

IEM Reviews for 2007

International emergency medicine and the role for academic emergency medicine.

Alagappan, K, et al. Academic Emergency Medicine. 2007; 14:451-456.

Academics in nations with well-established emergency medicine should work alongside international colleagues to support global development of the specialty.

Summary: Globally, the importance of and interest in emergency medicine (EM) continues to grow. More than 30 countries formally recognize EM as a specialty, with many more actively advocating for training and recognition. This commentary, published by experienced United States-based leaders in the field of international EM (IEM), calls upon academics and academic societies in nations that have well-established EM to collaborate with and be responsive to colleagues who are seeking to establish or strengthen EM in their own countries. The authors place emphasis on faculty development and mentoring, curriculum implementation, and research, while providing recommendations regarding effective roles for academic EM physicians and societies. The article also provides a discussion of resources currently available to interested countries, such as distance learning, online medical journal access, and exchange rotations for faculty, fellows, residents, and students.

Comments: EM, as a relatively new specialty, is no stranger to resistance and dismissal by established medical society. The authors, sensitive to existing variation in capacity and readiness for the development of EM among interested countries, present different means by which EM academics can help their international counterparts. Encouraging and supporting the participation of academic EM in the global advancement of the specialty will help to ensure that the current momentum in IEM continues to grow.

By Nina Chicharoen, MD, Department of Emergency Medicine, Caritas Good Samaritan Medical Center, Brockton, MA, USA

The utility of focused assessment with sonography for trauma as a triage tool in multiple-casualty incidents during the second Lebanon war. Beck-Razi N, et al. J Ultrasound Med. 2007; 26(9):1149-56.

In conflict-related multiple casualty incidents such as the second Lebanon war, FAST scanning assists with rapid triage of patients suspected of abdominal trauma. Limitations in FAST sensitivity dictate the need for further investigation or intervention in patients with strong clinical suspicion of injury or hemodynamic instability.

Summary: During the Second Lebanon War, focused assessment with sonography for trauma (FAST) performed by radiologists was utilized as a triage tool in multiple-casualty incidents. In this prospective study of 102 casualties, FAST results were compared with results from computed tomography (CT), laparotomy, or clinical observation. The sensitivity, specificity, positive predictive value, and negative predictive value were 75%, 97.6%, 88.2%, and 94.1%, respectively. This study suggests that FAST has some utility as a triage tool in multiple-casualty incidents. The limited sensitivity of FAST also suggests that a negative FAST in the setting of strong clinical suspicion may require further intervention.

Comment: This study adds strength to the notion that a FAST exam's utility in trauma can be generalized to multiple-casualty incidents. More important to know would be exactly how a FAST exam would influence timely decision-making and resource management during multiple-casualty incidents in the setting of limited resources. The sensitivity of the FAST exam was lower in this population than has been reported in US-based emergency department (ED) studies, likely due to the high proportion of patients with penetrating trauma, for which FAST is not as accurate. The authors suggest that due to the limited sensitivity, a negative FAST may be overruled by strong clinical suspicion. They do not, however, indicate what factors they feel contribute to a strong clinical suspicion and what the clinical relevance of a false-negative FAST scan was in this setting.

By Murdoc Khaleghi, MD, Department of Emergency Medicine, Baystate Emergency Medicine, Springfield, MA, USA

Use of an Innovative Design Mobile Hospital in Medical Response to Hurricane Katrina. Blackwell T, Bosse M. *Annals of Emergency Medicine*. 2007; 58(5):580-588.

A practical description of a successful critical care mobile hospital deployment is described as a model for future disaster response.

Summary: During the disaster response to Hurricane Katrina, Carolinas Medical Center and Mecklenburg emergency medical services (EMS) agency deployed their MED-1 mobile critical care hospital from North Carolina to Mississippi. This article describes the design, planning stages, practical layout, human and equipment resources, and timeline that made this humanitarian response successful. The deployable units include a two-bed shock resuscitation and surgical unit, a twelve-bed critical and emergency care unit, and the capacity to house a separate 130-bed ambulatory care unit. Features of this model include its flexibility, its inclusion of high-end technology resources, its separation of sterile and intensive care services from urgent or non-urgent services, its large cache of essential medications and personnel for 72 hours of uninterrupted care, its security precautions, its ability to function independently in both critical and ambulatory care in remote or disaster zone areas if needed, and its ability to integrate into the host community as it recovers.

Comment: Deployment of modular medical facilities such as the Carolinas Medical Center mobile critical care hospital offers an important resource to deal with higher level medical responses to acute complex disaster situations in which the local medical infrastructure is rendered ineffective for care of casualties. If one reflects on the local needs in most disaster settings, however, structural needs for managing ambulatory cases can often be met with either rapid construction of temporary shelters from local materials or with the use of lighter weight structures. While deployable hospitals may be useful in certain field situations, they have high initial investment, transport, and operational costs. Planners should carefully consider the cost-effectiveness of various methods of providing services during natural and man-made disasters.

By Heather S. Hammerstedt, MD, Department of Emergency Medicine, Beth Israel Deaconess Medical Center, Boston, MA, USA

Alcohol and injuries: a review of emergency room studies since 1995.

Cherpitel CJ. Drug Alcohol Rev. 2007; 26:201-214.

Injured patients in EDs are more likely to have been drinking alcohol, and injured patients who have been drinking alcohol are more likely to have experienced their injury as the result of violence.

Summary: This review examines the association between alcohol and injuries presenting to EDs, hypothesizing that the magnitude of the association will vary across EDs depending on sociodemographic variables. The authors searched all English-language journals, using a search of MEDLINE, PsychINFO, NIAAA, and Alcohol Problems Science Database for all articles published 1995-2005 including the search terms of alcohol, injuries, and emergency rooms. Studies that were not probability samples of patients, and did not cover all days and times equally, were excluded. Twenty-eight studies were included. The review focused on estimated blood alcohol (BAC) at the time of ED visit, and self-reported drinking behavior prior to arrival. Positive BAC screening among the injured varied from 4% in Ontario, Canada to 59% in Cape Town, South Africa. Self-reported drinking in the 6 hours prior to presentation varied from 8% in Poland to 60% in South Africa. All studies except one showed that injured patients were significantly more likely to report alcohol consumption in the 6 hours prior to presentation than their non-injured controls. All studies found that violence-related injury patients were significantly more likely to have a positive BAC screen and report drinking than non-violence-related injury patients. Limitations include differences in the length of data collection across the studies, a lack of information about sociodemographic differences among the patients included in each study, the unreliability of self-report of drinking behavior, and the use of non-injured patients as controls.

Comment: This study concurs with previous, smaller studies of the association between alcohol use and injuries. It is notable primarily for the international cross section it provides of this particular problem. It is also worth noting the consistency of the findings among the included studies, despite wide geographic and GNP differences. The study's generalizability is limited by its English-only inclusion criteria, but it suggests numerous future directions for research into the factors that affect prevalence of alcohol use in injured patients by practice setting, and into methods of intervening and preventing violence and injury.

By Whitney K. Bryant, MD, MPH, Department of Emergency Medicine, Bellevue Hospital, New York, NY, USA

A survey of the use of foreign-purchased medications in a border community emergency department patient population. de Guzman GC, et al. J Emerg Med. 2007; 33(2):213-21.

In U.S. border communities, a significant number of English speaking patients take foreign medicines and do not report them to the emergency physician.

Summary: This survey of English speaking ED patients sought to determine the incidence of foreign-purchased medication use as well as the beliefs and experiences of those taking them. Patients reporting medication use during triage in two EDs near the U.S.-Mexico border were asked to fill out a two page questionnaire regarding the location of medications purchased, including location of the purchase, frequency, methods, categories, side effects, and other related topics. Of the 65,572 patients seen during the study period, a convenience sample of 1,008

patients was surveyed. Surveys were conducted during daytime hours exclusively in English. Non-English speaking patients, who comprise approximately 15% of the patient populations of the two study centers, were excluded due to lack of translation services. Information on the surveyed patients and explanations for the low inclusion rate of eligible patients was not provided. Of patients purchasing medications internationally, 72% identified cost as the primary reason. The only patient characteristic associated with foreign purchase was having lived outside the U.S. for more than 4 weeks in the year prior to completion of the survey. Of those surveyed, 7% reported use of foreign medications within the last year, and 80% of those patient reported purchasing medications in Mexico. One third of patients using foreign-purchased medications did not notify their physicians of this medication use.

Comment: This study demonstrates that in the population surveyed, a significant proportion of patients use foreign medications and do not report this use to their physicians. While a variety of beliefs and usage statistics were obtained, the results were severely limited by relying on a convenience sample, and failing to provide a description of the population sampling method. It is also important to note that the prevalence of foreign medication use is likely to be increased if foreign language speakers are included. Nevertheless, this article confirms other reports and should alert emergency physicians (EPs) in border communities that their patients may be using medications not regulated by the FDA.

By Jeffrey A. Nielson, MD, MS, Department of Emergency Medicine, Akron City Hospital, Akron, OH, USA

Intraurban Variations in Adult Mortality in a Large Latin American City.

Diez Roux AV, et al. Journal of Urban Health: Bulletin of the New York Academy of Medicine. 2007; 84(3):319-33.

Computer modeling suggests that substantial intra-urban variation exists in risk of death, highlighting the importance of social inequalities in determining mortality in large cities.

Summary: This article describes a method of computerized spatial analysis used to investigate the potential variations in deaths associated with socioeconomic inequality in Buenos Aires, Argentina. In particular, the authors use this method of spatial modeling to investigate deaths due to cardiovascular disease, respiratory disease, cancer, and 'other' diseases within different areas of the city. The observed variation in risk of death, seen with cardiovascular, respiratory disease and total deaths, was partly explained by the spatial patterning of socioeconomic vulnerability. The association between socioeconomic variability and risk of death was strongest for death due to cardiovascular disease, followed by respiratory disease; and in both diseases was noted to be stronger for men than women. Features of both the social and physical environment, such as education, smoking, and type of housing, may also play a role. The study is limited by the use of secondary data collection, large censal units, and only core urban data.

Comment: While data from a number of studies suggest that urbanization is associated with inequality in health outcomes, the heterogeneity of health status within urban areas has rarely been examined. This article provides additional documentation of a correlation between poverty and death within middle-income urban settings. These findings provide additional evidence for IEM practitioners designing programs, providing clinical care, or researching public health trends in developing world cities.

By Heather S. Hammerstedt, MD, Department of Emergency Medicine, Beth Israel Deaconess Medical Center, Boston, MA, USA

Hospital Admissions after Paediatric Trauma in a Developing Country: From Falls to Landmines. El-Chemaly SY, et al. International Journal of Injury Control and Safety Promotion. 2007; 14(2):131-134.

Summary: Injury remains a leading cause of childhood mortality. The authors of this study reviewed epidemiologic data from pediatric injuries presenting to a tertiary care referral center in Beirut, Lebanon. Data was prospectively collected on all pediatric trauma admissions over a 2 year period using a questionnaire as well as access to hospital data. Through this process, 214 injuries were identified and included in the study. The most common mechanism of injury was a fall of less than 15 feet (39.7% of all injuries), followed by motor vehicle collisions (12.1%), and penetrating and burn injuries (each 8.4%). Only 16.4% of injuries were noted to be severe, defined by an Injury Severity Score (ISS) >12. Of note, burns accounted for most injuries in patients less than 1 year old, while motor vehicle collisions were the most common type of injury in patients 14-18 years old. Surgery was required in 60.3% of all patients, while only 7.9% of patients required ICU admission. No mortalities were noted. The authors discussed the prevention campaigns in Lebanon to target certain injuries, with particular focus on prevention of land mine injuries, efforts to decrease residential hot water temperature, road traffic legislation, and fall prevention.

Comment: The goal of the authors' to delineate a population's injury pattern to better improve prevention efforts is adequately supported. Unfortunately, the limited data collection of the present study (only one site was enrolled) and the exclusion of non-admitted pediatric injury patients who present to the ED, limits the ability to gain a complete epidemiologic picture of Lebanon's pediatric injuries and the resources needed to prevent them.

By Zachary D. Tebb, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO, USA

Transcultural validity of a structured diagnostic interview to screen for major depression and posttraumatic stress disorder among refugees. Eytan A, et al. The Journal of Nervous and Mental Disease. 2007; 195:723-728.

Use of a modified screening tool to diagnose post-traumatic stress disorder and major depressive episodes in asylum seekers may aid in early referral for counseling and treatment.

Summary: Eytan et al. studied the prevalence of post-traumatic stress disorders (PTSD) and major depressive episodes (MDE) in a subset of 107 asylum seekers from 33 different countries across Europe, Asia, and Africa. A systematic interview, conducted by nurses at Geneva University Hospitals, employed a modified version of the Mini International Neuropsychiatric Interview (MINI). The results of the MINI screening tool were then compared with the findings of mental health specialists who used DSM-IV criteria for diagnosis. The 101 individuals who completed both assessments, the majority of whom were males, were included in the analysis. The prevalence of MDE as detected by the modified MINI was 30% versus 34% by DSM-IV.

PTSD prevalence was 24% as detected by MINI, and 29% by DSM-IV. The MDE section of the adapted MINI was found to have a sensitivity of 79% and a specificity of 95%, while the PTSD section had a sensitivity of 69% and specificity of 94%.

Comment: Cross cultural validations of psychological scales are necessary prior to using these instruments in a wide variety of international settings, and this study adds to the current body of knowledge on this topic. The MINI screening tool demonstrated better sensitivity and specificity in European emigrants versus those from Africa or Asia, and although not statistically significant, variations in sensitivity and specificity were also observed when comparing the English and French versions. This particular screening tool may not be applicable to different settings across the world; nevertheless, the screening of asylum seekers for mental health needs early on arrival should become universally available to allow time for adequate support and treatment.

By Ashish Goel, MD, Department of Medicine, All India Institute of Medical Sciences, Delhi, India

Measuring humanitarian emergencies.

Garfield R. Disaster Medicine and Public Health Preparedness 2007; 1:110-116.

A new measure combining data on both conflict and disaster seeks to provide an objective measure of humanitarian need, while facilitating comparisons of needs across countries and emergencies.

Summary: The author contends that the total funding for humanitarian activities has increased dramatically in recent years, yet better tools and measures of humanitarian need are required in order to assure equitable and appropriate distribution of funding. The author proposes a novel measure of humanitarian need combining data on conflict and disasters to summarize the cumulative magnitude of four different indicators of humanitarian threat (those affected by disasters, those displaced, those killed in conflict, and those killed by disasters). Given the likelihood of under- or over-reporting, and in deference to the relative importance of each of these indicators, the author further modifies the relative weight of these factors, giving particular power to the indicators of conflict or disaster mortality, while under-weighting the influence of those affected by disaster. Combining the information obtained on these multiple axes of humanitarian impact over a period of five years and scaling them to a population denominator provides a measure of humanitarian need. The resultant indicator can be indexed on a scale of 1 to 10 providing a parameter for measure.

Comment: There is urgent need for an objective measure of humanitarian need that international donors and humanitarian organization can utilize to improve equity of investment and prioritize and triage interventions and resources across countries. This approach seeks to combine data from four different indicators of the impact of humanitarian emergencies into a single indicator that can then be used in this regard. This approach has several limitations, including the widely variable quality and quantity of the data underpinning the individual indicators, as well the lack of a theory or paradigm by which one humanitarian event can be judged relative to another, or by which emergencies resulting in fatalities can be compared to non-mortal humanitarian harm. Despite these issues, this measure provides a useful indicator of the magnitude of humanitarian need and facilitates objective comparisons between countries in need.

By Joseph Becker, MD, Department of Emergency Medicine, Yale University, New Haven, CT, USA

Management and analysis of out-of-hospital health-related responses to simultaneous railway explosions in Madrid, Spain. Gómez AM, et al. Eur J Emerg Med. 2007; 14(5):247-55.

The response to the Madrid bombings lacked adequate communications, command site leadership, and supplies organization.

Summary: This report provides an overview of the response to the March 2004 terrorist railway bombings in Madrid, and summarizes the internal debriefing and analysis sessions that occurred afterwards. Fourteen nurses and physicians who acted as medical spokespersons during the disaster and were personally involved in the response, were asked to prepare written reports of the non-hospital events. Their knowledge of the events was primarily based on personal interviews and direct observation. No specific criteria were used to determine the content of the reports. From these reports, distinct aspects of the pre-hospital response, including coordination of services, availability of psychological treatment, and post-event non-hospital needs, were identified for each of the four bombing sites. The group then sought consensus on whether each of thirteen particular aspects received a strong response, intermediate response, or a response needing improvement. Consensus was reached through group discussions facilitated by quality management professionals at three meetings attended by all of the 14 participants. Where disagreement prevailed, the lower rating was assigned. The article outlines a timetable of pre-hospital events, provides a detailed qualitative and quantitative description of the care provided, and reports the consensus results of quality ratings for each of the 13 evaluated aspects of care. Categories receiving a less-than-strong response rating included communications, command site leadership, and supplies organization. The article discusses some key aspects of the response and provides lessons learned in the areas of planning, training, communication, hospital coordination, and access to supplies.

Comment: This case report provides insight into disaster planning through examination of the Madrid railway bombings, a mass casualty event occurring after the upgrades, and reorganization implemented in response to the September 11, 2001 attacks on NYC. The article has several limitations, including the lack of a standardized assessment tool and the potential conflict of interest resulting from having internal leaders and spokespersons complete the analysis. Nevertheless, this article provides a useful summary of the medical response to a mass casualty incident and identifies potential areas of weakness that should be addressed in planning responses to future disasters.

By Jeffrey A. Nielson, MD, MS, Department of Emergency Medicine, Akron City Hospital, Akron, OH, USA

Improving Rural Access to Emergency Physicians.

DM Handel, JR Hedges. Academic Emergency Medicine. 2007; 14:562-565.

Although rural workforce shortages in EM are an acknowledged problem, few commentators have provided solutions.

Summary: The authors cite the Institute of Medicine report The Future of Emergency Care in the United States Health System to point out that rural areas in particular lack residency-trained and board-certified EPs. The authors outline several potential methods of alleviating this deficiency. Many new EPs choose their practice location based on significant educational debt and the need to repay it as quickly as possible. The authors argue for financial incentives to new graduates of EM residency programs, such as loan forgiveness or pre-graduation stipends, on the model of the Indian Health Service. The authors also argue for federal funding of rural hospitals, such as setting the Medicare reimbursement rate for rural hospitals, or high-need areas above areas with a surfeit of EPs. Another avenue presented is new EM residency programs that link academic medical centers with rural hospitals, either staffing the ED with urban practitioners on a rotating basis, or developing new residency programs that focus on rural EM. Similar programs, based at urban centers, but with a focus on rural training, have recently begun in Utah, Iowa, and Nebraska. Other suggestions include dual EM/Family Practice residency programs, and using telemedicine to connect rural hospitals with tertiary care centers for critically ill patients.

Comment: This article offers several suggestions, primarily based at the level of EM residency training, for addressing the current lack of EPs in rural America. Although focused on the U.S., this article suggests solutions that could be applicable to other countries' health systems facing similar issues related to EP distribution: establishing residency programs that prepare physicians for emergency care in rural settings, developing formal relationships between urban academic medical centers and rural EDs, and using financial and quality of life incentives to keep health care providers in areas where they are most needed.

By Whitney K. Bryant, MD, MPH, Department of Emergency Medicine, Bellevue Hospital, New York, NY, USA

Prehospital Emergency Care and Medical Preparedness for the 2005 World Championship Games in Athletics in Helsinki. Hiltunen T, et al. Prehospital and Disaster Medicine. 2007; 22(4):304-11.

Mass gatherings necessitate extensive preparation for medical needs and offer insights in preparing for mass casualty incidents.

Summary: Hiltunen, et al. prospectively assess the adequacy of medical preparedness during the mass gathering of the Helsinki World Championship Games in 2005. The authors collected data from organizations responsible for the first aid of spectators during the conduct of the games after approval from the Institutional Review Board of the Helsinki University Central Hospital. The authors found that a total of 479,000 persons visited the games, and that the ambulance call rates were 0.7 per 10,000 people at the Olympic Stadium and the Games Village, 5.9% higher than previous years. The overall transportation to the hospital was 0.52 per 10,000; however, no one required immediate life saving procedures. The rate of first aid administration was 0.17 per 10,000 people. The authors have concluded that the overall planning was successful due to an early in-depth analysis of risks, a cohesive coordination between authorities, and a clear structure of services. Nevertheless, the absence of any disaster during the games precludes concrete assessment of preparedness for a mass casualty incident.

Comment: The provision of health services during mass gatherings is a key function of EM, and can be used as a selling point to health ministers when advocating for development of the specialty internationally. This particular study has several limitations, but provides some insight into planning and medical preparedness for mass gatherings. For instance, the authors suggest that the availability of on-site medical care increases demand while reducing the need for ambulance transportation to EDs. Although the authors raise concerns regarding several potential threats to the provision of medical care during mass gatherings, they fail to clearly delineate those threats and offer suggestions by which to prepare for them.

By Ashish Goel, MD, Department of Medicine, All India Institute of Medical Sciences, Delhi, India

Impact of quarantine on the 2003 SARS outbreak: A retrospective modeling study. Hsieh, Ying-Hen et al. J Theoretical Biology. 2007; 244:729-736.

Emergency physicians, potentially the initial contact for infected individuals in emerging infectious disease outbreaks, should be familiar with traditional quarantine containment strategies, which are increasingly supported by advanced mathematical modeling.

Summary: Using a discrete time model, based on verified SARS case data and quarantine data in Taiwan, the authors retrospectively examined the role of quarantine implementation on the eventual containment of the 2003 SARS outbreak. They applied a Susceptible-Infective-Removal (SIR) model to 361 confirmed SARS cases from February 25 to June 25, 2003 to examine the impact of the quarantine of potentially exposed contacts of suspected SARS patients (level A), and of travelers arriving at borders from SARS affected areas (level B). The average case fatality ratio of a SARS probable case based on the model was 14.1%, lower than the cumulative case fatality ratios reported in affected areas. For level A quarantine, the average daily quarantine rate was 0.047, meaning that only one of 21 persons who should have been quarantined was quarantined. Despite the level A quarantine rate of 0.047, an estimated 461 cases (81%) and 62 deaths (63%) were prevented. The theoretical impact of level B quarantine was explored through the examination of the successful SARS case quarantines of two travelers from China. The level B quarantine model estimated that the quarantine of those two individuals prevented 29 cases and 5 deaths. Assuming perfect implementation of level B quarantine at the onset of the outbreak, with all imported cases quarantined at the border, the modeling suggests that the SARS cases and deaths would have been decreased by 49%. The results are limited by the nature of the model, which offers approximations based on retrospective data and assumes a fixed population with strictly defined groups.

Comment: This study demonstrates that mathematical modeling corroborates the importance of traditional interventions such as quarantine as a means of containment when faced with a newly emerging infectious disease. Although this study uses a model to approximate the impact of level A and level B quarantines, the assumptions the authors make in the creation of the model are reasonable and the results are compatible with other studies, supporting the use of quarantines as an effective means of control in the SARS outbreak. The model demonstrates that improvement in the efficiency of the quarantine could reduce cases and fatalities, and that the abolishment of the quarantine could result in many more deaths. The quarantine of rapidly infectious diseases relies on the ability to recognize newly infected individuals as early as possible. The effect of

other interventions implemented concomitantly, including mandatory face masks, hand washing, and temperature monitoring is not quantified.

By Nichole Bosson, MD, Department of Emergency Medicine, Bellevue Hospital, New York, NY, USA

Anticipating demand for emergency health services due to medication-related adverse events after rapid mass prophylaxis campaigns. Hupert N, et al. Acad Emerg Med. 2007; 14(3):268-74.

There is need for better reporting of both incidence and timing of Medication Related Adverse Events (MRAEs) in mass infectious disease prophylaxis campaigns, and for improved coordination between public health and emergency medicine planning for MRAEs and infectious disease outbreaks to avoid preventable surges in ED utilization.

Summary: This study uses a computer model to quantify temporal grouping and the total number of medication-related adverse events (MRAEs) resulting from mass prophylaxis campaigns of different durations and the subsequent impact on emergency health services. This consequence-management model uses probability distribution to calculate scenario specific MRAE rates for hypothetical two- to ten-day prophylaxis campaigns for one million people using the latest data from smallpox vaccination and anthrax chemoprophylaxis campaigns. A two-day smallpox vaccination scenario produced an estimated 32,000 medical encounters and 1,960 hospitalizations, peaking at 5,246 health care encounters six days after the start of the campaign; a ten-day campaign lead to a 41% lower peak surge, with a maximum of 3,106 encounters on the busiest day, 10 days after initiation of the campaign. MRAEs with longer lead times, such as those associated with anthrax chemoprophylaxis, exhibit less variability based on campaign length. The study points out that very short duration campaigns are more likely to overwhelm the EDs' capacity to tackle MRAE, and emphasizes the need for coordination between public health and EM when planning for infectious disease outbreaks to avoid preventable surges in ED utilization.

Comment: In this era of bioterrorism preparedness, this study is novel in addressing the dynamic relationship between the operational duration of mass prophylaxis campaigns during infectious disease outbreaks and MRAE quantification. It critically examines the growing consensus in the United States, reaffirmed by the Centers for Disease Control and Prevention's (CDC) goal of 48-hour dispensing capability, regarding mass prophylaxis campaigns. Efficient evaluation of the temporal effects, utilization of the latest data on prophylaxis campaigns, and use of consequence management model are strengths of this study over prior work. The results should interest policy makers, emergency preparedness planners, and health care providers in formulating community-based bioterrorism response plans and infectious disease prophylaxis programs.

By Vineet Gupta, MD, Department of Emergency Medicine, JPNATC, All India Institute of Medical Sciences, Delhi, India

Can the Broselow tape be used to estimate weight and endotracheal tube size in Korean children? Jang HY, et al. Acad Emerg Med. 2007; 14(5):489-91.

The Broselow Tape is a reliable tool for pediatric resuscitation in Korean children less than 8 years old.

Summary: The Broselow tape (BT) is a length-based tool to assist with estimating body weight and endotracheal tube (ETT) size used for resuscitation in children. BT estimates are derived from the 50th percentile of American children's weights. Using anesthesia records for children undergoing elective surgery at the Seoul National University Children's Hospital (SNUCH), this retrospective chart review compared measured weights with BT weight estimates using Bland-Altman analysis. Also, age-based formula ($\text{age}/4 + 4$) and BT-determined ETT size were compared to the actual ETT size that had been used. The study was approved by SNUCH institutional review board with a waiver of informed consent. Among the 665 enrolled patients, measured weight was 1.54 kg heavier than BT estimates. The BT accurately estimated ETT size in 86.9% of patients compared to 34.9% accuracy with an age-based formula ($p < 0.001$). A receiver operating characteristic curve constructed on the basis of patient height showed that for children under 127.15 cm, 98.8% of enrolled patient's estimated weights were within limits of agreement.

Comment: These results add to previous reports that BT may be a reliable tool for pediatric resuscitation in non-American populations. Specifically, it may be used safely to estimate weight in Korean children under 127.15 cm—the approximate height of an 8-year-old Korean child. Similar validation has been reported for Indian children under 6 years of age, while others reported the BT to underestimate the weight of Pacific Island and Maori children under 10 years old. Because height was used in place of length obtained by a clinician using the actual BT, there is the possibility of operator dependent differences that cannot be accounted for unless validation is confirmed using the actual BT. Although the BT is a length-based tool, continued studies will be necessary to determine whether it remains accurate as rates of childhood obesity increase in both developed and developing countries worldwide. Furthermore, the BT should be used with caution in populations with high rates of under-nutrition.

By Edward R. Melnick, MD, Department of Emergency Medicine, Department of Emergency Medicine, North Shore University Hospital, Manhasset, NY, USA

Health status among internally displaced persons in Louisiana and Mississippi travel trailer parks. Larrance R, et al. Ann Emerg Med. 2007; 49(5):590-601.

The significant health needs identified in internally displaced populations now residing in the trailer parks of Louisiana and Mississippi present formidable challenges to local health planning. This study seeks to view these individuals in a global health context and advocates tailoring programming to follow well-developed international models of rights-based care.

Summary: The 2005 Gulf Coast hurricanes, Katrina and Rita, internally displaced more than 2.5 million people across the United States. This systematic randomized survey used the global humanitarian aid perspective to assess health and basic needs of internally displaced population in Federal Emergency Management Agency and commercial travel trailer parks in Louisiana and Mississippi. Adult household members (or emancipated minors) were interviewed using 134 itemed standardized questionnaire surveys during April and May 2006 for information about demographics, domestic and sexual violence, security concerns, morbidity, mortality, health care

assessment, substance use, opinions about internally displaced person and social status according to previous international assessments.

Three hundred sixty-six respondents (response rate 63%) with mean age 45.9 years were included in the study. Shelter, transportation, security, and financial hardships were reported as major problems since displacement. The number of parents reporting problems getting children to school increased three-fold after displacement. Intimate partner violence rates post displacement were three times higher than U.S. baseline rates. Major depression was reported in half of the respondents. Suicide completion rates and attempt rates after displacement were more than fourteen times and seventy-eight times the baseline rates, respectively. The study was limited by recall bias, small sample size, and lack of representation of the host populations of Louisiana and Mississippi.

Comment: The study provides insight into the unmet needs of an internally displaced population during and after a natural disaster. Amid recovery efforts, health services and mental health wellbeing remain largely unaddressed. Special emphasis should be given to the psycho-social wellbeing of children and women. Humanitarian aid remains the cornerstone to addressing the basic needs of displaced populations in the wake of disaster. Of crucial importance is an understanding of the context of the disaster and the population at risk. Through this approach, transitional health and human service programs can utilize well-developed international models of rights-based care in addressing basic needs of post-disaster populations in crisis. Despite the limited generalizability to the entire hurricane affected population, this study reiterates the significance of contextualized recovery efforts, providing cues for enhanced disaster preparedness globally.

By Vineet Gupta, MD, Department of Emergency Medicine, JPNATC, All India Institute of Medical Sciences, Delhi, India

Asian earthquake: report from the first volunteer British hospital team in Pakistan. Laverick S, et al. Emerg Med J. 2007; 24(8):543-6.

In earthquakes, a preponderance of early traumatic and particularly orthopedic injuries may be anticipated. Centralizing volunteer registries and planning resources can serve to improve disaster response and coordination.

Summary: This review describes medical observations following the devastating Pakistani earthquake of 2005, as witnessed by an initial relief team made up of maxillofacial and general surgeons and a radiologist that arrived 10 days after the event and was assigned to operate an autonomous surgical service at a major medical center in Islamabad, treating persons evacuated by various means from areas of damage. General surgery presentations included complex lacerations and wound care, with very little in the way of thoraco-abdominal surgery. Numerous wound infections, including gangrene and tetanus, complicated many of the injuries. Orthopedic injuries were felt to be the bulk of pathology. Anesthetists and nurses were the main non-physicians needed. Volunteers quickly trained in the basics of triage and ancillary medical services fulfilled most other needs. The authors report that there were generally enough hospital beds, triage wards, and resuscitation supplies to fulfill most needs. The authors felt that the disaster responses would have benefited from a central registry of volunteers for more efficient mobilization and coordinated need-fulfillment.

Comment: This account provides a focused qualitative description of medical problems encountered and needs after an earthquake that may be generalizable to other similarly large earthquakes. Responses to natural disasters too often involve unnecessary human and material responses, while some of the needed resources do not appear. Although the addition of quantitative data would have been useful, reports such as this help add to the characterization of needs during natural disasters. The authors' suggestion of the benefit of a central volunteer registry would help with allocation of appropriate human resources. Although the authors do not address this, a similar plan regarding emergency medical supplies may be of some use considering the supply shortages cited. Coordination of multiple relief efforts during natural disasters continues to be a concern, as witnessed by recent events in the U.S., China and Myanmar.

By Murdoc Khaleghi, MD, Department of Emergency Medicine, Baystate Emergency Medicine, Springfield, MA, USA

A comprehensive framework for determining the cost of an emergency medical services (EMS) system. Lerner EB, et al. *Annals of Emergency Medicine*. 2007; 49:304-313.

The components of EMS systems can be used by policymakers to calculate costs from a societal perspective.

Summary: Little attention has been paid to the evaluation of the cost of EMS, or pre-hospital, systems. The panel assembled for this article developed a framework that will allow for comparisons of cost across studies, communities, and interventions by researchers, policymakers, and EMS providers. Through extensive literature research and an expert panel consensus process, a comprehensive list of all components of EMS cost was created, including medical oversight, bystander response, vehicles, administration, information systems, communications, human resources, physical plant, equipment, and training. The article discusses each component of the cost framework as well as the rationale for several exclusions. The discussion includes a working definition of an EMS system and a delineation of the difference between charges and costs. The article focuses on the EMS system as it responds to acute, unscheduled health care delivered outside of hospitals, excluding activities such as scheduled interfacility transport from a nursing home to a dialysis appointment. The article does not provide a micro-level framework that details the actual costing of each component of the system. It also remains to be validated in a real-world cost determination of an EMS system.

Comment: This article provides the first attempt to create a standardized EMS cost framework, which is of great value to planners in both developed and developing countries. Special attention is paid to the importance of conducting economic evaluations from the societal perspective; evaluating how the cost may be shared among the sectors of health care, public health, EMS, and public safety. The authors provide solid explanations for the costs that are excluded from the framework such as taxes, medical errors, community infrastructure not specifically related to EMS, prevention costs, and disaster response outside of the community. They also note that because the proposed framework is designed to evaluate solely the cost of EMS, it necessarily neglects evaluation of the indirect costs to society of a patient's illness or injury. The evaluation of these costs, and the effectiveness of EMS interventions, is imperative to a comprehensive

economic analysis, although the findings of this study still need to be validated through future research. The authors suggest that the EMS cost framework proposed be used in conjunction with other economic information to create a robust economic analysis in establishing or expanding EMS systems.

By Mark Foran, MD, Department of Emergency Medicine, Brigham and Women's Hospital, Boston, MA, USA

Global infectious disease surveillance and health intelligence.

Morse SS. Health Aff. 2007; 26(4):1069-77.

Global infectious disease surveillance is an area of increased focus and importance; despite limitations and barriers to reporting, multiple global health surveillance programs are currently in place.

Summary: The key to control of any pandemic is early identification and rapid response. Morse introduces the term “health intelligence” to refer to “usable information on events of public health significance.” This review article discusses current global infectious disease surveillance systems, their limitations, and how they have evolved in the last fifteen years with the increasing availability of communications and information technologies. Barriers to reporting disease include: potential disincentives to reporting, e.g., fear of political repercussions, political embarrassment, economic or trade repercussions, or concern that reporting may make the government look ineffectual; fragmentation of surveillance systems, e.g., poor communication between localities and central governments, poor reporting of agricultural and veterinary diseases that could become transmissible to humans; and health’s low priority on government agendas. Several efforts have been developed, such as the Program for Monitoring Emerging Diseases’ (ProMED) and the WHO Global Outbreak and Response Network (GOARN). Each continues to lack crucial elements to realize its full potential. Recommendations for further progress include: 1) coordinating reporting systems worldwide, 2) providing additional resources, 3) encouraging reporting by providing feedback to clinicians, 4) giving financial incentives for implementation of systems, 5) training local people to report where there are few clinicians, and 6) educating policymakers to prioritize disease surveillance.

Comment: With the concern for emerging infections such as SARS or avian flu, the need for an extensive international infectious disease surveillance system that can disseminate health intelligence globally remains an important goal for the international public health system. While no new research is presented here, this review article introduces current systems, their limitations, and directions for improvement. This information is generalizable to IEM globally, since emergency health care workers around the globe should be seen as integral participants in any early warning system.

By Edward R. Melnick, MD, Department of Emergency Medicine, North Shore University Hospital, Manhasset, NY, USA

The relationship between distance to hospital and patient mortality in emergencies: an observational study. Nicholl, J, et al. Emerg Med J. 2007; 24:665-668.

Although the optimal distribution of local versus specialty center EDs remains unclear, certain conditions, particularly respiratory compromise, fare better when travel time is limited and medical care is nearby.

Summary: Recent policy recommendations in the United Kingdom have suggested that the closure of local EDs in exchange for direct transfer of care to the limited number of specialist centers would save lives. In order to test this theory, the authors conducted an observational study examining the association between risk of death and travel distance to acute hospitals via ambulance for certain life-threatening illnesses (excluding cardiac arrests). Looking at a total of 10,315 cases among category A (highest priority) calls received by four English ambulance services working in different geographical settings from 1997 to 2001, increased straight-line ambulance journey distance was associated with increased risk of death (odds ratio 1.02 per kilometer; 95% CI = 1.01 to 1.03; $p < 0.001$). Controlling for confounding by age, gender, clinical category, or illness severity, the association did not change. Every 10 kilometer increase in straight-line distance was associated with a 1% absolute increase in mortality. Patients with respiratory emergencies appeared to have the highest risk.

Comments: While specialist centers for certain emergencies, such as acute myocardial infarction and multiple trauma, have evidence-based roles in improving patient outcome, other life-threatening conditions are intolerant to long distance travel. According to the results of this study, respiratory compromise in particular, is associated with a significant increase in mortality risk as travel time increases. The authors make a convincing argument that local emergency care and specialty center emergency care need not be mutually exclusive. Their recommendation that the concept of local ED bypass for certain proven conditions replace the ongoing discussion of local ED closure should be heeded. Optimal distribution of local and specialist EDs requires further analysis; however, the article suggests that premature local ED closure may put at further risk those whose lives depend on expedient local medical care.

By Nina Chicharoen, MD, Department of Emergency Medicine, Caritas Good Samaritan Medical Center, Brockton, MA, USA

International comparison of prehospital trauma systems.

Roudsari BS, et al. Injury. 2007; 38:993-1000.

The development of pre-hospital care globally prompts questions regarding the effect of different levels of providers on patient outcomes.

Summary: With increased interest in establishing prehospital systems in developed and developing countries, this study seeks to extract trauma registry data from nine countries in order to characterize differences between advanced life support-trained prehospital providers and physician advanced life support-trained prehospital providers. This is an observational study that defined relevant outcomes as ED shock (systolic blood pressure <90) and trauma death after the first twenty-four hours in the hospital. Due to the varying quality and quantity of data from these nine countries, the authors undertook sub-group analyses to determine differences between the two systems, with the null hypothesis being no difference between the two groups of providers.

The results show significant heterogeneity in patient outcome within individual systems. The only significant difference noted in the final results was that early trauma fatalities were

improved in the physician prehospital systems (OR 0.70). This study was unable to analyze the basic life support (BLS) prehospital systems employed by many developing countries due to a lack of available data.

Comment: This is a fairly limited study examining the question of whether physician-operated prehospital systems are or are not more effective at improving patient outcome in trauma than advanced life support equipped prehospital systems. Comparisons between these systems were hampered by limitations in the data analyzed. There was significant variability in patient outcome within countries, the unit of analysis used. This variability, if statistical, would call into question the null hypothesis of no difference between systems. As the authors state, prospectively collected data would be more helpful in evaluating the effectiveness of each system. Such information would be valuable in assisting countries plan their developing prehospital systems.

By C. Ryan Keay, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO, USA

Traumatic Brain Injuries after Mass-Casualty Incidents: Lessons from the 11 September 2001 World Trade Center Attacks. Rutland-Brown W, et al. Prehosp Disast Med. 2007; 22(3):157-164.

Traumatic Brain Injury may be under-diagnosed in mass casualty events such as the attacks on the World trade Center in 2001.

Summary: Rutland-Brown, et al. attempt to identify the number of diagnosed and undiagnosed traumatic brain injuries (TBI) in survivors of the 2001 attacks on the World Trade Center (WTC) in New York City. In collaboration with New York City health authorities, investigators retrospectively assessed records of WTC-related cases treated at forty-five different hospitals in the New York area. Using ICD-9-CM diagnosis codes, staff first identified the number of formally diagnosed TBI patients and then identified additional patients whose medical records reveal clinical features indicative of TBI. Those patients not initially diagnosed with TBI, who had either a loss of consciousness, amnesia for the injury event, or confusion, disorientation, or difficulty recalling personal information, were considered to have “Probable” TBI. Patients with acute post-injury headaches, dizziness, irritability, fatigue, or poor concentration, were considered as “Possible” TBI. Of 282 cases analyzed, the authors conclude that 21 patients had either “probable” or “possible” TBI that had not been diagnosed on their initial presentation, and that patients who had experienced amnesia or irritability in the absence of loss of consciousness, were more likely to be undiagnosed than those patients presenting with a loss of consciousness. The authors conclude that more detailed assessments of memory and cognitive function in head trauma victims after mass casualty events may result in a greater detection of TBIs that might otherwise go undiagnosed.

Comment: The authors of this study show that a significant number of patients with “probable” or “possible” TBI by their own definition may be missed after mass casualty events. However, it is not clear that the definitions used to identify potential TBI truly identify individuals who have sustained clinically significant neurologic injury, or that early identification of such injury will facilitate any intervention that improves long-term outcomes.

By Cappi Lay, MD, Department of Emergency Medicine, Bellevue Hospital, New York, NY, USA

Management of Severe Acute Malnutrition in an Urban Nutritional Rehabilitation Center in Burkina Faso. (Prise en charge de la malnutrition aigue severe dans un centre de rehabilitation et d'education nutritionnelle urbain au Burkina Faso).

Savado L, et al. *Revue d'Epidemiologie et de Sante Publique*. 2007; 55:265-274.

Malnutrition is an important contributor to morbidity and mortality in many developing countries, and community-based approaches may be employed to avoid over-burdening hospitals.

Summary: In this case-study, authors evaluate the effectiveness of a community-based nutrition center as a viable strategy to address widespread morbidity and mortality due to malnutrition. The study followed 1,322 malnourished children admitted to a single center in urban West Africa (Ouagadougou, Burkina Faso); most participants were 3 standard deviations below the median WHO weight-for-height standards. Of the studied population, 8.5% dropped out, 9% were transferred to a tertiary care hospital, 16% died, and 66% discharged (“cured”), the latter having met the study’s criteria of having gained at least one kilogram (2.2 pounds) of weight during their stay. The authors present compelling evidence that severely malnourished patients (>3.5 standard deviations below median) had significantly higher mortality rates. The authors conclude that similar nutrition centers merit support—indeed, activities should be extended further into the community for those discharged from the nutrition centers—as they would increase prevention and early treatment of severe malnutrition leading to decreased infant and child mortality.

Comment: Humanitarian aid delivery is central to the practice of IEM, and treatment of malnutrition is central to the delivery of effective humanitarian aid. There are several limitations, however, of this single-center study, including a multiplicity of interventions that prevent attribution of benefit to any single intervention, deviation from recognized WHO standards, uncertain breast feeding status of infants, lack of follow-up once discharged, and unknown HIV status of participants. It is not clear what alternative strategies were considered, the cost-effectiveness of this approach, or if scaling-up the intervention is realistic in resource-challenged settings.

By Michael Blake, MD, MPH, Department of Emergency Medicine, George Washington University, Washington, DC, USA

Early predictors of massive transfusion in combat casualties.

Schreiber MA, et al. *J Am Coll Surg*. 2007; 205(4):541-5.

Predicting the need for massive transfusion is challenging in a limited resource environment.

Summary: This study seeks to identify parameters predicting need for massive transfusion using a retrospective cohort study in a resource limited military combat setting. Five hundred fifty-eight combat victims were enrolled at two combat support hospitals in Iraq. Approximately 44% of the patients, excluding head injuries, required massive transfusion. Statistically significant variables useful in predicting transfusion requirement in the first hour of treatment were identified and then analyzed using logistic regression and finally modeled under a receiver

operator characteristic curve. Three variables were found to reliably predict the need for massive transfusion: Hemoglobin (Hgb) \leq 11 g/dL, INR $>$ 1.5, and penetrating mechanism of injury. The mortality of patients requiring massive transfusion was compared to outcomes in a similar civilian study and found to be the same. Since the hospitals did not have access to component blood products, fresh whole blood (FWB) was used from mobilized donors with one unit of FWB equal to one unit each of packed red blood cells, fresh frozen plasma, cryoprecipitate, and platelets. These equivalents were calculated in order to compare transfusion requirements to the civilian setting.

Comment: This study examines the difficult issue of predicting transfusion need among combat related trauma victims in a resource-limited setting. Identifying clinical factors predicting early need for transfusion can shorten the time from injury to transfusion and allow for marshalling of donors and transfusion resources. In resource-limited settings, it may be that the resources required to mobilize fresh whole blood for massive transfusions are too great to justify the benefit. In addition, access to laboratory equipment for measuring Hgb and INR are often not available, limiting the utility of the early predictor variables identified in this study. More research is necessary to help determine useful clinical variables that can be used to predict and plan for transfusion needs in military and civilian casualties.

By C. Ryan Keay, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO, USA

Medical lessons from terror attacks in Israel.

Singer AJ, et al. Journal of Emergency Medicine. 2007; 32:87-92.

In Israel, experience with mass casualty events caused by intentional bombings has led to the development of specific response protocols at the scene and in the ED.

Summary: Since September 28, 2000, when the latest wave of Intifada (or uprising) broke out among Palestinians in the West Bank and Gaza Strip, the Israeli medical system has gained significant experience in the management of mass casualty events resulting from intentional bombings. The authors characterize the lessons learned in Israel to assist readers in optimizing the care of mass casualty events in other locations. They propose that the first medical worker who arrives at the scene becomes the commander and relays information back to central command. It is only after additional medical teams arrive that care is rendered. Communication is via megaphones, while telecommunications companies block all non-critical cell-phone calls in the area. The primary survey focuses only on basic airway and external hemorrhage control, postponing even cervical spine immobilization. Evacuation is based on severity, and bystanders often transport non-critical patients. At the hospital level, the decision to activate a mass casualty protocol is often made using a low threshold with very little information from the field. A mid-level physician performs triage at the entrance to the ED, while a senior EP controls all patient flow in and out of the ED, and the most senior EPs and surgeons care for the critical casualties. Cross-trained nurses and personnel from other floors report immediately to the ED to facilitate the efficient transfer or discharge home of stable patients. Family, friends, and the media are prevented from entering the ED during the event. Later, a discharge area is established, allowing for final assessment, treatment, and documentation before patients are sent home. Finally, debriefing of personnel is performed as soon as feasible, usually within 1 hour of conclusion of the event.

Comment: This article is based on interviews with two key individuals, a paramedic educator, and the director of a major ED in Tel Aviv. Given the significant Israeli experience with multi-casualty incidents, the pool of informants could have been far broader. In addition, the study findings are only applicable to mass casualty events due to explosions in relatively developed medical systems. No attempt is made to generalize the concepts to biological, chemical, or nuclear events. Despite these limitations, the article provides an important step toward developing a civilian approach to mass casualty events, incorporating and modifying principals that have been developed and taught by military medical forces.

By Mark Foran, MD, Department of Emergency Medicine, Brigham and Women's Hospital, Boston, MA, USA

The International humanitarian system and the 2004 Indian Ocean earthquake and tsunamis. Telford J, et al. Disasters. 2007; 31(1):1-28.

Critically appraisal of the humanitarian relief efforts surrounding the 2004 Indian Ocean tsunamis identifies the need for more sophisticated coordination, greater emphasis on involvement of local populations, and more careful management of funds.

Summary: Two independent consultants reviewed five different thematic assessments performed by the Tsunami Evaluation Coalition (TEC) in order to compare international humanitarian standards and principles to actual performance. The authors comment on four major areas: funding, capacity and quality, recovery, and ownership. Based upon the TEC assessments, the authors conclude that despite generous funding, an exceptional response was not achieved. They found that the funding, which was not needs-based, often contributed to unsolicited and inappropriate aid; thereby supporting the proliferation of new actors with insufficient experience, decreasing incentives for the coordination of relief efforts, and ultimately decreasing the quality of interventions. The authors emphasize the importance of understanding local contexts and dynamics in order to effectively transition to recovery efforts led by the affected population, and to enhance local preparedness and reduce structural vulnerabilities. Ultimately, the authors conclude that there are two main reasons for the lack of exceptional response: the international humanitarian community putting its own agenda forward, rather than supporting local ownership by the affected people, and the limited surge capacity of the international humanitarian community.

Comment: As the authors point out, it is difficult to criticize the international humanitarian community. Nevertheless, the tsunami response, with its generous funding, offers the opportunity to identify and ameliorate problems in the provision of humanitarian aid in settings of mass casualties and natural disasters. Many of the issues the authors highlight, including inappropriate aid and lack of consultation with local communities, are common problems with humanitarian aid that need to be addressed. Other reviews have commented on the huge funding available for the tsunami response, out of proportion to most disaster relief funds. This paper provides a more comprehensive critique of the relief efforts and how they have fallen short of humanitarian standards. The authors point out shortcomings and recommend major changes in the approach to humanitarian aid; however, they do not offer much discussion on the positive aspects of the tsunami relief effort, or suggest methods to achieve the changes deemed necessary.

By Nichole Bosson, MD, Department of Emergency Medicine, Bellevue Hospital, New York, NY, USA

The Need for Global Planned Mobilization of Essential Medicine: Lessons from a Massive Thai Botulism Outbreak. Ungchusak K, et al. Bulletin of the World Health Organization. March 2007; 85(3):238-240.

In March, 2006, a large scale botulism outbreak in northern Thailand presented a case study in the international procurement of essential medicines.

Summary: The authors of this article review the details of the outbreak and focus on the response of public health workers and their effort to obtain botulism antitoxin from international sources. The outbreak was traced to consumption of home-canned bamboo shoots at a village religious ceremony. A total of 209 villagers were infected, and 134 (64%) villagers required hospitalization with 42 (20%) requiring mechanical ventilation. There were no deaths reported in this outbreak. The outbreak was detected one day after the ingestions when 10 patients reported to the Emergency Unit at Ban Luang district hospital with botulinum symptoms. The Thai public health ministry notified the World Health Organization (WHO) and requested antitoxin the day following detection. Antitoxin arrived on days 4 and 5 post-detection from the United Kingdom and the United States respectively. Further stocks of anti-toxin arrived several days later from Japan. The authors noted five policy issues crucial to international response in public health emergencies: 1) adequate health service infrastructure, 2) creation of communication and response systems with international partners, 3) establishment of strategic stockpiles of medications and supplies, 4) adoption of WHO International Health Regulations, and 5) international response to public health emergencies as a foreign policy.

Comment: The authors appropriately stress the need for creation of a collaborative international system to declare health emergencies and ensure the timely delivery of necessary medicines and supplies. Emergency physicians are critical in creation of this system, as the greatest benefit can be derived from early activation of such a system. Many villagers were spared a preventable death because ventilators were transferred to the province while local physicians awaited the international delivery of botulism antitoxin. With systems similar to those suggested by the authors, future epidemics can be quickly addressed by the timely arrival of medications as well as other critical care resources.

By Zachary D. Tebb, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO, USA

Earthquakes and Crush Syndrome Casualties: Lessons Learned from the Kashmir Disaster. Vanholder R, et al. Kidney International. 2007; 71:17-23

Implementation of dialysis treatment for acute renal injury during mass disasters requires extensive coordination and high technology inputs, providing a model for integrating needed specialty teams into relief efforts.

Summary: In this article, Vanholder and colleagues describe the creation of the Renal Disease Relief Task Force (RDRTF) and its subsequent efforts to address acute kidney injury (AKI) in the setting of massive humanitarian disasters. The article focuses on efforts employed by the RDRTF after the earthquake in Pakistani Kashmir that occurred on October 8th, 2005.

Challenges in the deployment of large assistance teams are outlined as are the percentage of identified patients with AKI requiring hemodialysis. The task force treated a total of 88 patients with AKI. Of these patients with AKI, 63% required dialysis with a 21% mortality rate among those receiving dialysis. The authors make recommendations to improve the capacity to transport heavy equipment through coordination of military and civilian agencies, and emphasize the importance of disseminating information on AKI, initial treatments, and the aims, goals, and methods of the RDRTF in order to enlist the aid of physicians and nurses already working within the relief effort.

Comment: This article gives an insightful look at the difficulties accompanying a large scale mobilization of international resources aimed at preventing mortality from acute kidney injury. Of the 73,000 victims of the Kashmir earthquake, however, it is unclear how many may have died as a direct result of AKI primarily because reliable data for most of the deceased is unavailable. It is likely that the number of victims with AKI identified by the authors grossly underestimates the true number affected. The degree of coordination necessary for the implementation of large-scale dialysis in geographically challenging circumstances as outlined in this article provides a model for integrating specialty specific teams into disaster relief efforts.

By Cappi Lay, MD, Department of Emergency Medicine, Bellevue Hospital, New York, NY, USA

Trends and challenges in international pediatric emergency medicine.

Walker DM, et al. Current Opinion in Pediatrics. 2007; 19:247-252.

There are many recent advances in the state of Pediatric Emergency Medicine and the international dissemination of the field, however many barriers exist. Organizing and formalizing the field of international pediatric emergency medicine will assist in the development of programming and research resources.

Summary: Pediatric emergency medicine (PEM) currently exists in a wide spectrum of settings ranging from resource replete to resource poor. Critical to efforts in improving International Pediatric Emergency Medicine (IPEM) care is the dissemination of knowledge and skills. Current trends in IPEM include international dissemination of PEM guidelines, pediatric-specific disaster relief training, supporting PEM research collaboratives, interest groups and training programs, and increasing numbers of training positions dedicated to PEM. Despite these advances, numerous barriers exist to the improvement and dissemination of IPEM. These include non-medical barriers, such as economic inequalities and inadequate funding for child health programs, as well other factors including geographical, political, cultural, and historical hurdles. Other obstacles to the advancement of IPEM include a lack of descriptive information and data regarding IPEM, unequal access internationally to information and resources, and the need to develop pediatric specific pre-hospital care and transport systems integrated into broader emergency medical services, so as to assure that the special needs of children are met. As IPEM grows and develops as a field, it will be crucial to establish further dialogue on the important issues addressed in this study. Crucial to a broader dialogue on IPEM is an effort to organize the field, including the establishment of an IPEM organizational body so as to formalize the processes outlined above and as well provide incentive to further work.

Comment: This descriptive study of trends in IPEM provides a valuable framework for understanding efforts underway within this field and barriers to its development. Efforts to organize and formalize IPEM programs within a broader organization or movement are justified and will likely improve coordination, collaboration, resource utilization, and prioritization of research and programming tasks within IPEM. Further work on these important issues is vital to the advancement of the care provided to children with serious illnesses and injuries globally.

By Joseph Becker, MD, Department of Emergency Medicine, Yale University, New Haven, CT, USA

Characteristics and Trends of Published Emergency Medicine Research.

Wilson MP, et al. Academic Emergency Medicine. 2007; 14:635-640.

Despite its critical role in health care delivery, EM research is poorly understood and under-funded.

Summary: In this retrospective observational study, the authors conducted an extensive PubMed database review of EM research trends, including National Institute of Health (NIH) support, countries of origin of the research, inclusion in EM journals, and impact of the articles. Articles published from 1996 to 2005 with the first author associated with an ED were included in the search. Of the 14,605 articles identified, 58% (8,550) originated in the U.S. and, of these, only 388 (4.5%) acknowledged NIH funding, the primary source of government funding for medical research in the U.S. The majority of these articles were published in non-EM exclusive journals. Aggregate impact of the journals was highest for those published out of the U.S., while mean journal impact was highest from France (U.S. ranked 10). The authors duly note the limitations of their study: utilizing PubMed as the only search source for articles, omitting articles if the first author was not associated with an ED (but following authors may have been), and the controversy surrounding determination of an article's impact factor.

Comment: This work effectively spotlights trends within academic EM research. The ED offers a unique and important window into the healthcare delivery system, yet, little is generally known about its research funding, trends, or impact. Despite its critical role in health care delivery, improvement, and reform, EM research does not appear to attract commensurate funding. For example, the NIH funds only 4.5 percent U.S. based EM research, significantly lower than for other specialties such as radiology. The authors leave unanswered many important questions: Who is funding the majority of the research? Is there a difference in subject or quality of studies that are published in EM versus non-EM journals? There is clear need for further investigation into the trends of EM research and as well the factors determining these trends.

By Michael Blake, MD, MPH, Department of Emergency Medicine, George Washington University, Washington, DC, USA