Hot Zone.''	Emerg Med J
	Collander et al.[8]	Development of an ''all-hazards'' hospital disaster-preparedness training course utilizing multimodality teaching.	Prehosp Disaster Med
	Greenough et al.[9]	Burden of disease and health status among Hurricane Katrina–displaced persons in shelters: a population-based cluster sample.	Ann Emerg Med
	Iserson et al.[10]	Fight or flight: the ethics of emergency physician disaster response.	Ann Emerg Med
	Miller and Arquilla[11]	Chronic diseases and natural hazards: impact of disasters on diabetic, renal, and cardiac patients.	Prehosp Disaster Med
	Roberts et al.[12]	The reliability and validity of the SF-8 with a conflict-affected population in northern Uganda.	Health Qual Life Outcomes
Emergency care in resource-poor settings	Akech et al.[13]	Survival and hematologic recovery of children with severe malaria transfused in accordance to WHO guidelines in Kilifi, Kenya.	Malar J
	Baqui et al.[14]	Effect of community-based newborn care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomized controlled trial.	Lancet
	Bhutta et al.[15]	Implementing community-based perinatal care: results from a pilot study in rural Pakistan.	Bull World Health Organ
	Bond et al.[16]	A clinical decision aid for triage of children younger than 5 years and with organophosphate or carbamate insecticide exposure in developing countries	Ann Emerg Med
	Fleischmann et al.[17]	Effectiveness of brief intervention and contact for suicide attempters: a randomized controlled trial in five countries.	Bull World Health Organ
	Hildenwall et al.[18]	''I never had the money for blood testing''—Caretakers' experiences of care-seeking for fatal childhood fevers in rural Uganda—a mixed-methods study.	BMC Int Health Hum Rights
	Hofman et al.[19]	Motorcycle ambulances for referral of obstetric emergencies in rural Malawi: do they reduce delay and what do they cost?	Int J Gynaecol Obstet
	Koehlmoos et al.[20]	The effect of social franchising on access to and quality of health services in low- and middle-income countries.	Cochrane Database Syst Rev
	Li et al.[21]	Differences in urban and rural accident characteristics and medical service utilization for traffic fatalities in less-motorized societies.	J Safety Res
	Nia et al.[22]	The role of performing life support courses in rural areas in improving prehospital physiologic conditions of patients with penetrating injuries.	J Coll Physicians Surg Pak
	Reyburn et al.[23]	Clinical assessment and treatment in pediatric wards in the northeast of the United Republic of Tanzania.	Bull World Health Organ
	Wisborg et al.[24]	Life or death. The social impact of paramedics and first responders in landmine-infested villages in northern Iraq.	Rural Remote Health
	Young et al.[25]	Teaching pediatric resuscitation skills in a developing country: introduction of the Advanced Pediatric Life Support course into Vietnam.	Emerg Med Australas
Emergency medicine development	Eagles et al.[26]	International survey of emergency physicians' priorities for clinical decision rules.	Acad Emerg Med
	Glew[27]	Promoting collaborations between biomedical scholars in the United States and sub-Saharan Africa.	Exp Biol Med
	Ramarajan et al.[28]	Internationalizing the Broselow tape: how reliable is weight estimation in Indian children.	Acad Emerg Med
	Weiner et al.[29]	The Eight Cs: a guide to success in an IEM educational collaboration.	Acad Emerg Med
Pandemic response	Barrett and Brown[30]	Stigma in the time of influenza: social and institutional responses to pandemic emergencies.	J Infect Dis
	McDougall et al.[31]	Emerging norms for the control of emerging epidemics.	Bull World Health Organ
	Wilson et al.[32]	A heuristic indication and warning staging model for detection and assessment of biologic events.	J Am Med Inform Assoc

IEM = international emergency medicine.

of the aspects of medical care most amenable to targeted intervention when resources are limited is essential to practicing medicine in these resource-poor settings. Needs assessments and intervention evaluations were addressed by many authors in a diversity of contexts and conditions, including pediatric care in Tanzania,[23] pediatric organophosphate poisoning in Egypt,[16] barriers to appropriate care of pediatric febrile illnesses in Uganda,[18] the use of transfusion in severe pediatric malaria in Kenya,[13] emergency department suicide interventions in five countries,[17] motor vehicle accidents in Taiwan,[21] and the modification of the Advanced Pediatric Life Support course for use in Vietnam.[24]

Emergency medicine development, which has had an unequal pace throughout the world, relies heavily on effective collaboration. The complexity of international collaboration is an aspect that is specifically addressed by several authors. Weiner et al.[29] offer eight guiding principles for cooperation between countries with well-established EM training infrastructures and those in the nascent stages of EM development, based on their success with the Tuscan Emergency Medicine Initiative. Glew[27] draws from years of personal experience in biomedical research and humanitarian work in Nigeria, to offer recommendations for navigating the complexities of international collaborative research. To explore physician priorities for clinical decision rule development, Eagles et al.[26] conducted a survey of emergency physicians in Australia, Canada, the United States, and the United Kingdom, while Ramarajan et al.[28] model the effective modification of a well-used tool of those countries, the Broselow tape, for use in a population where undernutrition is much more prevalent.[28]

CONCLUSIONS

The studies included in our review span the breadth of the evolving field of international emergency medicine. Within this breadth, four categories of international emergency medicine focus can be distinguished and are identified within our review as disaster and humanitarian response, emergency care in resource-poor settings, emergency medicine development, and pandemic response. With this review, we are not intending to provide a complete repository of all of the important international emergency medicine literature published in 2008. In particular, we acknowledge the wealth of online sources that may not have been entirely captured by a PubMed-based search, such as the Center for Disease Control's Emerging Diseases website, and the Lancet international collections, http://www.thelancet.com/collections/global-health?collexcode=110. Nevertheless, we do anticipate that our review will provide international emergency medicine practitioners with information on the most recent evidence in their field and ideas for new research and collaboration.

References

1. Alagappan K. ACEP International Ambassador Program, Singapore Update 2008. Available at: http://www.acep.org/workarea/downloadasset.aspx?id=39596. Accessed Aug 2, 2009.
2. Hall H. ACEP International Ambassador Program, Mexico Update 2008 – Haywood Hall, MD. Available at: http://www.acep.org/workarea/downloadasset.aspx?id=28954. Accessed Aug 2, 2009.
3. Sadock JW. ACEP International Ambassador Program Sweden Update 2008. Available at: http://www.acep.org/workarea/downloadasset.aspx?id=39600. Accessed Aug 2, 2009.
4. Wallis LA, Garach SR, Kropman A. State of emergency medicine in South Africa. Int J Emerg Med. 2008; 1:69–71.
5. International Emergency Medicine Fellowships. Available at: http://www.saem.org/saemdnn/Home/Communities/Fellows/Fellowship/InternationalEmergencyMedicine/tabid/859/Default.aspx. Accessed Jul 22, 2009.
6. Levine AC, Becker J, Lippert S, Rosborough S, Arnold K. International emergency medicine: a review of the literature from 2007. Acad Emerg Med. 2008; 15:860–5.
7. Byers M, Russell M, Lockey DJ. Clinical care in the ''Hot Zone.'' Emerg Med J. 2008; 25:108–12.
8. Collander B, Green B, Millo Y, Shamloo C, Donnellan J, DeAtley C. Development of an ''all-hazards'' hospital disaster preparedness training course utilizing multi-modality teaching. Prehosp Disaster Med. 2008; 23:63–7.
9. Greenough PG, Lappi MD, Hsu EB, et al. Burden of disease and health status among Hurricane Katrina-displaced persons in shelters: a population-based cluster sample. Ann Emerg Med. 2008; 51:426–32.
10. Iserson KV, Heine CE, Larkin GL, Moskop JC, Baruch J, Aswegan AL. Fight or flight: the ethics of emergency physician disaster response. Ann Emerg Med. 2008; 51:345–53.
11. Miller AC, Arquilla B. Chronic diseases and natural hazards: impact of disasters on diabetic, renal, and cardiac patients. Prehosp Disaster Med. 2008; 23:185–94.
12. Roberts B, Browne J, Ocaka KF, Oyok T, Sondorp E. The reliability and validity of the SF-8 with a conflict-affected population in northern Uganda. Health Qual Life Outcomes. 2008; 6:108. Available at: http://www.hqlo.com/content/6/1/108. Accessed Jul 22, 2009.
13. Akech SO, Hassall O, Pamba A, et al. Survival and haematological recovery of children with severe malaria transfused in accordance to WHO guidelines in Kilifi, Kenya. Malar J. 2008; 7:256.
14. Baqui AH, El-Arifeen S, Darmstadt GL, et al. Effect of community-based newborn-care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomised controlled trial. Lancet. 2008; 371:1936–44.
15. Bhutta ZA, Memon ZA, Soofi S, Salat MS, Cousens S, Martines J. Implementing community-based perinatal care: results from a pilot study in rural Pakistan. Bull World Health Organ. 2008; 86:452–9.
16. Bond GR, Pieche S, Sonicki Z, et al. A clinical decision aid for triage of children younger than 5 years and with organophosphate or carbamate insecticide

exposure in developing countries. Ann Emerg Med. 2008; 52:617–22.
17. Fleischmann A, Bertolote JM, Wasserman D, et al. Effectiveness of brief intervention and contact for suicide attempters: a randomized controlled trial in five countries. Bull World Health Organ. 2008; 86:703–9.
18. Hildenwall H, Tomson G, Kaija J, Pariyo G, Peterson S. ''I never had the money for blood testing'' - Caretakers' experiences of care-seeking for fatal childhood fevers in rural Uganda - a mixed methods study. BMC Int Health Hum Rights. 2008; 8:12.
19. Hofman JJ, Dzimadzi C, Lungu K, Ratsma EY, Hussein J. Motorcycle ambulances for referral of obstetric emergencies in rural Malawi: do they reduce delay and what do they cost? Int J Gynaecol Obstet. 2008; 102:191–7.
20. Koehlmoos TP, Gazi R, Hossain SS, Zaman K. The effect of social franchising on access to and quality of health services in low- and middle-income countries. Cochrane Database Sys Rev. 2009:CD007136.
21. Li MD, Doong JL, Chang KK, Lu TH, Jeng MC. Differences in urban and rural accident characteristics and medical service utilization for traffic fatalities in less-motorized societies. J Safety Res. 2008; 39: 623–30.
22. Nia MS, Naffisi N, Mohebbi HA, Moharamzadeh Y. The role of performing life support courses in rural areas in improving pre-hospital physiologic conditions of patients with penetrating injuries. J Coll Physicians Surg Pak. 2008; 18:538–41.
23. Reyburn H, Mwakasungula E, Chonya S, et al. Clinical assessment and treatment in paediatric wards in the north-east of the United Republic of Tanzania. Bull World Health Organ. 2008; 86:132–9.
24. Wisborg T, Murad MK, Edvardsen O, Brinchmann BS. Life or death. The social impact of paramedics and first responders in landmine-infested villages in northern Iraq. Rural Remote Health. 2008; 8: 816.
25. Young S, Hutchinson A, Nguyen VT, Le TH, Nguyen DV, Vo TK. Teaching paediatric resuscitation skills in a developing country: introduction of the Advanced Paediatric Life Support course into Vietnam. Emerg Med Australas. 2008; 20:271–5.
26. Eagles D, Stiell IG, Clement CM, et al. International survey of emergency physicians' priorities for clinical decision rules. Acad Emerg Med. 2008; 15:177–82.
27. Glew RH. Promoting collaborations between biomedical scholars in the U.S. and sub-Saharan Africa. Exp Biol Med (Maywood). 2008; 233:277–85.
28. Ramarajan N, Krishnamoorthi R, Strehlow M, Quinn J, Mahadevan SV. Internationalizing the Broselow tape: how reliable is weight estimation in Indian children. Acad Emerg Med. 2008; 15:431–6.
29. Weiner SG, Kelly SP, Rosen P, Ban KM. The Eight Cs: a guide to success in an international emergency medicine educational collaboration. Acad Emerg Med. 2008; 15:678–82.
30. Barrett R, Brown PJ. Stigma in the time of influenza: social and institutional responses to pandemic emergencies. J Infect Dis. 2008; 197(Suppl 1):S34–S7.
31. McDougall CW, Upshur RE, Wilson K. Emerging norms for the control of emerging epidemics. Bull World Health Organ. 2008; 86:643–5.
32. Wilson JM 5th, Polyak MG, Blake JW, Collmann J. A heuristic indication and warning staging model for detection and assessment of biological events. J Am Med Inform Assoc. 2008; 15:158–71.
33. Levine AC, Goel A, Keay CR, et al. International emergency medicine: a review of the literature from 2006. Acad Emerg Med. 2007; 14:1190–3.

Supporting Information:

The following supporting information is available in the online version of this paper:

Data Supplement S1. Disaster and humanitarian response.

The document is in PDF format.

Please note: Wiley Periodicals Inc. is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing material) should be directed to the corresponding author for the article.