

DISASTER MEDICINE and PUBLIC HEALTH PREPAREDNESS

An Official Publication of the Society for Disaster Medicine and Public Health, Inc



IN THIS ISSUE:

- Building a National Model of Public Mental Health Preparedness and Community Resilience
- Training Volunteers in the Medical Reserve Corps
- Educating First Responders to Provide Emergency Services to Individuals with Disabilities
- Revision Japanese Disaster Medical Assistance Team (DMAT) Training Program
- Special Section: NCDMPH Workshop Report



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Disaster Medicine and Public Health Preparedness

December 2014

Vol 8/No 6

On the Cover

- 463** Disaster Turns Into Blessings
Raymond E. Swienton

Editorial

- 465** Fearbola
James J. James

Letters to the Editor

- 467** A Need for Tetanus Vaccination Before Restoration Activities in Fukushima, Japan
Tomohiro Morita, Masaharu Tsubokura, Tetsuya Tanimoto, Tsuyoshi Nemoto, and Yukio Kanazawa
- 469** Detecting Residual Fluorine 18 From a Medical PET-CT Procedure During Population Whole Body Counter Screening in Fukushima
Yoshitaka Nishikawa, Masaharu Tsubokura, Shigeaki Kato, Takeaki Ishii, and Yasutoshi Saito

Brief Reports

- 471** Impact of Natural Disaster Combined with Nuclear Power Plant Accidents on Local Medical Services: a Case Study of Minamisoma Municipal General Hospital after the Great East Japan Earthquake
Yuko Kodama, Tomoyoshi Oikawa, Kaoru Hayashi, Michiko Takano, Mayumi Nagano, Katsuko Onoda, Toshiharu Yoshida, Akemi Takada, Tatsuo Hanai, Shunji Shimada, Satoko Shimada, Yasuyuki Nishiuchi, Syuichi Onoda, Kazuo Momma, Masaharu Tsubokura, Tomoko Matsumura, Masahiro Kami, and Yukio Kanazawa
- 477** Experience from the Great East Japan Earthquake Response as the Basis for Revising the Japanese Disaster Medical Assistance Team (DMAT) Training Program
Hideaki Anan, Osamu Akasaka, Hisayoshi Kondo, Shinichi Nakayama, Kazuma Morino, Masato Homma, Yuichi Koido, and Yasuhiro Otomo
- 485** Perceptions of the Utility and Acceptability of an Emergency Child Minding Service for Health Staff
Jenine Lawlor, Richard Franklin, Peter Aitken, Bethany Hooke, Jeremy Furyk, and Andrew Johnson
- 489** Assessing Electronic Death Registration and American Red Cross Systems for Mortality Surveillance During Hurricane Sandy, October 29–November 10, 2012, New York City
Renata E. Howland, Ann M. Madsen, Leze Nicaj, Rebecca S. Noe, Mary Casey-Lockyer, and Elizabeth Begier

Original Research

- 492** Effects of the July 1997 Floods in the Czech Republic on Cardiac Mortality
Jana Obrová, Eliška Sovová, Kateřina Ivanová, Miloš Táborský, and Svatopluk Loyka
- 497** Behavioral Consequences of Disasters: A Five-Stage Model of Population Behavior
Sasha Rudenstine and Sandro Galea
- 505** Methods of Instruction of the Incident Command System and Related Topics at US Veterinary Schools
Joe S. Smith and Gretchen A. Kuldau
- 511** Building a National Model of Public Mental Health Preparedness and Community Resilience: Validation of a Dual-Intervention, Systems-Based Approach
O. Lee McCabe, Natalie L. Semon, Carol B. Thompson, Jeffrey M. Lating, George S. Everly Jr, Charlene J. Perry, Suzanne Straub Moore, Adrian M. Mosley, and Jonathan M. Links
- 527** Developing Strong Response Capacity: Training Volunteers in the Medical Reserve Corps
Jiali Ye, Stacy Stanford, Tahlia Gousse, and Robert J. Tosatto
- 533** Educating First Responders to Provide Emergency Services to Individuals with Disabilities
Susan B. Wolf-Fordham, Janet S. Twyman, and Charles D. Hamad

- 541** Comparison of Injury Epidemiology Between the Wenchuan and Lushan Earthquakes in Sichuan, China
Yang Hu, Xi Zheng, Yong Yuan, Qiang Pu, Lunxu Liu, and Yongfan Zhao
- 548** Radiology Diagnostic Devices Under Emergency Electric Power at Disaster Base Hospitals During the Acute Phase of the Great East Japan Earthquake: Results of a Survey of All Disaster Base Hospitals in Miyagi Prefecture
Shota Maezawa, Daisuke Kudo, Hajime Furukawa, Atsuhiko Nakagawa, Satoshi Yamanouchi, Takashi Matsumura, Shinichi Egawa, Teiji Tominaga, and Shigeki Kushimoto

NCDMPH Workshop Report Special Section

- 553** Special Section - NCDMPH Workshop Report
- 554** Introduction and Overview to the Report of Workshop: Learning in Disaster Health 2014
Kenneth Schor
- 555** Introduction
Kelly Gulley
- 556** General Session: *Welcome and Opening Remarks*
- 558** Opening Keynote
- 560** General Session: *Cognitive Science and Adult Learning: Implications for Disaster Health*
- 562** Breakout Session A: *How Are We Working Toward a Trained and Competent Disaster Health Workforce?*
- 564** Breakout Session B: *Disaster Behavioral Health: Highlights in Education and Training*
- 566** General Session: *Enhancing Recovery Through Learning, Education, and Training*
- 568** General Session: *Showcase of Practice: A Roundtable Networking Session*
- 571** Breakout Session A: *Extending Our Workforce Through Volunteers and Other Organizations*
- 573** Breakout Session B: *Learning to Build Resilience at the Neighborhood Level*
- 574** Closing Keynote
- 575** Final Remarks
- 576** Enhancing Learning Through Social Media
- 577** Poster Presentation Abstracts

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NCDMPH Workshop Report **SPECIAL SECTION**

Special Section- NCDMPH Workshop Report



Workshop attendees gather in the ballroom for a general session

The National Center for Disaster Medicine and Public Health's
2014 Learning in Disaster Health Workshop
September 9–10, 2014
Fort Myer, Virginia

Sponsors:

Uniformed Services University of the Health Sciences (USU)
Henry M. Jackson Foundation for the Advancement of Military Medicine (HJF)
National Center for Disaster Medicine and Public Health (NCDMPH)

Guest Editors: Kelly Gulley; Kandra Strauss-Riggs, MPH; Kenneth Schor, DO, MPH, FAAFP, Capt MC USN (Ret)



Introduction and Overview to the Report of Workshop: Learning in Disaster Health 2014

Kenneth Schor, DO, MPH, FAAFP

The National Center for Disaster Medicine and Public Health (NCDMPH) is pleased to share this report of our second Learning in Disaster Health workshop. Additional workshop materials can be found on our Web site (<http://ncdmpm.usuhs.edu/KnowledgeLearning/2014-09EducationWorkshop.htm>). Developing, hosting, and communicating the contents of this workshop help to partially fulfill our mission “to lead federal and coordinate national efforts to develop and propagate core curricula, education, training, and research in all-hazards disaster health.” The NCDMPH overtly crafted the agenda to champion the interdisciplinary nature of disaster preparedness, to employ proven practices and techniques from adult learning, and to select cutting-edge topics contributing to the development of a competent disaster workforce. The emerging evidence base for disaster health competency was foundational to the content of the workshop. The sharing of emerging knowledge was additionally fostered through a juried poster competition.

In building the content of the program, it was important to emphasize the relation of disaster preparedness to day-to-day health care operations, and this was effectively articulated by Brendan Carr, MD, MS. The emerging importance of the National Health Security Strategy (NHSS) as a shaping force to federal efforts and perhaps more so for aligning community-based efforts in building overall health system resilience was aptly described by Herbert Wolfe, PhD, in the Opening Keynote. The 2009 National Health Security Strategy as well as the draft 2015-2018 NHSS importantly and appropriately focus on developing a competent health professions workforce. Successful workforce development, particularly the application of knowledge, depends heavily upon a deep understanding of the sciences of adult learning (andragogy) and cognitive science, hence, the General Session lead by Marcia Hagen, PhD, and Kevin Thomas, PhD, MBA. Multiparticipant panels addressed key stakeholder perspectives in developing the competent disaster health workforce both generally and also specifically for disaster behavioral health. A multidisciplinary session focusing on the poorly studied but increasingly emphasized recovery phase of the disaster management cycle concluded the formal content of the first day.

The second day started with the announcement of the 3 top posters, which will be highlighted in NCDMPH webinars. A showcase comprising 13 different networking stations and promoting small group interaction and learning among participants was conducted. Two distinctly different panels were offered: one provided an interactive forum exploring the role of volunteers in expanding the capability and reach of the disaster health workforce, and the other focused on the increasingly recognized centrality of neighborhood social capital (connectedness) as foundational to community resilience. The workshop was closed by Arthur L Kellermann, MD, MPH, Professor and Dean, F Edward Hebert School of Medicine - “America’s Medical School,” Uniformed Services University of the Health Sciences (Bethesda, MD), who challenged the attendees with several tasks.

As shown by real-time observations and written feedback, attendees appeared to have found the workshop an engaging, energizing, and valuable learning experience. The staff of the NCDMPH looks forward to our third workshop, tentatively scheduled for 9–10 September 2015 at the same location, the Fort Myer Officer’s Club in Arlington, Virginia.

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Introduction

Kelly Gulley

In an effort to enhance education, training and learning in the disaster health community, the National Center for Disaster Medicine and Public Health (NCDMPH) gathered experts from around the nation in Fort Myer, Virginia, on September 9 and 10, 2014 for the *2014 Learning in Disaster Health Workshop*. This special section of *Disaster Medicine and Public Health Preparedness* summarizes the presentations at this workshop and provides links to presenter biographies and PowerPoint files, which are available online. These presentation summaries are provided in an effort to build a nation of resilient communities with a competent health workforce prepared to respond and mitigate all-hazards disasters.



The entrance of the Fort Myer Officers' Club, Fort Myer, VA

General Session: *Welcome and Opening Remarks*

Presenters:

Kenneth W. Schor DO, MPH, Acting Director, NCDMPH

Brendan G. Carr, MD, MS, Director, Emergency Care Coordination Center, Office of Policy and Planning, Assistant Secretary for Preparedness and Response

Session summarized and reported by:

Elizabeth Brasington, Communications & Administrative Assistant, NCDMPH

Overall Key Session Points:

- The 2014 Learning in Disaster Health Workshop (LDH '14) was a unique opportunity to engage in interagency conversations surrounding education and training in disaster health.
- Dr. Schor highlighted the importance of competency sets and their application to the NCDMPH's work
- Dr. Carr emphasized the importance of disaster response preparedness. Otherwise, performance on the day of the event may suffer.

Session Summary:

The opening remarks session served to welcome workshop attendees to the 2014 Learning in Disaster Health workshop held at the Fort Myer Officers' Club in Fort Myer, Virginia, on September 9-10, 2014.

Dr. Schor oriented the group to the workshop by sharing 2014 Learning in Disaster Health objectives:

- Explore concepts of adult learning in the context of disaster health.
- Highlight the implications of the latest research and practice for disaster health learning and performance and identify key areas for future research.
- Present a unique opportunity for collaboration among disaster health, human resource development and adult education professionals.
- Identify potential solutions for maximizing learning in a resource-constrained environment.
- Disaster education needs to be incorporated into day-to-day operations.

Dr. Schor then segued into an introduction of the National Center for Disaster Medicine and Public Health's (NCDMPH) founding, mission, and current work. NCDMPH was founded in 2008 by Homeland Security Presidential Directive-21. Additionally, the Center is an integral part of the National Health Security Strategy due to its focus on the disaster health workforce. NCDMPH is also a part of the Uniformed Services University of the Health Sciences (USU) and the two organizations mutually support each other's missions.

Dr. Schor summarized the wealth of evidence-based learning resources the Center has produced.

The National Center also considers field research an integral part of its mission. These include research regarding disaster recovery after Superstorm Sandy and Hurricane Irene as well as disaster education and training for health care coalitions. The National Center is also working with the Johns Hopkins Bloomberg School of Public Health and the State of Maryland's Department of Health and Mental Hygiene on a CDC grant that is focused on enhancing disaster public health worker's sense of efficacy toward Hurricane Sandy Recovery. NCDMPH is specifically tasked with developing an educational intervention curriculum for disaster public health workers.

The National Center also applies disaster health core competencies in the production of its "Curriculum Recommendations for Disaster Health Professionals." Educators and trainers working with health professionals can use this resource to tailor their disaster education curriculum in the following topics: the pediatric population,

disaster behavioral health, and the geriatric population. A curriculum recommendation focused on public health law has just been released. All the curriculum recommendations are created in collaboration with subject matter experts and are peer reviewed.

Responding to current events with relevant resources is an important task to the National Center. After the 2013 Boston Marathon Explosion, NCDMPH recognized a teachable moment in the aftermath and produced a resource called “Resilience through Learning” which connects disaster health educators, trainers, and responders with links to relevant learning materials. Other “Resilience through Learning” topics include tornadoes, hurricanes and typhoons, wildfires, earthquakes, and winter weather. The National Center will also be developing a page on heat wave related resources.

NCDMPH currently runs a monthly webinar series on disaster health learning topics. The poster winners from Learning in Disaster Health 2014 will be invited to present their original research. The most recent webinar provided insightful knowledge on gender-related disaster health recovery issues.

Dr. Brendan Carr continued the conversation by discussing the Emergency Care Coordination Center (ECCC). The ECCC and the National Health Security Strategy (NHSS) share a common mission, which is the education and training standards in disaster medicine and public health. Overall, the ECCC is focused on helping the nation build preparedness.

Dr. Carr emphasized the importance of constantly incorporating daily disaster education into the everyday health system. Furthermore, there is no “one size fits all” in regards to disaster education. Each member of the health workforce needs the right size of information for the situation. We also need to start expanding our idea of the disaster health workforce. For example, what about the role of the front desk assistant in an office? How does that role affect the spread of infectious disease when patients are coming in and out of the office? When discussing disaster education, the health professions community needs to examine what disaster education looks like across the spectrum.

The session concluded with the quote from the Assistant Secretary for Preparedness and Response, Dr Nicole Lurie, “If we can’t do it day to day, we can’t do it on game day.” This philosophy needs to be integrated into every level of the educational framework of the disaster health workforce. The ECCC and the National Center both provide resources, methods, and recommendations to strengthen this framework and increase the preparedness of the disaster health workforce.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.136>

Opening Keynote

Presenter:

Herbert Wolfe, PhD, Director, Policy and Strategic Planning, Office of the Assistant Secretary for Preparedness and Response, US Department of Health and Human Services

Session summarized and reported by:

Elizabeth Brasington, Communications & Administrative Assistant, NCDMPH

Overall Key Session Points:

1. The National Health Security Strategy is a key document in shaping the future of disaster health education and training, as well as the security of the nation. The NHSS implementation plan provides the means to execute the strategy.
2. A challenge in incorporating the NHSS into the nation's health workforce is that there is currently inadequate incentive to do so. Workforce attendees were invited to consider incentives and communicate them to the NHSS.
3. When considering the delivery of these objectives, it is important to consider the audience. The image of an optimal workforce will differ depending on the demographics of the audience.

Session Summary:

The session set out to define national health security, the National Health Security Strategy, and ways that workshop participants can participate in shaping the execution of NHSS objectives. The session encouraged workshop attendees to start thinking about how to apply principles from the NHSS in their local environment or work place.

The speaker defined national health security as “a state in which the Nation and its people are prepared for, protected from, and resilient in the face of health threats or incidents with potentially negative health consequences.” More broadly, national health security is both everything we do during a disaster in addition to what we are doing daily to keep prepared. In addition, national health security is the mitigation of negative health consequences.

The National Health Security Strategy is one of the vehicles that promote national health security. The NHSS is considered a three-fold strategy with the following goals:

- Improve the nation's ability to protect people's health in the case of incidents with potentially negative health consequences.
- Create an outline to guide the nation and facilitate collaboration among stakeholders to achieve national health security.
- Inform policies, resources, programs, and activities to improve national health security.

The strategy is not only a federal plan, but is intended to include everyone in the disaster sphere. Dr Wolfe encouraged attendees to use the NHSS as a tool to justify proposed activities for their communities or workplaces. The NHSS is not meant to occur in a vacuum but rather be shaped by a variety of stakeholders.

The history of the NHSS dates back to 2006 with the Pandemic and All-Hazards Preparedness Act, which required the Secretary of HHS to submit, every 4 years, a Strategy, an implementation document, and an evaluation of progress. In 2013, the Pandemic and All-Hazards Preparedness Reauthorization Act (PAHPRA) of 2013 reauthorized the NHSS program to strengthen national preparedness and response for public health emergencies. The 2010–2014 NHSS defined national health security goals, established a vision and two goals for national health security and then strategic objectives, and suggested 50 draft operational capabilities. The NHSS Implementation Plan (2012–2014) identified specific activities to achieve desired outcomes consistent with goals and objectives identified in the NHSS.

The following five principles guided decision making for strategic direction, selection of priorities, and implementation approach for the NHSS 2015–2018:

- Strategic alignment
- Fidelity to the evidence base
- Continuous quality improvement
- Community involvement
- Maximum benefit

The NHSS Strategic Objectives include

1. Build and sustain healthy, resilient communities.
2. Enhance the national capability to produce and effectively use both medical countermeasures and nonpharmaceutical interventions.
3. Ensure health situational awareness to support decision making before, during, and after incidents.
4. Integrate public health, health care, and emergency management systems based on a highly competent workforce.

The speaker noted that, when approaching these objectives, it is important to consider the disparity between urban and rural health response and facilities. For example, the speaker referred to one rural community that issued a rabies notification via Facebook. This contrasts with what the reaction would be in an urban community with a large staff. These two health departments would need training aligned to their specific needs owing to their difference in size and location.

The session concluded with the speaker emphasizing the role of incentivizing the workforce when moving forward to build national health security. How do disaster health workers and educators prepare the optimal workforce? How do we incentivize them into pursuing education and training? The speaker invited attendees to tweet their ideas on how to incentivize collaborators and/or volunteers in support of national health security to #NHSS.

Several conversations occurred during the question and comment period that were of note. A commenter stated that a challenge in the integration of the National Health Security Strategy is that the NHSS is directly tied to Washington, DC. Although it receives a lot of focus within DC, outside health departments either do not know about it or do not consider it a priority. When moving forward, it is important to engage in communications and marketing at the social personal level. With this type of effort, the NHSS may receive more consideration.

The speaker noted in response that there is currently discussion on picking a pilot community in the rural United States and engaging them on the NHSS. This strategy could be built with the FEMA office in that particular region. Other key comments discussed the importance of day-to-day disaster resilience, the demand for a national nursing workforce and education framework, and the challenges in integrating the NHSS into medical school curricula.

The opening keynote summarized the goals of the National Health Security Strategy and the challenges in regards to achieving them. The speaker emphasized the keys to success would be through incentivizing the workforce as well as marketing and communicating about the NHSS adequately. Furthermore, the session clearly articulated that the achievement of these goals was impossible without coordination between federal and nonfederal stakeholders.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.137>

General Session: *Cognitive Science and Adult Learning: Implications for Disaster Health*

Presenters:

Moderator - Kenneth W. Schor DO, MPH, Acting Director, NCDMPH

Marcia Hagen, PhD, Associate Professor, Management, Doctorate in Business Administration
Director, College of Management, Metropolitan State University

Kevin Thomas, PhD, MBA, Program Director, Boston University Healthcare Emergency Management

Session summarized and reported by:

Hillary Craddock, MPH, Research Associate, NCDMPH

Overall Key Session Points:

1. Principles of cognitive neuroscience can help inform adult education in order to improve learning and performance.
2. Knowledge can be structured in such a way to make use of the way that the brain organizes information.

Session Summary:

The purpose of this session was to discuss how principles of cognitive neuroscience inform learning. These scientific principles are then applied to show how a deeper understanding of these principles can result in more effective education and training for adults.

This session was divided into two parts. In the first part, Speaker 1 addressed how cognitive neuroscience can inform adult learning, specifically andragogy (an adult learning theory from the 1970s that is the most widely applied and used theory in this regard). The speaker began by addressing the fact that we need to use cognitive neuroscience to inform adult learning and teaching. She introduced the four assumptions of andragogy. The assumptions are that adults learn best when instruction is self-directed, includes prior experience, relates to personal and professional roles, and has immediate application.

She went on to explain that these assumptions of andragogy could then be linked to principles of cognitive neuroscience. For each of the assumptions, she went through how these assumptions link to the learning environment and cognitive neuroscience principles. For example, when assuming that adults are self-directed learners, it is suggested that adults 1) fill multiple roles at work and home and make education choices based on these roles, 2) need space and choice to make decisions, and 3) become increasingly self-directed in goal formulation, resource management, and diagnosing their own learning needs. In cognitive science, self-direction allows for connections between self and the external environment. These interactions happen between the fronto-parietal and cortical midline areas of the brain, and when they occur these connections make application of the knowledge in real-life situations more likely.

She then utilized a flow chart to show how the physical area of the brain, cognitive process, and andragogical assumption all linked together and were best supported by certain types of educational techniques. Overall, there are many examples of good adult learning techniques.

The second part of the presentation focused on how to apply the principles of cognitive neuroscience that discuss how the brain processes information in order to improve learning. Speaker 2 began with a background in the learning process, specifically, how the cybernetic sequence provides a framework for interactions to generate knowledge and for that knowledge to then go on to generate beliefs.

He then went on to discuss how the brain abstracts features from what it observes in the environment in order to build internal models of these systems. This cybernetic sequence then feeds into andragogy, as andragogy represents

how these knowledge structures are updated. Then utilizing a systems science approach, he discussed how internal models are a series of elements (in this case, persons, places, and things) defined by rules and relationships that connect the elements and define how they interact in a context or background space. He then went on to use flow diagrams to go through the Cycle of Pedagogy and the Progression of Inquiry and then discuss how these two processes adapt internal models.

He used the example of the grocery store to show how elements, rules, and background all work together in a system in our brains. He asked the audience to consider, if you were going grocery shopping, what the background space, elements, rules and relationships would be, and what you would be measuring and why. The audience then gave their answers. The attendees were then broken out into groups to discuss the same question, from the perspective of needing to transport and treat all the victims from the Boston Marathon bombing. Each group had an aspect of this system: time to transport the victims, surgery, triaging, and classifications of medical personnel needed. For example, in the surgical group, the background is the facility on the day of the bombing, specifically, the surgical suite. The elements are the surgeons, nurses, and technicians, and “anyone who will touch a patient from the door to the operation room.” The rules are the systems that are in place prior to the disaster, for example, how they are notified of the event so they can activate disaster protocols, call in extra staff, and stop elective operating procedures before they start to make space and equipment available for victims.

Through these examples and exercises, the audience was able to gain a greater understanding of the principles of cognitive neuroscience and how those principles can inform adult learning. A greater understanding of the science behind adult learning, which includes disaster education, will lead to a better utilization of education and training opportunities.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.138>

Breakout Session A: *How Are We Working Toward a Trained and Competent Disaster Health Workforce?*

Presenters:

Moderator - Jack Herrmann, MEd, NCC, LMHC, Senior Advisor and Chief, Public Health Programs, National Association of County and City Health Officials (NACCHO)

Jennifer Freeland, State Volunteer Coordinator, Virginia Department of Health

Lori Upton, RN, BSN, MS, CEM, Director of Preparedness, SouthEast Texas Regional Advisory Council

Phillip Coule, MD, MBA, FACEP, Chairman of the Board of the National Disaster Life Support Foundation, Professor and Vice-Chairman of Clinical and Business Operations, Department of Emergency Medicine and Hospitalist Services, Medical College of Georgia, Georgia Regents University

Tener Goodwin Veenema, PhD, MPH, MS, RN, FAAN, Associate Professor, Johns Hopkins School of Nursing, Center for Refugee and Disaster Response, Johns Hopkins Bloomberg School of Public Health, President & Chief Executive Officer, Tener Consulting Group, LLC.

Session summarized and reported by:

Kandra Strauss-Riggs, MPH, Operations Director, NCDMPH

Overall Key Session Points:

1. This session outlined the following key challenges faced in educating and training the health workforce on disaster issues: time, lack of integration into core health professions training, keeping curricula current, applying lessons learned.
2. The session proposed ways to overcome these challenges including the following: add disaster health information to professional certification boards, provide a variety of online platforms, and incentivize it.

Session Summary:

The *How Are We Working Toward a Trained and Competent Disaster Health Workforce?* session consisted of a moderated discussion where speakers outlined their approaches to disaster health education and training, followed by a question and answer session with the audience. The moderator framed the discussion by using his background in public health disaster response and posed key questions that he viewed as challenges for those preparing the workforce. How do you establish a response to get the right people, at the right time, with the proper skills and abilities for an effective response? Are we training people to be confident and competent? What are we training people to do, and is it really what is needed? How do we train for long-cycle disasters, such as infectious disease outbreaks? He noted that a wealth of material and information is available to everyone in our field but you can read it all and you still may not understand how the system works and how all the pieces fit together.

Speaker 1 emphasized the need to ensure that disaster education is embedded in health professions training curricula and that there are additional elective opportunities for students as they move through their pre-professional training. Once they are in the workforce, it is very difficult to engage health professionals in training on these issues.

Speaker 2 noted the extremely truncated amount of time for training nurses as accelerated programs are increasingly adopted. They need evidence-based, competency-driven, high-quality content that can be delivered in a variety of formats at different points in their training and career.

Speaker 3 discussed the standardization of training and monthly drills across a complex, large health care coalition with a leadership structure that prioritizes the coalition's training needs.

Speaker 4 outlined the challenges faced in training the volunteer section of the workforce and the need to engage partners broadly, share strategies, and measure outcomes through drills and exercises.

An audience member suggested that the federal partners give the locals 1 to 5 training metrics to use as they prioritize training for their workforce.

In discussion among the speakers and moderator about “lessons learned,” it was clear that the translations of lessons from each disaster are not being well applied to the next event and we need to better leverage the lessons in each community.

Keeping curricula fresh and offering a spectrum of opportunities, particularly for newer professionals, are ongoing challenges. The moderator suggested that leveraging social media platforms and other technology could assist with both, but we need to remain mindful that a digital divide still exists. While our content is amenable to delivery in small pieces, we do not have a framework for doing that.

Audience members noted that getting disaster health knowledge on the professional certification boards and as continuing education units (CEUs) to maintain licensure are key drivers for education and training in this space and there are efforts underway to advocate for that. There was panel discussion about the need to incentivize the education, in addition to the “stick” efforts, such as requiring professionals to demonstrate knowledge of disaster health concepts in order to pass their board certification exams.

In discussion, it was noted there is a push/pull between educating individuals in a specific role to perform particular duties in a response when there may be months or years between their training and their need to perform. There is concern about retaining knowledge and ensuring that it is most relevant for a person’s role, and speakers cautioned that just-in-time may be too late in some events.

The session closed with the moderator asking each speaker where we should be headed in disaster health education and training. Speaker 4 noted that health professionals should be engaged in creating operational teams with specific skills. Speaker 3 advocated for investment in initial, basic education and then ensuring funding for training once health professionals are in the workforce. Speaker 2 described a need to change the culture of preparedness by requiring that professionals demonstrate disaster health knowledge on qualification tests, like boards. Finally, the moderator encouraged the disaster health workforce to be visionary and think about flexible innovation.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.139>

Breakout Session B: *Disaster Behavioral Health: Highlights in Education and Training*

Presenters:

Moderator - Rachel E. Kaul, LCSW, CTS, Senior Public Health Analyst, Office of the Assistant Secretary for Preparedness and Response, Office of Policy and Planning, Division for At-Risk, Behavioral Health & Community Resilience

Gerard A. Jacobs, Ph.D., Professor and Director, Disaster Mental Health Institute, University of South Dakota
Joseph A. Barbera, MD, Associate Professor of Engineering Management (Crisis & Emergency Management), Clinical Associate Professor of Emergency Medicine, Co-Director, Institute for Crisis, Disaster, and Risk Management, George Washington University

Joshua C. Morganstein, MD, CDR, USPHS, Scientist, Center for the Study of Traumatic Stress, Assistant Professor, Department of Psychiatry, Uniformed Services University of the Health Sciences

Session summarized and reported by:

Lauren Walsh, MPH, Senior Research Associate, NCDMPH

Overall Key Session Points:

1. The evolution of available education and training in the Disaster Behavioral Health (DBH) space has been significant.
2. The *Curriculum Recommendations for Disaster Health Professionals: Disaster Behavioral Health* document is available online at ncdmph.usuhs.edu.
3. Issues for guiding education in the Disaster Behavioral Health space were raised, with a focus on responder self-care and the role of response leadership.
4. The final panelist presented the available degree programs and certificates at the University of South Dakota, as well as the customized community-based Psychological First Aid training available to local response personnel.

Session Summary:

The *Disaster Behavioral Health: Highlights in Education and Training* session consisted of four brief Panelist presentations followed by a moderated discussion and question and answer session from the audience. Each panelist gave a brief description of their training, background, and experience in disaster behavioral health, and in doing so gave the audience an idea of the evolution of the field over the last few decades. All panelists described the advancements in knowledge that have been achieved, as well as the successful integration of disaster behavioral health into the overall disaster health agenda.

The moderator described the evolution of available education and training in the disaster behavioral health space. She pointed out the advancements made in prioritizing this topic and suggested that while there are now many trainings available for both professionals and community members, there is no consensus on who should be targeted for training and what the best educational approaches may be.

Speaker 1 described the *Curriculum Recommendations for Disaster Health Professionals: Disaster Behavioral Health* document, which is available online at ncdmph.usuhs.edu. This tool is an overview of the topics, learning objectives, and trusted resources that educators may wish to integrate into a training curriculum on disaster behavioral health.

Speaker 2 discussed issues for guiding education in the disaster behavioral health space, with a focus on responder self-care and the role of response leadership in helping to manage stress and recognize symptoms in response workers. He described the origins of responder stress as being a combination of insecurity of doing the job well and being exposed to life-threatening conditions and posited that pre-event intervention and expectations management could help to establish realistic expectations of self and avoid the ad hoc action that introduces uncertainty and stress.

The final panelist presented the available degree programs and certificates at the University of South Dakota, as well as the customized community-based Psychological First Aid training that is available to local response personnel.

The first topic of the moderated discussion was about how best to evaluate the programs and trainings that are offered. Multiple panelists used simulations and exercises, including “full stress” exercises, as a way to get students and response workers to demonstrate knowledge and capability. The discussion then turned to current evidence gaps in disaster behavioral health and where to prioritize resources. Panelists agreed that disaster research is a challenge because of the heterogeneity of each situation that makes it difficult to come to consensus across the field. There is a growing notion about what is encompassed within disaster behavioral health, and one panelist suggested that certain concepts lend themselves well to clinical mental health workers who could be dually trained to provide services in disasters. Another Panelist pointed out the lack of funding for preventive research also stymied progress, as researchers are often trying to stretch empirical research done on just a few people per disaster event.

The session continued with a hearty discussion of critical incident stress debriefing (CISD). The panelists seemed to agree that while CISD is still used in practice, it is more due to the indoctrination of the technique into certain response cultures than it is due to evidence to support its effectiveness. It was also clarified that CISD is *not* equivalent to after action reporting and information sharing post-event, which were highly recommended. The discussion closed on the topic of reaching individuals whose culture may stigmatize accessing mental health care and reaching care providers who are unfamiliar with concepts of disaster behavioral health. One panelist described the value of educating care providers early in their careers about the importance of preparing for care provision in a catastrophic event. Another panelist suggested finding individuals in leadership positions who have been personally affected by disaster and using them as a conduit into local communities. Another panelist cautioned that we must also recognize who may be affected beyond the obvious, as it is not infrequent for people to feel partially responsible or in some way insecure about their own actions relative to the event; effects also extend to the family of the response workers.

Overall, the session was a comprehensive introduction to the history and current state of disaster behavioral health and included rich discussion on many of the most pressing needs for the field, including a greater evidence base, increased inclusion of training and education into the health professions, reduced stigma in local communities, and greater professionalization of the disaster behavioral health workforce.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.140>

General Session: *Enhancing Recovery Through Learning, Education, and Training*

Presenters:

Moderator - Daniel P. Aldrich, PhD, Associate Professor, University Faculty Scholar, Purdue University
Jenny Wiley, MSW, LCSW, Coordinator, Disaster Services, Missouri Department of Mental Health
Joseph A. Marcellino MPH, CHE, Associate Director, Emergency Management, Coney Island Hospital
Joseph Reppucci, MSEM, Acting Hospital Preparedness Program Coordinator, Center for Emergency Preparedness and Response (CEPR), Rhode Island Department of Health
Peter B. Gudaitis, MDiv, President, National Disaster Interfaiths Network (NDIN), Chief Response Officer, New York Disaster Interfaith Services (NYDIS) Adjunct Professor, Hartford Seminary, Research Associate, University of Southern California-Center for Religion & Civic Culture

Session summarized and reported by:

Hillary Craddock, MPH, Research Associate, NCDMPH

Overall Key Session Points:

1. Effective and timely education and training of those involved in response and recovery is critical.
2. Planning and preparing for recovery before the disaster happens is important.

Session Summary:

The purpose of this panel was to bring together people who had been involved in recovery after large, recent disasters in order to share their experiences. This panel session centered on questions posed by the moderator that asked the panelists to explain different challenges, successes, and lessons learned around disaster recovery.

The moderator asked for the biggest mistakes and the biggest lessons learned after large-scale disasters like Hurricane Katrina and Superstorm Sandy.

Speaker 1 talked about how people with access and functional needs, children, and pets were left behind. She said that reunification in those contexts was a big problem, as well as a large lesson learned.

Speaker 2 discussed the reunification, resettlement, and support of individuals displaced by Katrina. He also noted that after the last two hurricane events, recovery needs to be an important aspect of planning. He also noted that dealing with staff during disasters is also a critical concern; his facility sent staff with the evacuated patients to support continuity of operations. His main lesson learned was to pre-plan and to identify needs ahead of time. Teams from the hospital ensured continuity of operations by setting up mobile clinics and mobile vans. He went on to say these successes were due to training. At his facility, success comes down to training at the individual, as a family member, level. He said that if the worker and their family are prepared, then they are prepared to come in to work at the facility.

Speaker 3 discussed Superstorm Sandy damage in southern Rhode Island. He observed a lack of knowledge of how the health care system handles disaster response and recovery among non-health care groups. Local entities had a major issue in the lack of understanding of how to evacuate and shelter elderly nursing home patients. As a result, they have memoranda of understanding among state nursing homes to facilitate safe evacuations. Additionally, they have taken steps to invite local emergency managers to the state table before a disaster so they know how these procedures are done and so they can better assist in the process. Moving forward, they are talking to facilities to discuss what the state requires from them in recovery.

Speaker 4 discussed how after 9/11, the city set up a "care for the caregivers" program which included faith leaders. His agency also ran a program for disaster case managers and mental health personnel, which provided mental

health care for those roles as they transitioned out of recovery. His agency recommended that this be repeated in the future, and it was not. This made it a challenge to retain caregivers during the Sandy recovery. Using congregations to check in with elderly or infirm congregants was a success, as it added to community resilience. This program was also not picked up after Sandy, and there were poor outcomes among the elderly. Speaker 4 went on to talk about things that went well. After Katrina, it was a huge help for families resettled into his area to be connected with traditional support networks (ie, faith communities). He mentioned several examples of good relationships between hospitals and faith organizations in disasters.

The moderator asked panelists how these lessons learned have been put into practice for future disasters. Think about your facility's short-, mid-, and long-term plans, and then think about what your community will need in response and recovery. It simply comes down to planning and preparedness. Take what you've learned, put it to process, and make it actionable. Speaker 2 talked about how shelters now have a state team to assess a person with potential access and functional needs. They have started to work with emergency managers to help them understand recovery beyond the immediate "flashing lights" issues. Speaker 3 suggested that a relationship or awareness of national volunteer organizations would be helpful.

The moderator posed a question about decentralized vs centralized approaches to response and recovery. Is decentralized better than centralized? The moderator said that in a large, Katrina-scale disaster, a centralized approach is the only way it would work. However, in most disasters, "local is king" and the community steps up to handle their disasters and ask for resources when necessary. Speaker 2 echoed that all responses start local, and in a home rule state, it can stay local if the municipality demands it. As a result, state organizations aim to build trust with the locals. They aim to be a conduit, and help the locals, rather being a barrier. Speaker 3 said that both happen simultaneously, especially because people trust faith leaders. He noted that after 9/11, people reported trusting religious leaders more than anyone else. He noted a need to know how to interact with religious leaders and work with them.

The moderator then went on to ask what, during a time of budget cuts, we should do with the money we do have. Speaker 1 noted needs for behavioral health, reunification planning, and specific recovery strategies, since recovery often is ignored or forgotten. She also noted a need for greater alignment; human services need to be integrated into emergency management, CMS, Hospital Preparedness Program, and accreditation requirements need to be aligned, and there needs to be coordination among the different departments of HHS. She noted that all health care facilities need a funding base for disaster issues, as well as support in recovery planning. Speaker 1 stated there needs to be the budget for a dedicated public health emergency manager for each health care facility. Speaker 3 discussed a need for care for the caregiver, self-care, disaster case management, and mental health first aid training that communities are "starving for" and that they would trust these materials if they came from a local hospital. He also stated that hospitals could utilize local faith-based organizations in drills and exercises for no additional cost.

The moderator asked how we should be training the new generation of disaster emergency managers and first responders? The moderator stated that behavioral health and self-care training across diverse professions needs to start at the college level for those in medical, first response, and law enforcement fields. She stated that more virtual learning opportunities are important, both to take advantage of current technologies and because travel budgets are decreasing. A clearinghouse is needed for disaster behavioral health, social services, and human services information. Better alignment between ESF6 and ESF8 is also an important need so that emergency managers understand the needs of health care in recovery. He noted the need for health care coalition involvement in pre-disaster recovery planning. Speaker 4 identified the need for training on religious literacy and competency, how faith communities are structured, and how to reach out and work with religious traditions other than your own. If you work with religious organizations and rely on them, your continuity of operations plan needs to extend to them. Social workers, caseworkers, and clergy all need disaster-specific training.

The moderator then opened it up to questions. The panel was asked to identify the vitals of recovery. Speaker 3 said his definition would be every impacted family becoming self-sufficient. Speaker 2 stated that recovery for the health care system was building back stronger. The moderator said that getting back to continuity of operations was the important short-term goal, and in the long-term, the facility and the community need to be sustainable. The moderator then noted that recovery is different for every community.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.141>

General Session: *Showcase of Practice: A Roundtable Networking Session*

Presenters:

Moderator - Brian Altman, PhD, Education Coordinator, HJF, NCDMPH

Showcases Include:

1. Daniel Homsey, Director of Neighborhood Resilience, City Administrator's Office of the City & County of San Francisco
2. Joan P. Cioffi, PhD, Associate Director, Office of Public Health Preparedness and Response, Centers for Disease Control and Prevention
3. Joanne McGovern, LTC (RET), Yale School of Public Health
4. Mary Casey-Lockyer, MHS, BSN, RN, CCRN, Disaster Health Services Program Development, American Red Cross
5. Lori Upton, RN, BSN, MS, CEM, Director of Preparedness, SouthEast Texas Regional Advisory Council
6. Jeff Schlegelmilch, MPH, MBA, Managing Director for Strategic Planning & Operations, National Center for Disaster Preparedness, Earth Institute, Columbia University
7. Mark X. Cicero, MD, FAAP, Assistant Professor of Pediatrics, Director, Pediatric Disaster Preparedness, Yale Pediatric Emergency Medicine, Yale School of Medicine
8. Nancy C. Gathany, PhD, MEd, Acting Branch Chief, Educational Design, Continuing Education, and Learning Services Branch, Centers for Disease Control and Prevention
9. Robert Bradley, Distance Learning Coordinator, Virginia Department of Health
10. Terry Sapp, EMT, CHEP, Emergency Preparedness Coordinator, Operations Bureau, Baltimore County Health & Human Services
11. Victor H. Cid, MS, National Library of Medicine, Disaster Information Management Research Center
12. Joshua C. Morganstein, MD, CDR, USPHS, Scientist, Center for the Study of Traumatic Stress, Assistant Professor, Department of Psychiatry, Uniformed Services University of the Health Sciences
13. Geraldine Hirsch Fitzgerald, MSN, RN, CPNP, IBCLC, ILCA Liaison to the United Nations NGO Committee on UNICEF

Session summarized and reported by:

Kelly Gulley, Project Associate, NCDMPH

Overall Key Session Points:

1. Disaster health experts around the country discussed their innovative education and training practices.
2. Attendees were able to learn from experts about their education and training practice in hopes they would apply what they learned to their own disaster health work.

Session Summary:

This 90-minute session was structured to have presenters seated individually at round tables and attendees were able to choose the tables and topics of interest to them. Presenters highlighted a disaster health education and training practice from their organization, which is summarized below after each speaker's name. Several times during the session, attendees moved as a group to another table of their choosing while speakers remained at their tables.

1. Daniel Homsey, Director of Neighborhood Resilience, City Administrator's Office of the City & County of San Francisco
Showcase Description: Recognized by FEMA and the Centers for Disease Control and Prevention as a national best practice, San Francisco's Neighborhood Empowerment Network (NEN) is an innovative, even disruptive, example of the Whole Community Approach for disaster resilience. By fusing together classic emergency management goals with the very latest in social media, human-centered design, and open data/asset mapping,

the NEN's Empowered Communities Program is offering a new and inspiring path for local, state, and national stakeholders to follow towards a more resilient and prosperous future.

The NEN's Empowered Communities Program deploys the expertise and resources of organizations such as Nextdoor, Neighborland, Google, and the MIT Urban Risk Lab in alignment with the assets of over 100 city agencies, nonprofits, universities, and philanthropic organizations to support communities as they design and implement culturally competent resilience action plans.

2. Joan P. Cioffi, PhD, Associate Director, Office of Public Health Preparedness and Response, Centers for Disease Control and Prevention
Showcase Description: Competency Models in Public Health: Results from the Field. Discussion includes how the public health preparedness and emergency response core competency model is being applied at state, tribal, and local agencies; in schools and programs of public health; and through partnerships with TRAIN Learning Management Network and HRSA Public Health Training Centers. Data on adoption and use is presented. Participants will share ideas on accelerating dissemination, measuring impact, and how to coordinate federal efforts on competencies with the revised National Health Security Strategy (2014).
3. Joanne McGovern, LTC (RET), Yale School of Public Health
Showcase Description: This roundtable discussion will address the Yale-Tulane ESF-8 Special Reports created and disseminated by the Yale-Tulane ESF-8 Planning and Response Program. Successes and challenges, from an educational perspective, will be discussed in regards to these special reports.
4. Mary Casey-Lockyer, MHS, BSN, RN, CCRN, Disaster Health Services Program Development, American Red Cross
Showcase Description: American Red Cross will discuss the various forms of educational methods and content that the organization provides for both the volunteer and the community. Red Cross has developed a series of mobile phone applications, including First Aid, Hurricane, Tornado, and Earthquake that can alert users to an event and instruct them in safety responses. The organization also utilizes online and blended learning techniques for volunteer disaster responders, including nursing students. Third grade students in the community are educated in disaster response through the Pillowcase Project, which offers a unique learning experience for the child and ultimately the child's family.
5. Lori Upton, RN, BSN, MS, CEM, Director of Preparedness, SouthEast Texas Regional Advisory Council
Showcase Description: This roundtable discussion will focus on lessons learned and innovative practices in engaging, training, and exercising a multi-geographical regional coalition.
With over 25 counties, 177 cities, 167 hospitals, 7 million people, and the land mass of over 20,000 sq miles, the SouthEast Texas Regional Advisory Council utilizes shared experiences, consensus building, standardization and ownership of preparedness and response partners in building an effective and robust coalition.
6. Jeff Schlegelmilch, MPH, MBA, Managing Director for Strategic Planning & Operations, National Center for Disaster Preparedness, Earth Institute, Columbia University
This showcase features a curriculum entitled "Disaster Planning for Community Based Human Services Organizations." The curriculum was developed by the National Center for Disaster Preparedness after Superstorm Sandy to meet the preparedness and response needs of community-based organizations, specifically those who work with and serve vulnerable populations. This session will focus on Module 1 of the curriculum: "Reaching our Communities' Vulnerable Populations: Disaster Planning for Community-Based Human Services Organizations and Their Clients."
7. Mark X. Cicero, MD, FAAP, Assistant Professor of Pediatrics, Director, Pediatric Disaster Preparedness, Yale Pediatric Emergency Medicine, Yale School of Medicine
Showcase Description: Training for health care workers and community members is a cornerstone of disaster preparation. Today, we will discuss evaluation as part of disaster training programs, including debriefing learners and improving curricula. Finally, we will consider what outcomes of evaluation will impact disaster response quality and effectiveness.
8. Nancy C. Gathany, PhD, Med, Acting Branch Chief, Educational Design, Continuing Education, and Learning Services Branch, Centers for Disease Control and Prevention
Showcase Description: CDC's *Quick-Learn Design Toolkit*. The toolkit (www.cdc.gov/learning/quality/toolkit.html) helps instructional designers and web developers create Quick-Learn lessons, which are a form of e-learning designed to address one or two learning objectives and require less than 20 minutes to complete. Through responsive web design techniques, the lessons are accessed through desktop computers and mobile devices alike, including smartphones and tablets. In this session we will walk through the toolkit and share lessons learned in the evolving area of mobile learning.
9. Robert Bradley, Distance Learning Coordinator, Virginia Department of Health
Showcase Description: The Virginia Department of Health needed to implement a new Health Alert Network system and train over 300 administrators within a 90-day window. It was decided to use a "flipped classroom" approach, integrating existing online course work with their existing TRAIN learning management system and multiple online discussions and standup, hands-on training. Virginia Department of Health completed this endeavor within 60 days.
10. Terry Sapp, EMT, CHEP, Emergency Preparedness Coordinator, Operations Bureau, Baltimore County Health & Human Services

Showcase Description: Paper handouts get read and tossed. PowerPoint presentations lure audiences to sleep. True Just-In-Time training videos need to be short enough to captivate the viewers' attention, succinct enough to relay just the key information, and palatable for all types of learners. Baltimore County Department of Health modeled its Just-In-Time training videos for Points-of-Dispensing (PODs) after Transportation Security Administration (TSA) and Federal Aviation Administration (FAA) instructional videos for travelers. By eliminating the "talking head" and stripping training down to the basics of: Read. Listen. Demonstrate, Baltimore County HHS improved the operational capability of its workforce as staff was able to easily grasp and retain concepts of operation within minutes after viewing.

11. Victor H. Cid, MS, National Library of Medicine, Disaster Information Management Research Center

Showcase Description: In this roundtable session you will learn how the National Library of Medicine is using virtual reality and video game technologies to train senior hospital staff on disaster incident management. These training technologies are not new, and their instructional benefits are generally well understood, but limitations such as costs, complexity, and insufficient standards have hindered their widespread adoption. Recent developments in the computer and video game industries are making these training tools more affordable and practical.

12. Joshua C. Morganstein, MD, CDR, USPHS, Scientist, Center for the Study of Traumatic Stress, Assistant Professor, Department of Psychiatry, Uniformed Services University of the Health Sciences

Showcase Description: The Center for the Study of Traumatic Stress (CSTS), affiliated with the Department of Psychiatry at the Uniformed Services University of the Health Sciences, delivers a variety of education and training to support a wide range of stakeholders involved in disaster mental health. Our session will provide an overview of the services provided by CSTS and describe our customized disaster mental health response educational fact sheets.

13. Geraldine Hirsch Fitzgerald, MSN, RN, CPNP, IBCLC, ILCA Liaison to the United Nations NGO Committee on UNICEF

Showcase Description: Just in Time: Breaking Barriers to Breastfeeding. This presentation/discussion is focused on safe infant feeding practices in shelters during a disaster. Utilizing a Just In Time (JIT) fact sheet, the discussion will be focused on training shelter workers, volunteers, and staff on safe infant feeding practices "Just in Time." The JIT will be used to assist organizations, emergency management, and public health professionals in their training of emergency responders in safe infant feeding practices in controlled areas during the crisis period.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.142>

Breakout Session A: *Extending Our Workforce Through Volunteers and Other Organizations*

Presenters:

Moderator - Robert J. Tosatto, RPh, MPH, MBA, Captain, US Public Health Service, Director, Division of the Civilian Volunteer, Medical Reserve Corps, Office of the US Surgeon General

Kate Dischino, CEM, National Voluntary Organizations Active in Disaster, Disaster Health Committee Chair, Emergency Response Manager, AmeriCares

Linda M. MacIntyre, PhD, RN, Chief Nurse, American Red Cross

Sheila Carlton, RN, MSN, Health Science and Law, Public Safety, Correction and Security, Government and Public Administration Consultant, Division of Career and Technical Education, TN Department of Education, Past HOSA, Inc Chair, National HOSA Emergency Preparedness Competitive Event Lieutenant

Krystal Hughes, Greenbrier East High School Senior, West Virginia, HOSA Member and MRC Partnership competitive event national winner 1st place (2013), 2nd place (2014)

Session summarized and reported by:

Hillary Craddock, MPH, Research Associate, NCDMPH

Overall Key Session Points:

1. Volunteers are an important part of the disaster health care workforce.
2. Volunteers come in many varieties, ranging from high school students to experienced health care professionals, and they can all support disaster efforts.

Session Summary:

The purpose of this session was to bring together a panel of representatives from various volunteer organizations to discuss how volunteers support disaster response and recovery. The session also aimed to dispel some of the misconceptions about volunteers. This session used audience response clickers in order to get more in-depth, real-time data from the workshop attendees.

The initial audience response questions touched on what types of organizations were represented in the audience and what structures and partnerships made up their volunteer workforce. They then went on to use the audience response technology to determine the audience's belief in certain misconceptions regarding volunteers in disasters. These misconceptions included not being able to count on volunteers being there in a disaster and that volunteers are amateurs.

Volunteers have been noted as a critical aspect of the disaster health care workforce, including a mention in the National Health Security Strategy, "The Nation needs to see further increases in the number of communities with adequate staff and volunteers to mount an effective response."

Speaker 1 discussed the history and present state of the National Voluntary Organizations Active in Disaster (NVOAD), an organization that includes faith-based, community-based, and other nongovernmental organizations. Speaker 2 discussed the health professional volunteer opportunities within the American Red Cross (ARC), emphasizing that volunteers conduct 94% of the humanitarian work done by the ARC. Of the five business lines of ARC, she focused on Disaster Health Services, which includes shelter care, replacement of lost prescriptions/essential medical supplies, and psychological assessment and support. The ARC has many volunteer positions available and these were briefly described. Speakers 3 and 4 described HOSA: Future Health Professionals, a national student-led organization providing training in health and biomedical issues to its student members and promoting opportunities for jobs in health care. Students receive training in a myriad of topics and serve as leaders in the classroom. There are opportunities for students to participate and support disaster preparedness.

Breakout Session A: *Extending our Workforce through Volunteers and Other Organizations*

The panel discussion section of the presentation was organized along the themes of volunteers and volunteer organizations, roles, expectations, competencies, training, youth engagement, and barriers/risks. The moderator asked about VOAD and the competencies and training expectations among those organizations. VOAD has a volunteer committee and provides volunteer engagement and management guidance, including the management of spontaneous volunteers. The goal is for volunteers to be trained ahead of the disaster to minimize the challenges presented by influxes of spontaneous, untrained volunteers. However, spontaneous volunteers could still be enrolled during a disaster response and recovery but would require sorting based upon skill sets, vetting of their credentials, and managing their assignment to volunteer roles.

Speaker 2 was asked about training for volunteers within the ARC and how training is tracked. ARC provides training for all volunteers. These trainings range from just-in-time training to more extensive trainings, and they are tracked by using learning management systems. Smart phone apps produced by the ARC are used for training on different topics as well as for volunteer recruitment.

An audience member asked about how people can get involved, and how nonaffiliated people know how to get involved. Joining the Medical Reserve Corps (MRC) was encouraged. This broached the topic of “multi-hatting,” where volunteers belong to multiple disaster volunteer organizations, and that all the service organizations need to be aware of each other and know what volunteers belong to multiple volunteer organizations.

Speaker 4 suggested that HOSA student activities can serve as a gateway for disaster volunteer involvement, specifically in the MRC. Speaker 3 supported this comment by describing how a state developed a high school curriculum in public health, with the goal of students being ready before a disaster with various skill sets. For example, speaker 3 indicated that students were involved in nonpharmaceutical interventions during the H1N1 influenza response. Speaker 3 said that trusted peers got the message across to students better than adults did.

A questioner mentioned that MRC integration into nondisaster activities is a great way to integrate the disaster workforce and get them trained prior to the disaster, and pointed out that, for example, volunteers at the medical tents at the Marine Corps Marathon supported and integrated well with the hospital staff.

The session then discussed potential barriers to using volunteers. It was noted that it is hard to manage an initial volunteer surge, but it is even harder to maintain engagement. Speaker 3 said that there were multiple perceived barriers to incorporating youth volunteers, but these can be overcome. Speaker 2 noted another challenge—getting a sufficient diversity of volunteers—since outcomes are often better when people who share their experience support communities.

The moderator discussed adult learning styles and “meeting people where they are” as critical ways to get volunteers trained and that these are important concepts for volunteer organizations to think about. Speaker 2 said that the ARC was looking at what volunteers need to be better trained as well as using Twitter to reach out to the general population to provide just-in-time training and emotional support. They are also using evidence-based practice and keeping up to date with current research to ensure that they can respond in the best way possible.

In closing, speakers recommended checking organization’s Web sites for volunteer opportunities.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.143>

Breakout Session B: *Learning to Build Resilience at the Neighborhood Level*

Presenters:

Moderator - Kenneth W. Schor DO, MPH, Acting Director, NCDMPH

Daniel Homsey, Director of Neighborhood Resilience, City Administrator's Office of the City & County of San Francisco

Daniel P. Aldrich, PhD, Associate Professor, University Faculty Scholar, Purdue University

Session summarized and reported by:

Lauren Walsh, MPH, Senior Research Associate, NCDMPH

Overall Key Session Points:

1. Building social capital in local communities may better prepare them for disaster recovery.
2. Neighborhoods can build social capital by forming neighborhood empowerment groups, for example, the Neighborhood Empowerment Network in San Francisco—these leverage leadership inherent in the neighborhood and increase social capital through relationship building.
3. Building social capital can be made accessible and fun by including diverse groups of people and encouraging participation in a variety of projects, including a tabletop exercise demonstrated during the session.

Session Summary:

The *Learning to Build Health Resilience at the Neighborhood Level* session introduced attendees to the importance of building community-level relationships as a mechanism to increase resilience. The breakout session consisted of an interactive group activity preceded by two brief presentations describing: (1) the evidence base for building social capital in local communities as a means to increase disaster preparedness, and (2) a real-world example of building social capital through a collaboration of city agencies, nonprofits, faith-based organizations, academic institutions, and local community stakeholders.

The first panelist discussed the evidence base for building social capital in local communities to better prepare them for disaster recovery. He showed that recovery is not simply a function of damage, economic impact, governance, population density, or social inequality, but also of the extent of social capital evident in the community before, during, and after the event. Concepts such as “bonding social capital,” “bridging social capital,” “linking social capital,” “collective action,” and “voice” were introduced.

The second panelist moved from the evidence base to an example of building social capital that is currently in practice, the Neighborhood Empowerment Network. He discussed the importance of making resilience approachable to citizens by building upon the examples of leadership and community action that are already inherent within communities, including Parent Teacher Associations, the Boy and Girl Scouts, faith-based initiatives, and community watch groups.

The session closed with a group activity bringing together concepts of social capital, sustainable practices, and resilience building. Participants were given a neighborhood map and asked to make improvements to the infrastructure, landscape, planning systems, and layout to maximize resilience and disaster preparedness. Participants were very engaged in the planning of their neighborhood and in brainstorming sustainable solutions to anticipated problems.

At the end of the session, each small group shared their ideas for community sustainability and resilience with the rest of the group. Focal points included strengthening access to and supply of essential resources (food, water, and energy), protecting essential services (health care, transportation, banking, major industry), and developing and re-developing land to mitigate the potential outcomes of disaster. Many participants indicated the desire to bring the ideas about community sustainability and resilience back to their organizations and were encouraged by session leaders to use the resources available on the workshop Web site to replicate the activity.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.144>

Closing Keynote

Presenter:

Arthur L. Kellermann, MD, MPH, Professor and Dean, F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences (USU)

Session summarized and reported by:

Lauren Walsh, MPH, Senior Research Associate, NCDMPH

Overall Key Session Points:

1. The speaker brought together the concepts from the preceding two days by drawing attention to the challenges inherent in disaster research and practice while simultaneously acknowledging the advancements that have been achieved over the last decade.

Session Summary:

The closing keynote opened with a discussion of the difficulties inherent in doing disaster research as compared to traditional medical research and the need for a better system for conducting planned, controlled research in the wake of disaster. Dr. Kellermann warned of the danger of complacency on the part of policy makers and the general public, and cautioned that successful responses (such as after the Boston bombings) should not lull us into a sense of false security. Policy makers must understand that while we have improved our capacity to respond to mass casualty events since the terrorist attacks of September 11, 2001, there is still a lot of work to be done to ensure that we, as a nation, are ubiquitously capable of responding effectively to future events. Despite the relative successes of the Boston Marathon bombing response, we cannot assume that every American city is equally as prepared as the city of Boston. We must also prepare for the potential reality of more advanced terrorist attacks and more severe weather events. While attention to these issues has waned in the last decade, it is the responsibility of academics, practitioners, and scientists to help policy makers refocus on these issues and help move the country to a higher baseline of preparedness.

Dr. Kellermann offered the following recommendations for further enhancing our preparedness.

- Create a mechanism for quality rapid response research comprehensive in scope and well coordinated among the various federal agencies with a stake in disaster preparedness.
- Hospitals and other health care facilities must participate in more realistic, no-notice drills and exercises that truly illuminate the strengths and vulnerabilities in disaster plans.
- A certification and recertification process for disaster response personnel should be developed to hold the potential response workforce to a standard and consistent level of education and training.
- The nation as a whole should be better prepared to take care of themselves and others in a disaster.
- All must work together to overcome obstacles to effective risk communication to the public and to better engage citizens to be part of the solution when an event occurs.

The keynote closed with a charge for the attendees of the workshop to leave the meeting with new ideas, new contacts, and a renewed sense of purpose and strategy because disaster medicine and public health preparedness work is important and nationally significant, and we can all play a role in better preparing our nation.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.145>

Final Remarks

Presenter:

Kenneth W. Schor, DO, MPH, Acting Director, NCDMPH

Session summarized and reported by:

Lauren Walsh, MPH, Senior Research Associate, NCDMPH

Overall Key Session Points

1. The final remarks provided a synthesis of the sessions and presentations delivered over the course of the workshop.

Session Summary:

The workshop concluded with a summary of the wonderful presentations delivered over the course of the two days of meetings. Dr. Schor echoed Dr. Kellermann's enthusiasm for better preparing our nation for catastrophic events and acknowledged the contributions of academia, government, and educators in the advancement of America's public health preparedness agenda. The importance of involving young scholars and early career professionals in this national agenda was highlighted. Appreciation was extended to the speakers, presenters, and attendees and to the staff of the National Center for Disaster Medicine and Public Health.

Supplementary material

To view supplementary material for this article, please visit <http://dx.doi.org/10.1017/dmp.2014.146>

Enhancing Learning Through Social Media

The National Center engaged with social media both before and during the 2014 Learning in Disaster Health Workshop (LDH14) to enhance learning among attendees. Before the event, the NCDMPH Twitter (@NCDMPH) account spread the official event hashtag #LDH14 to encourage registration for the event as well as to promote future attendees to use the hashtag before LDH '14 started. At LDH '14, the NCDMPH Twitter account encouraged attendees to answer questions and tweet with each other to discuss content. By sharing their thoughts and questions, attendees strengthened their understanding of content. Additionally, important content was able to reach outside the confines of the event by being broadcasted on the Web. LDH '14 presenters also took advantage of social media. The panel on "Enhancing Recovery through Learning, Education, and Training" invited attendees to tweet during the discussion to the hashtag #EnhanceRecovery. The tweets below are only a sampling of the many tweets received during LDH '14. More tweets can be read on at the NCDMPH Storify account: <https://storify.com/NCDMPH/ldh14>.

Daniel P. Aldrich @DanielPAldrich

Some 1/8 of Americans work in health care - are we integrating disaster preparedness in their training? #LDH14 #LearningInDisasterHealth

Michele Kassmeier @MicheleDeeK

How do we train the individuals who don't realize they're apparent of the bigger picture in disaster response? #LDH14

TRAIN.org @PHF_TRAIN

Just-in-time training isn't always in time. We should be proactive in promoting workforce training #PHPR #LDH14

NHA EP News @NHA_EPNEWS

@NCDMPH Critical to think about rebuilding the community before the disaster arrives to strengthen recovery #EnhanceRecovery #LDH14

Poster Presentation Abstracts

The following posters were displayed at the 2014 *Learning in Disaster Health Workshop*. Asterisks indicate the three Outstanding Poster Award Winners selected by attendees on site.

1. Now Trending in Your Community: Social Media Insights Into Health and How it Can Help Your Public Health Mission

Diana Kushner

In today's fast paced world, information is available (and expected) instantaneously. Social media has only fueled this expectation as it had permeated all aspects of our lives. More and more of the population is turning to social media outlets to share their thoughts and update their status, especially during disasters. With all these conversations occurring, it is only reasonable to assume that health status is part of the information being shared. Whether people are talking about being sick themselves or fear of illness in the community, there is a wealth of knowledge to be gained by tapping into this information. This data would then be available for multiple purposes such as serving as an indicator of potential health issues emerging in a population; allaying health fears in a community; or engaging the public on trending health topics. But how do you accomplish this? There are millions of conversations happening on social media every day that would need to be sifted through to get to the health-related topics. No public health entity has the time or staffing for that endeavor. With this problem in mind, the Assistant Secretary for Preparedness and Response launched a challenge competition titled *Now Trending: #Health in My Community* to create a web-based application that analyzed Twitter data for health topics and delivered useful analytics for both specified geographic areas and the national level. The outcome is the *Now Trending Web site* (<http://nowtrending.hhs.gov>). This Web site was launched to provide public health entities with a tool to gain awareness of the health conversations on social media in their communities. This poster will highlight the information provided by the *Now Trending Web site* and provide real world examples of how this site has been used during public health emergencies.

2. *Intentionally left blank because poster 2 was not displayed*

3. *Intentionally left blank because poster 3 was not displayed*

4. Including At-Risk Individuals and Behavioral Health in Emergency Preparedness, Response, and Recovery

Shulamit Schweitzer

Rachel Kaul

This poster presentation will enhance participants' conceptual and applied competencies related to disaster preparedness, response, and recovery requirements of at-risk individuals (people with functional needs that may interfere with the ability to access or receive medical care) and behavioral health (the provision of mental health, substance abuse, and stress management services to disaster survivors and responders). We will also describe the role of ASPR's Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC) to provide subject matter expertise, education, and coordination to internal and external partners to ensure that behavioral health issues and the needs of at-risk individuals are integrated in the public health and medical emergency preparedness, response, and recovery activities of the nation. We will summarize "community resilience" and provide a toolkit of guided fact sheets that will support participants' ability to evaluate and revise their disaster-preparedness plans.

5. A Public-Private-Academic Partnership: creating a novel disaster medicine fellowship

Josh Mugele

Chad Priest

Daniel O'Donnell

Charles Miramonti

Traditionally, cooperation and communication has been lacking between public health entities and hospitals and other health care organizations in the field of disaster preparedness and response. Ongoing cooperation as well as

joint educational initiatives would benefit hospitals as well as public health organizations in disaster planning and ultimately response. Academic medical centers in particular are well-suited to provide expertise and resources in disaster health education. In this poster we describe a unique collaboration between Indiana University School of Medicine Department of Emergency Medicine and MESH Coalition in Indianapolis, Indiana, to create a novel disaster medicine fellowship. MESH Coalition is a nonprofit, public-private partnership between health care entities, public health entities, and various emergency management and response organizations whose charter is to enable health care providers to effectively mitigate and respond to emergency events through planning, policy, and educational services. The one-year fellowship is designed to train clinicians including physicians, nurses, and mid-level providers (nurse practitioners and physician assistants). The objectives of the fellowship include: 1) competency in disaster medicine clinical skills; 2) participation in hospital-based emergency preparedness and response activities; 3) awareness of and participation in municipal and regional public health and emergency management activities and policy development; 4) expertise in disaster health care education, research, and curriculum development. We also describe the experience of the inaugural fellow, an emergency medicine-trained physician from Indiana University. We anticipate that training clinicians through this partnership will benefit local and regional disaster preparedness and response efforts and enhance the collaboration between public health, academic, and health care entities.

6. The Mental Health Minute: Leveraging T-cons to Deliver Key Mental Health Tips

Julie Chodacki

Like many other disaster teams, RDF (Rapid Deployment Force)- 3 is a dynamic multi-disciplinary team comprised of individuals from disparate professional agencies located across the United States, including Alaska. As the budget shrunk, the team lost its opportunity to come together in person outside of real-world emergencies, making it especially difficult to train on topics such as how to maintain team social support and first responder mental health/self-care. In response, the team began a series of short mental health briefings that have become a regular feature on the team's monthly teleconference. The "mental health minute" is intended not only to be informational and relevant, but also the minute contributes to maintaining the psychological readiness of team members, highlighting issues similar to psychological first aid for first responders and raising visibility of the importance of mental health.

Topic choices are driven by seasonal and rotational considerations, as well as informal needs assessments by team members who support team social/mental health. For example, "Seasonal Affective Disorder" was discussed during January; "Differentiating Between Readiness and Preparedness" was a topic proceeding the team's on-call month; and the Nov/Dec call included "Holiday Resilience." Content is posted on the team Web site after it is presented. Recently the Team Commander has decided to include a brief summary of the MH Minute in her Command Update, a newsletter that is distributed to the team via e-mail.

The poster presentation will include a description of the goals of MH Minute, the process/challenges of making time for mental/social health during already full monthly teleconference agendas, and the benefits accrued since implementation, as assessed by a sample of team members. The authors of the poster are the team members responsible for initiating the program, preparing content, and delivering each of the segments.

7. Creating Your Own Disaster in a Disaster Preparedness Workshop

Deanna Dahl Grove

Rashida Woods

Nathan Timm

Pediatric Emergency Medicine (PEM) Trainees are expected to be familiar with concepts of disaster preparedness (DP) upon completion of fellowship, in particular as it pertains to the unique aspects of pediatric patients in the vast health care continuum. The DP education of PEM trainees is variable among the training programs in the country as done by an informal survey of one author. The State of Ohio has 4 ACGME-approved PEM training programs. The Ohio AAP (American Academy of Pediatrics) and Ohio EMSC (Emergency Medical Services for Children) have cosponsored an annual workshop to enhance trainee networking and gain knowledge on topics of interest to all Ohio programs, such as DP. The objectives of this 4-hour workshop were to: understand the basic terminology and concepts as applied to planning for a simulated community disaster; apply triage tools to simulated patients in the simulated disaster; and to create a tabletop hospital disaster drill. During the first exercise, participants in small groups were given a scenario and asked to apply the terms: how to detect an incident and assess for hazards; applying incident command; determine scene security and safety; describe necessary support and evacuation methods and pertinent liability concepts and then report back to the entire group. The same small groups in the second exercise applied different triage modalities to the same group of simulated patients and presented the outcome to the larger group. In the final exercise the whole group identified key components of hospital disaster drill preparation and then divided into small groups to create their own hospital drill and objectives to be tested with report to larger group. This workshop presents a unique method to present DP concepts and allows for small group interaction and large group discussion which are beneficial learning environments for adults.

8. Integrating Responder Behavioral Health Self Triage into the Urban Shield 2013 Full Scale Disaster Exercise and Learning Program*

Merritt Schreiber
Neema Pithia
Elsie Kusel Lauren Sims

Background: The PsySTART disaster mental health triage system was developed and validated for use in identifying disaster victims suffering from psychological stress. The next evolution of this system has been to develop a comparable self-triage of mental health risk in medical responders to enhance their own resilience and preserve local disaster systems of care.

Objectives: Evaluate the perceptions of pre-hospital and hospital disaster responders of their own risk in a complex mass casualty full-scale exercise, "Urban Shield, 2013" using the PsySTART responder self-triage system involving multiple potential disaster and CBRNE stressors.

Methods: 183 participants completed the PsySTART Responder Self Triage System (n = 183) following their participation in the Urban Shield 2013 full-scale exercise. Medical responders completed self-triage on the frequency of exposure to each risk marker and their perceived level of stress on a scale of 1-5 (5 = Extremely Stressful) for each risk factor encountered. For the descriptive purposes of this project, we calculated mean occurrence, perceived stressfulness, and correlations among the risk markers.

Results: See Figure 1 for risk marker descriptions. The risk markers perceived most stressful in Urban Shield 2013 full-scale exercise were in order of stressfulness: factor 18 (mean = 3.96, n = 23), 11 (mean = 3.87, n = 15), 14 (mean = 3.41, n = 119), and 9 (mean = 3.31, n = 35). Risk markers 1-3, 5-8, and 10 all exhibited positive correlation ($p < 0.05$).

Conclusions: The use of PsySTART in this exercise demonstrated that a "just-in-time" use of the PsySTART Responder Self Triage System is feasible as part of an integrated approach to responder disaster learning and suggests further efforts to enhance responder resilience. Response of medical responders to potential risk factors provided the opportunity to construct further item selection and weighting for risk markers for PTSD and depression in disaster medical responders, which is now in use in real-world project following Super Typhoon Haiyan.

9. Lessons Learned Following an EF5 Tornado: Conference Impact on Participants

Sharon Medcalf
Michele Kassmeier
Philip W. Smith

Objective: The goal of this study was to determine if participants amended their organization's disaster plan within 14 months after being prompted to do so at a national conference.

Methods: The investigators developed a 17-question (maximum) cross-sectional survey of conference participants providing their e-mail address, then analyzed the results of the web-based survey.

Results: Of the 331 eligible conference attendees, 110 completed the survey. Professional titles of participants varied, with emergency response coordinators (26.4%) having the highest presence. There were 75.5% of participants who indicated they had personally made changes to their organization's disaster plan as a result of attending the conference.

Conclusions: Having the individuals responsible for disaster plans attend a national conference where the presenters directly experienced a major disaster has proven to have an impact on attendees in making concrete changes to an organization's disaster plan.

10. Disaster Medicine and Triage Ethics in a Medical School Curriculum

Rashida Woods
Deanna Dahl-Grove

Objective: Medical student discussions regarding ethics may include cases such as persistent vegetative states or integration of religious beliefs with medical care. Disaster medicine ethics is rarely taught. The aim of this study is to assess the relevant nature of disaster medicine and ethics as a component in the medical school curriculum.

Poster Presentation Abstracts

Methods: Third-year medical students on the surgery/emergency medicine core rotation completed a tabletop disaster scenario using a numbering system. During group discussion, students presented how the victims were triaged while key ethical concepts were identified. The scenario was then repeated applying the START and JumpSTART triage algorithm. The primary objective of the relevance of this topic and its inclusion in the medical school curriculum was achieved through individual student narratives. The secondary outcome compared the student's triage assignments of the victims against those of the primary author's.

Results: During group discussions, many students expressed discomfort in assigning delayed or expectant triage codes making general comments such as "this isn't right, this is not what am I being taught to do." In relation to pediatric victims, comments included "this is an infant, we should make efforts to save them." Similar comments were made for adult patients as well; however, more expressions of discomfort were made toward pediatric patients. This is supported by the manner in which the students triaged the victims after instruction on the START and JumpSTART triage algorithms, with - 10% of students not applying an expectant triage code to pediatric victims.

Conclusion: After completing the module, the majority of the 3rd-year medical students believe that disaster medicine and triage ethics is an important concept that should be applied to the medical school curriculum. However, students note this concept would be more beneficial in the 1st-year curriculum.

11. Educating Hospital Administrators and Clinical Leaders on Pediatric Considerations for Hospital Disaster Preparedness Policies*

Anthony Dilchrest
Elizabeth Edgerton

Children comprise 26.7% of the US population and account for about 20% of all hospital emergency department visits. While there have been marked improvements in many areas of pediatric emergency care over the past decade, in 2010 the National Commission on Children and Disasters reported persistent deficiencies in every functional area of pediatric disaster preparedness.

In 2013, the Emergency Medical Services for Children (EMSC) completed an assessment of over 5000 US emergency departments (EDs) as part of the National Pediatric Readiness Project, a joint quality improvement initiative. More than 4100 facilities responded (82.7%). Preliminary results show that less than half of all US hospitals reported having written disaster plans that address issues specific to the care of children. Based on these findings, the National Pediatric Readiness Project stakeholder group recommended that a multidisciplinary workgroup be convened to develop a tool to help hospitals incorporate pediatrics into existing or future disaster plans.

This Checklist of Essential Pediatric Domains and Considerations for Hospital Disaster Preparedness Policies is intended to educate hospital administrators and clinical leadership on specific considerations for planning for the pediatric population during disasters. The checklist was designed to complement and augment existing disaster resources, both pediatric-specific and general, rather than to serve solely as a stand-alone document. It is the consensus of national subject matter experts that the pediatric domains and considerations in this checklist should be well integrated into existing all-hazards hospital disaster preparedness policies or guidelines. Furthermore, hospital disaster plans are unique to each facility and community. Hence, hospital administrators and managers are encouraged to work closely with their local, regional, and state health care systems and disaster coalitions to adapt these recommendations to their local needs and resource availability. In addition, these essential pediatric domains and considerations should be incorporated into routine disaster education and training curricula.

12. Elderly in Disasters: An Integrated Review*

Heather Johnson
Elexis McBee
Catherine Ling

Disasters unduly affect the vulnerable population of older adults. The purpose of this integrative review was to describe the multi-disciplinary, systems-level knowledge and skills required to care for older adults during domestic disasters and humanitarian relief efforts. Searches of PubMed, CINAHL, and PsycINFO were conducted using a search protocol with terms such as Disasters, Geological Processes, Aged, Disaster Planning, and Vulnerable Populations. Of the 525 articles discovered, 49 met inclusion criteria for the project and were analyzed by at least 2 team members. Following detailed compilation and analysis, five major themes emerged from the literature: biophysical aspects of care, psychosocial aspects of care, logistics, resources, and legal/ethical issues. There were 1 to 13 sub-themes for each theme. The results emphasize the need for incorporation of older adults as subject matter experts and the use of functional capacity in elderly focused disaster planning. Sharing and combining resources ensures

widest possible dissemination and utilization of information. Evacuation & shelter planning and forecasting should be performed by personnel with appropriate experience and training in care of the elderly. A multi-faceted approach to planning and education should include the major themes elucidated in this review. Clarification of legal & ethical standards of care and liability issues is critical at all levels of disaster care.

13. Patient Tracking Education and Implementation: Lessons from Past Events and Possible Future Applications

Maxwell Krasity

Peggy Keller

Public health officials and senior leaders involved in decision making during a disaster must be able to quickly and accurately determine the health needs of their jurisdiction. The application of patient tracking technology, which allows operators to “scan” disaster victims and place important information into a centralized system, is one approach that allows for the maintenance of situational awareness. As disaster victims are scanned, a command dashboard updates in real time and identifies the victim’s location, status, and vital statistics and can even include relevant pictures or videos. Use of tracking technology in a disaster can provide rapid illustration of health needs and indicate where additional resources could productively be deployed.

Successful utilization of patient tracking technology requires the deployment of capable human operators to a disaster site to scan victims and record relevant data that is uploaded to a situational awareness dashboard. Given fiscal and practical constraints, a realistic method to facilitate data collection is to utilize volunteers. A field test of the feasibility of volunteers with a variety of experience levels using patient tracking devices acting as primary data collectors at a large event was provided when the DC DOH deployed medical reserve corps volunteers to conduct patient tracking and family reunification at medical aid stations at the 2014 Washington DC Fourth of July celebration. Just-in-time volunteer training was implemented the morning of the event and consisted of the distribution of handouts and quick reference cards, a 20-minute teaching and technology orientation session delivered by professionals familiar with the patient tracking devices, and continued support provided by floating experts in the field. Given the success of this approach at the Fourth of July event, we propose similar training and deployment techniques could be adopted to extend the benefits of patient tracking technology to disaster responses.

14. Perceptions of Humanitarian and Disaster Relief Missions among Military Medical Providers: Exploring Differences Based on Mission Type and Field of Medical Practice

Garcia Nitasha

Patrick Hickey

Geoffrey Oravec

Artino Anthony

Background: Annually, the United States engages in a multifaceted approach to disaster assistance and global health engagements throughout the globe. The present study explored whether mission type or field of medical practice influenced physicians’ perceptions of medical stability operations and disaster relief.

Methods: Military physicians in the US Army, Navy, and Air Force responded to a 51-item, Web-based survey. This previously validated survey included four survey scales each using a 7-point, Likert-type response scale. The four scales were designed to assess overall satisfaction with the mission and perceived benefits to the United States, the target population, and the service member. This study focused on potential differences in these four variables based on type of mission and field of practice (medical vs surgical).

Results: Of the 667 physicians who responded to the survey, 47% had participated in at least one mission. When compared to physicians who participated in conflict-related missions, those who completed disaster-related missions reported higher levels of satisfaction ($M = 5.95$ vs 4.95 , $p < 0.001$) and higher levels of perceived benefits to the target population ($M = 4.88$ vs 4.46 , $p < 0.01$) and to the US ($M = 5.89$ vs 5.21 , $p < 0.01$). In terms of medical specialty, surgeons believed their work benefited the target population to a greater degree than nonsurgical physicians ($M = 5.35$ vs 4.83 , $p < 0.01$).

Conclusions: Findings from this study suggest that mission type is related to service members’ personal satisfaction and perceptions of benefit to the US and to those being served. These results also indicate that surgeons consider their contributions to be more beneficial to target populations than medical physicians. Given the complexity of planning and executing humanitarian operations, these findings have the potential to inform the larger humanitarian community on factors related to mission focus, training, and planning as well as retention and satisfaction of military medical providers.

15. Active-Duty Physicians' Perceptions and Satisfaction with Humanitarian Assistance and Disaster Relief Missions: Implications for the Field

Geoffrey Oravec
Artino Anthony
Patrick Hickey

Background: This study assessed perceptions of active-duty physicians regarding disaster relief and global health engagements and related these findings to the overall satisfaction and retention of military health care professionals.

Methods: An Internet-based, 51-item survey was sent to military physicians in the US Army, Navy, and Air Force. Four validated survey scales each using a 7-point, Likert-type response scale assessed overall satisfaction with the mission and perceived benefits to the United States, the target population, and the service member.

Results: Of the 667 physicians who responded to the survey, 47% had participated in at least one mission. On a 7-point, Likert-type response scale, physicians reported favorable overall satisfaction with their participation in these missions (mean 5.74). Perceived benefit was greatest for the United States (mean 5.56) and self (mean 5.39) compared to the target population (mean 4.82). These perceptions were related to intentions to extend their military medical service, with the strongest predictors being perceived benefit to self ($p < 0.01$), the US ($p < 0.01$), and satisfaction ($p < 0.05$). In addition, Air Force physicians reported higher levels of satisfaction (mean 6.10) than either Army (mean 5.27) or Navy (mean 5.60) physicians.

Conclusions: Military physicians are largely satisfied with humanitarian missions, reporting the greatest benefit of such activities for themselves and the United States. Elucidation of factors, such as mission profile, training, and resource allocation that may increase the perceived benefit to the target populations is warranted. Satisfaction and perceived benefits of humanitarian missions were positively correlated with intentions to extend time in service. These findings could inform the larger humanitarian community and inform practices for both recruiting and retaining medical professionals.

16. Increasing Community Resilience in Vulnerable Populations in the District of Columbia

Peggy Keller

Background/Purpose: DC DOH protects the public health and safety of residents and visitors, including unique challenges of vulnerable populations, through an all-hazards preparedness and response approach to mitigate public health and health care impacts.

During disasters, those with access and functional needs are particularly vulnerable, due to communications and mobility issues, and frequently stress health care systems. Vulnerable populations include those that are power dependent, home bound, homeless, and non-English speaking. Frequently vulnerable populations are not connected to supporting organizations and lack resilience, the ability to get through and bounce back after a disaster.

Purpose & Objectives: DOH increases community resilience and reduces negative impacts on those with access and functional needs by taking a proactive planning approach, including robust communications, key technologies, partnerships, post-event response evaluation and, most important, preparedness and resilience training.

Methods: DOH partnered with community and health care organizations to establish the Vulnerable Populations Community and Health Care Coalition (VPCHCC). DOH and VPCHCC developed strategies and mitigation plans addressing the needs of vulnerable populations during disasters that build community resilience. DOH conducted four-day preparedness and resilience training programs, consisting of modules, such as, disaster mental health and community resilience for District staff, providers, at-risk youth, and volunteers. In addition DOH conducted shelter in place and COOP planning for residential facilities. The training served to increase community connections and community resilience and reduce the negative impact on the health care system.

Measurable Objective: Community, health care organization partners, vulnerable populations trained.

Results: DOH staff identified those at risk of severe, negative health impacts during disasters and developed mitigation strategies. Increased community resilience, increased ability to shelter in place, reduced stress on the health care system.

Outcomes: Vulnerable populations, support were trained and resilient.

Conclusions: DC addresses needs of vulnerable populations to increase community resilience, reduce stress on health care systems.

17. Nursing Care of Highly Pathogenic Avian Influenza H5N1 Occupational Exposure

Jerod Noe
Leighann Ebenezer
Melissa Hubbard

Human infection with the highly pathogenic avian influenza (HPAI H5N1) is relatively rare with only approximately 640 known human cases. However, HPAI H5N1 is quite pathogenic with a case fatality rate of about 60%. Although there are no known infections of humans or poultry having occurred in the United States, due to the threat of a naturally occurring pandemic involving HPAI H5N1 coupled with the possibility of it being utilized as a biological weapon, research is currently underway to develop relevant countermeasures. However, in order for this research to occur safely, institutions must provide a place to isolate, manage, and, if necessary, treat laboratory workers in the event of an occupational exposure. The core mission of the Special Clinical Studies Unit (SCSU) is to care for patients who have had a known or suspected occupational exposure to HPAI H5N1 or other biosafety level 3 or 4 pathogens. As nurses, our job is to follow evidence-based practice guidelines in order to provide the best care for this special patient population. Upon review of the literature, a large gap was found in the area of written guidelines for optimal nursing care of the occupationally exposed patient. This poster will address state-of-the-art care of the patient exposed to HPAI H5N1 with an emphasis on nursing care guidelines based upon a patient's initial presentation and the known course of HPAI H5N1.

18. The Military Medical Humanitarian Assistance Course (MMHAC): Teaching Disaster Medicine at the Tactical Level

Patrick Hickey
Robert DeFraitres
David Tarantino
Kevin Riley
Ray Handel
Charles Beadling

The Military Medical Humanitarian Assistance Course (MMHAC) is designed to provide training for the provision of contextually appropriate medical care and public health intervention to civilian populations in the austere health emergency setting. Course content is managed centrally at the Center for Disaster and Humanitarian Assistance Medicine (CDHAM) and Uniformed Services University but the course is taught at six sites across the Military Health System using local faculty. Course content domains include disaster typology; cluster approach, SPHERE, and the role of US Government agencies vs international and nongovernmental organizations; ethical considerations; surveillance, prevention, and treatment of the major causes of mortality in a complex humanitarian emergency. Though originally designed for early-career primary care clinicians, the student population has recently expanded to include allied health professionals and medical operations planners. Over the past 2 years, Combatant Commands and operational forces have begun requesting MMHAC as part of their readiness training, with courses being held in Korea, Japan, and as part of the Rim of the Pacific (RIMPAC) Exercise. Course content is delivered in a mixed didactic and small-group exercise format that emphasizes key concepts and provides students with portable resources. Course management innovations include use of online pre- and post-course knowledge assessments and the ability to begin longitudinal assessments of course impact on student outcomes related to self-efficacy, satisfaction with future global health engagement and disaster relief deployments, career focus, and continued education in the field of disaster response and global health. Plans are being developed for MMHAC to be converted into a partially online format in order to allow classroom flipping and enhanced hands on application of concepts.

19. The Geometry of Response: Understanding the angles and interests to prepare for humanitarian assistance and disaster response missions

Colleen Gallagher

Per DoD Directive 5100.46, the military responds to foreign disasters in support of the US Agency for International Development (USAID), the lead federal civilian agency for humanitarian assistance. While it may appear that the DoD has a large footprint in many disaster relief operations, many are surprised to learn that DoD responded to less than 12% of the more than 480 disaster declarations that were issued between FY 2006 and 2012. But while there were a limited number of responses, it does not limit the importance of military support in this area.

The military is traditionally called in to support humanitarian assistance and foreign disaster relief to meet a specific need that goes beyond civilian capacity. In particular, military medicine is one technical area that can provide extensive capabilities and capacities. The extended period of conflict in Afghanistan and Iraq has afforded military medicine professionals extensive

Poster Presentation Abstracts

experience with trauma, triage, and evacuation of injured patients—all vital skills equally needed to respond to patients injured in earthquakes, typhoons, etc. But while clinical expertise is important, understanding the guiding principles of the broader international response is just as important. The time for understanding shared space and the rules of the engagement in disaster response is not the emergency moment when DoD is tasked to respond to a foreign disaster.

This poster will outline what we consider the “geometry” of successfully training military actors to respond appropriately to disasters that is built upon three angles: Communication, Coordination, and Cooperation. As part of this preparation, education and training events are recommended that include disaster exercise scenarios and planning input and participation from subject matter experts. The poster will examine training strategies, points of contact, and best practices for building a holistic, integrated, and prepared disaster management coordination plan.

20. Nursing Care of Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome

Meghan Schlosser

Kimberly Jeffries

Melissa Hubbard

In the last decade, two coronaviruses have emerged with the potential to cause a devastating epidemic. The majority of coronaviruses are not life threatening and merely cause the annoying but not deadly symptoms of the common cold. Severe Acute Respiratory Syndrome (SARS), however, can easily be fatal with a 20% mortality rate that increases to 50% over age 65. Middle East respiratory syndrome (MERS Co-V) is believed to have originated in countries near the Arabian Peninsula in 2012 and has a mortality rate greater than 50%. MERS Co-V is the newest form of SARS, with similar symptoms such as cough, fever, and shortness of breath. Both illnesses are highly contagious and have potential to cause a pandemic. The symptoms tend to mimic the flu or pneumonia but can deteriorate quickly into acute respiratory distress syndrome (ARDS). Safely having a place to isolate, manage, and care for these patients is essential. The core mission of the Special Clinical Studies Unit (SCSU) includes caring for patients who have been exposed to an emerging infectious disease and/or epidemic threat such as SARS and MERS Co-V. As nurses, our job is to follow evidence-based guidelines in order to provide the best care for this special patient population. Because this is an emerging pathogen, research on treatment and management is very limited. This poster will address state of the art care of the patient exposed to SARS and/or MERS Co-V with emphasis on the care guidelines and isolation requirements.

21. Improving Competence within the Preparedness & Response Workforce through TRAIN

Erin Bougie

Samantha Draper

TRAIN, the nation’s premier learning management network for professionals who protect the public’s health, provides a venue through which preparedness and response agencies and organizations can access web-based learning courses and resources. Consisting of 28 affiliates (25 state agencies and 3 federal partners), TRAIN was developed in 2003 in response to state requests for training that would efficiently prepare the public health workforce for disasters and emergencies. TRAIN currently has over 800,000 registered learners who can access over 29,000 courses posted by nearly 4000 course providers.

TRAIN supports the training needs of health departments, states, and national organizations to promote competency-based training for the public health and first responder workforces responsible for emergency preparedness. TRAIN encourages the utilization of competency-based preparedness training by integrating the Public Health Preparedness (PHEP) Capabilities and the Public Health Preparedness and Response (PHPR) Core Competencies into the system. These competencies and capabilities, which standardize public health preparedness and its training, allows health departments to evaluate current gaps and develop plans to utilize resources to ensure that communities continue to be prepared at optimum levels.

This poster will illustrate the growing TRAIN network and will provide examples of courses available to the preparedness and response workforce with the PHEP Capabilities and/or PHPR Competencies assigned to them. Additionally, this poster will showcase how disaster and emergency preparedness organizations can apply to become a course provider on TRAIN and post their own courses, conferences, and training plans to the TRAIN community.

Disaster Medicine and Public Health Preparedness

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Disaster Medicine and Public Health Preparedness (DMPHP) seeks articles relevant to disaster medicine and public health preparedness from experts worldwide and from all specialties of clinical medicine, epidemiology, and public health to provide a global representation of the body of knowledge emerging to define this international field.

Types of Articles

- **Original Research:** Original studies of basic, clinical, quantitative including epidemiologic and population based or qualitative investigations in areas relevant to emergency medicine. References and a structured abstract (see Manuscript Preparation) are required. Maximum length: 4,000 words, 7 tables and/or figures, plus the abstract and references. A statement of IRB approval or exemption from full review is required. Additionally, a list defining each author's contribution to the manuscript is required (see Manuscript Submission section).
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References

The authors are responsible for the accuracy of the references. Key the references (double-spaced) at the end of the manuscript. Cite the references in the text in the order of appearance. Use superscript numerals for text citations—e.g., Jenkins surveyed first responders in Philadelphia for their awareness of health literacy issues.⁶

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Sample references are given below:

World Wide Web

1. Gostin LO. Drug use and HIV/AIDS. JAMA HIV/AIDS Web site. June 1, 1996. <http://www.ama-assn.org/special/hiv/ethics>. Accessed June 26, 1997.
2. Emergency medicine participation in the Geriatrics for Specialists Initiative. Geriatrics for specialists page. American Geriatrics Society website. http://www.americangeriatrics.org/specialists/emergency_medicine/shml. Accessed October 15, 2007.

Journal article

3. Ricci ZJ, Haramati LB, Rosenbaum AT et al. Role of computed tomography in guiding the management of peripheral bronchopleural fistula. *J Thorac Imaging*. 2002; 17:214-218.

Online journal article with DOI (digital object identifier)

4. Valent F, Messi G, Deroma L et al. A descriptive study of injuries in a paediatric populations of north-eastern Italy. *Eur J Pediatr* [published online November 29, 2006]. doi: 10.1007/s00431-005-0366-y

Note: To locate an article online by DOI, access the DOI website at <http://dx.doi.org> and enter the 10 digit number in the search box. Selected journal websites also allow you to access articles by DOI.

Book chapter

5. Steiner RM. Radiology of the heart and great vessels. In: Braunwald E, Zipes D, Libby P, eds. *Heart Disease*. Philadelphia: WB Saunders; 2001:15-18.

Entire book

6. Kellman RM, Marentette LJ. *Atlas of Craniomaxillofacial Fixation*. Philadelphia: Lippincott Williams & Wilkins; 1999.

Software

7. *Epi Info* [computer program]. Version 6. Atlanta: Centers for Disease Control and Prevention, 1994.

Database

8. CANCERNET-PDQ [database online]. Bethesda, MD: National Cancer Institute; 1996. Updated March 29, 1996.

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