

Proceedings of a Workshop

IN BRIEF

August 2017

Preparing for the Future of Disaster Health Volunteerism

Proceedings of a Workshop—in Brief

On April 26, 2017, the Forum on Medical and Public Health Preparedness for Disasters and Emergencies convened a workshop during a 4-hour session of the 2017 Preparedness Summit.¹ Participants discussed potential characteristics of society in the year 2042 and the key resources, tools, and opportunities necessary to support the development of a robust, scalable, and regularly engaged disaster health volunteer workforce prepared for such a future.

Suzet McKinney, executive director for the Illinois Medical District Commission, opened the workshop with a panel interview of five representatives from organizations dedicated to domestic and international disaster volunteerism (see Box 1). The panel included Mary Casey-Lockyer, senior associate of disaster health program development at the American Red Cross; Skip Payne, Commander with the U.S. Public Health Service and deputy director of the Medical Reserve Corps Program Partner Readiness and Emergency Programs Division, Office of Emergency Management, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services; Sean Casey, acting director of the Emergency Response Unit at International Medical Corps; David Callaway, volunteer medical director at Team Rubicon; and Michele “Shelly” Leavitt Weinstein, medical coordinator for the Marine Corps Marathon Organization. Following the interview, panelists and participants further explored some of the challenges and potential opportunities related to disaster health volunteerism through a facilitated discussion. Next, Ben Hamamoto, a researcher for the Institute for the Future² described how society might be different in the year 2042. Finally, panelists and participants worked collaboratively in an interactive design session to explore potential solutions to actual challenges faced by the panelists’ volunteer organizations.

MOTIVATIONS FOR DISASTER HEALTH VOLUNTEERING

During the opening interview, panelists reflected on their own motivations for becoming involved with disaster volunteerism. Payne praised the volunteer spirit as spurring his involvement, noting that many volunteers are so dedicated to the mission of an organization that it becomes a lifetime commitment. Callaway observed that for his involvement the ethos of volunteerism extended beyond the individual and across the boundaries of organizations and sectors. Weinstein was inspired by the chance to give back to those who have served in the United States Armed Forces. She commended the commitment and comradery among volunteers in her organization. In her experience, every volunteer has a backstory that sustains his or her involvement; volunteers often follow a circuit and return to provide support time and again. Casey-Lockyer was drawn to her work by the opportunity to deploy nationally during disasters and the sense of pride that comes from working with the American Red Cross. Casey cited as his motivation the ability to do critical life-saving work on the international front.

¹ For more information on the Preparedness Summit, see <http://preparednesssummit.org/2017-preparedness-summit> (accessed June 28, 2017).

² Institute for the Future is a 49-year-old nonprofit think tank based in Palo Alto, California, that does qualitative research focusing on technology and culture in health, technology, food, water, global business, work, and more. Its mission is not to predict the future but to help organizations and the public think more strategically about what the long-term future might hold.

BOX 1

Organizations Represented by Workshop Panelists

The **American Red Cross**, part of the global Red Cross and Red Crescent network, works to prevent and alleviate human suffering during emergencies by mobilizing the power of its trained volunteer force, which is ready to deploy hours after a disaster strikes.

The **Medical Reserve Corps (MRC)** is a national network of locally organized volunteers in the medical and public health fields and community members from outside the health sector. MRC is composed of 990 community-based units and almost 200,000 volunteers. Its aims are to strengthen public health, improve emergency response capabilities to events such as natural disasters and disease outbreaks, and build community resiliency after a disaster.

International Medical Corps (IMC) is a global humanitarian nonprofit organization dedicated to saving lives and relieving suffering through health care training and relief and development programs. Established in 1984 by volunteer doctors and nurses, IMC is a private, voluntary, nonpolitical and nonsectarian organization. Its mission is to improve the quality of life through health interventions and related activities that build local capacity in underserved communities worldwide. By offering training and health care to local populations and medical assistance to people at highest risk, and with the flexibility to respond rapidly to emergency situations, IMC rehabilitates devastated health care systems and helps bring them back to self-reliance.

Team Rubicon, an international nonprofit disaster response organization, pairs the skills and experiences of military veterans with first responders, medical professionals, and technology experts to rapidly deploy disaster response teams to communities affected by domestic or international natural disasters. Team Rubicon currently maintains a roster of more than 35,000 volunteers who can deploy throughout the United States.

The **Marine Corps Marathon's** mission is to promote physical fitness, generate community goodwill, and showcase the organizational skills of the United States Marine Corps; its mission is carried out by 30 full-time staff members and thousands of Marines, Sailors, and civilian volunteers.

Panelists also discussed the factors that motivate people to volunteer with their respective organizations. After volunteers deploy once or twice, noted Casey-Lockyer, they realize “you get more than you give,” which is to say, they realize the extent to which they can help alleviate suffering during times of disaster. Weinstein reflected that Marine Corps Marathon volunteers gain practical experience by assisting runners who exhibit signs of distress. Younger volunteers serve as interns to gain expertise and give back to the community, Weinstein added, and the experience often spurs further desire to volunteer. Casey attributed a “cowboy” spirit to International Medical Corps volunteers that drives them to seek the adrenaline rush of being the first to respond to a disaster. The experiences also instill a willingness among the volunteers to deal with hardships. His organization provides a unique opportunity to gain first-hand experience in response, Casey suggested, and many volunteers get the “bug” to volunteer their time and complete more disaster response deployments. Volunteers can access populations that may be unavailable to professional organizations, noted Payne, and community-level volunteers tend to be the first in and last out of the disaster scene. Callaway observed that volunteers from the affected community can provide invaluable contextual knowledge about their specific community’s needs and demands.

CHALLENGES IN DISASTER HEALTH VOLUNTEERISM

The panelists discussed numerous persistent challenges associated with disaster health volunteerism. Casey-Lockyer reminded the group that because the concept of disaster can be personally subjective and variable, it needs to be clearly defined by size and scope. Laura Runnels, LAR Consulting LLC and workshop facilitator, offered that a disaster is a serious disruption of the functioning of a community or a society involving widespread human, material, economic, or environmental losses and impacts that exceed the ability of the affected community or society to cope using its own resources. Another challenge, Payne explained, is that the public health system, which is an essential component of a disaster response capacity but often understaffed and underresourced, cannot respond to disasters alone. Volunteers are needed to bolster and backfill staffing during disaster operations, but maintaining the interest of volunteers between disasters is difficult. Other panelists and participants added that jurisdictions are not only understaffed but also faced with an existing volunteer workforce that is rapidly aging out of service. Runnels emphasized that recruiting and retaining volunteers is contingent on managing their expectations, availability, and interests. She underscored the importance of providing

volunteers with the experiences they want and assignments they enjoy completing; also, volunteers need and expect to be properly thanked for their service. A participant explained that volunteers have increasingly high expectations to be engaged efficiently and see the impact of their work; if they do not feel a given organization is providing a valuable experience, they search for another one or strike out on their own. Casey observed that many volunteers prefer to work on acute disasters (e.g., earthquakes, hurricanes) rather than slower emergencies (e.g., drought, conflict, violence, displacement), which can make it difficult for an organization to sustain volunteer interest during interim periods. Another participant observed that the needs and expectations of volunteers are evolving, so the mission space may need to change concomitantly; these changes in volunteers' expectations highlight the increasing need to collectively strategize, communicate, and differentiate to maintain volunteer engagement.

Casey-Lockyer cautioned that the aging of the current volunteer workforce (most volunteers are retired and over the age of 55) has created an urgent need to infuse volunteer organizations with younger people. However, she continued, for younger people this may not be the most opportune time in life to volunteer, for both personal and professional reasons. Resolving the issues with the recruitment of young people may require changing the construct of disaster response to better suit younger volunteers, she noted. Younger people represent a large pool of untapped tech-savvy volunteers, commented Kathy Deffer of the National Association of County and City Health Officials, but many of them are working full-time jobs and have competing demands on their time. Jack Herrmann of the Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services, similarly noted the challenge of volunteers' competing work and life demands. Lisa Vajgrt-Smith, Contra Costa Emergency Medical Services Coordinator, considered the challenge of recruitment and retention in the context of new mission needs and evolving volunteer needs. She observed that newer, younger volunteers tend to seek instant gratification, recognition of their efforts, and response to their needs. These preferences make it difficult to ensure that volunteers are affiliated, vetted, and trained by the receiving organization.

Casey-Lockyer suggested that managing volunteers' expectations is particularly important for physician and emergency medicine technician volunteers; Kristina Morris, Southwest Virginia MRC, stressed the importance of educating health care providers about the practical differences between providing medical care in well-resourced versus resource-constrained environments. Participants including Maria Muth, of Collin County, Texas, expressed concern about ensuring volunteer safety from injuries and hazards, especially in dangerous situations. Sophie Miller-DeSart, Oregon Health Authority, pointed to the increased severity of natural disasters; complex disasters can overwhelm the system and inhibit volunteers from serving because they are too focused on their own safety.

Casey focused on challenges that arise from the administrative and managerial burdens of recruiting, onboarding, and maintaining volunteers, particularly during inter-response periods. He explained that surmounting these challenges requires complex relationship management (e.g., finding shift coverage for health care providers who must deploy very quickly to disaster zones). Maintaining professionalism is critical for ensuring the quality of services provided, he warned. He explained that some disasters are more complex and difficult to manage than others. For example, a scenario such as a famine in an unstable part of the world, given the potential danger from violence, is more complex in terms of recruitment and ensuring volunteer safety than a natural disaster with a primary focus on trauma care.

McKinney asked panelists about the types of challenges they face when coordinating across the full spectrum of response and the factors that incentivize or inhibit coordination. Payne called for better coordination with other organizations active in disaster response, which is sometimes hampered by internal organizational policies and barriers. Runnels observed that such coordination among organizations remains a persistent challenge that necessitates overcoming bureaucratic barriers and taking care not to overstep the boundaries of other organizations in ways that impinge on their work. Casey-Lockyer noted that local partnerships are critically important, but not all local-level organizations interact in positive ways. A key cross-cutting challenge, identified by Callaway, is the task of building out both domestic and international response capabilities by coordinating multiple players and moving operational parts.

VOLUNTEERING IN 2042

Following the discussions regarding current challenges with disaster health volunteerism, Hamamoto provided a brief presentation envisioning the state of volunteering in the year 2042. Hamamoto opened his presentation with a challenge to the audience to entertain notions that might seem absurd, quoting futurist Jim Dator's comment that "any useful statement about the future must at first seem ridiculous." Hamamoto presented a forecast intended to provoke the audience's imagination about what is possible in the next 25 years and about how the motivations, expectations, and ways in which people volunteer during a health disaster could be transformed. He explained that forecasts are assertions about the future

that are internally consistent, logical, and founded on present-day facts, either quantitative or qualitative. The forecast was provided in the form of a fictional scenario 25 years in the future. Hamamoto first described the breadth of disasters experienced by the future population of a major metropolitan area:

Advancements in three-dimensional (3D) printing technology provide criminals with a fast and easy way to obtain weapons, resulting in a breach of the city's strict firearm laws. Insufficient investment in infrastructure means bridges, trains, and sewage systems are out of date and subject to failure at multiple scales. What's more, now that everything is connected to the Internet, malicious actors are occasionally able to get through and wreak havoc. Climate change has spurred reshaping of the natural environment (e.g., rising sea levels) that require the city to retrofit infrastructure to protect against micro-disasters. These problems are all in addition to the "normal" assortment of threats and hazards, such as earthquakes and storms.

Hamamoto then described a range of preparedness and response mechanisms for volunteers and the present day signals that could make the future state possible (see Table 1). Many of these possible future circumstances have implications for how we recruit, train, and interact with disaster volunteers today.

OPPORTUNITIES IN DISASTER HEALTH VOLUNTEERISM

Throughout the workshop, panelists and participants explored opportunities to strengthen the volunteer workforce, to improve coordination within and among organizations, and to leverage new and existing technologies. A broad strategy to take, suggested Runnels, is to think strategically for the future by identifying and addressing gaps and barriers; this type of strategy will require collaborating across all organizations and sectors, establishing partnerships to supplement capacity, and integrating community-level perspectives and knowledge. Beau Sanchez, Philadelphia MRC, suggested taking advantage of the fact that volunteerism is becoming a new social norm, and Jennifer Duever, Oregon Health Authority, advocated a strategy of continuing to raise the cultural profile of volunteerism. Increasing awareness of disaster preparedness will open doors to potential volunteers who want to know more about how they can become involved, according to Miller-DeSart. Katie Hull, Weber-Morgan MRC, similarly recommended capitalizing on the cultural shift in focus from "individualism" back to "community," as well as the shift in focus from "government resilience" to "community reliance." Callaway observed that strong communities need less assistance during a crisis, so it is important to work with community partners to build local capacities such that structures and relationships are already in place before a disaster response is needed.

One participant characterized microparticipation as a potential entry point leading to deeper engagement. Deb Radi, Minnesota Department of Health, suggested changing agency policies and procedures such that interested volunteers can be immediately engaged with no wait time between the application process, interview, background check, training, and engagement. She also recommended engaging the skills and energy of young people to support the mission of disaster preparedness and response. Debra Garcia, Yuma County MRC, proposed that young volunteers could be engaged to train aging volunteers on how to use new technology. Deffer suggested increasing the number of volunteer-based agencies and creating incentives for companies that support and encourage their employees to volunteer. Jovan Bernard, Louisiana Department of Health, contended that the biggest opportunity for the volunteer workforce lies in the augmentation of existing resources of public health nurses.

Callaway recommended breaking free from the mindset that the field of medicine is unique, suggesting that potential solutions to many of the challenges described already exist in the private sector. Runnels raised the idea of "democratizing" disaster response among citizenry to better capture and integrate the diffusions of relevant skills and talents beyond the health sector and leverage available technological solutions. Callaway pushed back against the term "democratization." He recommended implementing professional standards to ensure that volunteers are fully vetted and able to deploy, as well as keeping volunteers accountable when activities are scaled up and/or decentralized.

Brenda Lutz-Hanson, La Crosse Area MRC, emphasized the importance of government, nongovernmental organizations, and the private sector working collaboratively at the local level to leverage resources and opportunities for training, resilience, response, and recovery. Casey noted that coordinating mechanisms already exist in the international space, such as the World Health Organization's emergency medical teams and field hospitals deployed to emergencies, and proposed that similar mechanisms could be leveraged to help build capacity and facilitate coordination for domestic disasters.

Duever observed that technology opens the door to new possibilities for collaboration that did not exist before. Herrmann highlighted the need to bring innovation and diversity to the table in addressing complex problems and situations. Marjorie Tayao, Hawaii MRC, suggested bypassing bureaucracy and leveraging technology to better assist underserved areas and connect populations across the country. Zack Ward, Idaho Public Health Department, predicted the emergence of spontaneous volunteerism, in which volunteers will deploy before being activated because of the ever-increasing speed and volume of information flow.

FINAL REMARKS

At the close of the workshop, McKinney provided concluding thoughts about ways forward in volunteerism for disaster preparedness, response, and recovery. McKinney began by highlighting the importance of playing to the spirit of volunteers by providing them with opportunities to support, learn, and grow. McKinney noted that organizations could lower barriers to volunteering; standardize training and core competencies; cultivate networks of volunteers to activate in times of emergencies; and build a business case for return on investment of volunteer utilization, making every donated hour high value. She suggested that the range of volunteer activities should be thought about—emotional support and solidarity are important—and to use this approach for continuous engagement. She accentuated the need to work to find the “sweet spot” between motivation, skills, and availability and to capitalize on them through online and real-world training. McKinney urged participants to think broadly and recognize the digital age but continue to build social resilience by rethinking assumptions about access and emphasizing purpose, community, and action.◆◆

TABLE 1 Potential Future State and Present-Day Signals Presented by Ben Hamamoto

Mechanism	Present-Day Signals	Potential Future State
Alert Systems	In the late 2000s and early 2010s, biological threat monitoring systems ^a were strategically placed throughout 30 jurisdictions in the United States. Human wearable sensor devices ^b monitoring individual health conditions and behaviors are becoming more common.	Sensors are embedded into the physical spaces of the city itself and connected to cloud-based, computer-powered analysis. These sensors let communities know when a disaster is imminent and how to respond.
Citizen Science	In the 2010s, a company called Propeller Health began offering inhalers with an embedded GPS unit. ^c The device is linked to a smart phone, and it allows users to anonymously upload the locations where they have asthma attacks. This activity creates a map of asthma hotspots, which might suggest there is something going on in the environment of these places causing people to have attacks.	Citizen data-mapping projects catalog resources and risks. Participation ranges from passive (e.g., opting in to programs that run in the background of devices we carry with us) to active (e.g., using drones to collect air and water samples). Cities can use this networked data to learn more about current threats and vulnerabilities and how to protect against them.
Sharing Economy	<p>We have built up social and technological infrastructure that the so-called sharing economy has relied on for decades. Inspired by the generosity of its users during Hurricane Sandy, Airbnb^d created its Disaster Response Program^e to make it easier for community members to provide emergency accommodations in times of crisis. During an emergency, Airbnb e-mails local hosts with information about how to help and how to offer their extra space to affected community members and relief workers.</p> <p>Yerdle^f is a platform for everyday exchange of used goods like tools and clothing, but during emergencies, participation surges.</p>	Sharing economy platforms shift their model from being market driven to accommodating people’s impulses to be generous. For example, individuals can register their home as a neighborhood’s net-zero energy generator and power storage facility, providing a place for powering electricity-dependent devices, shelter from extreme temperatures, and more.
Automated and Augmented Response	In the 2010s, many organizations began improving on commercial drone technology, with automated delivery services emerging. Exoskeletons, or robotic suits, ^g largely intended for military applications, are under development and have civilian use implications.	Privately owned and community-owned self-driving cars ferry injured people who need complex care to local hospitals. Drones deliver medical supplies to people who need immediate assistance and go on search missions to find injured people. Exoskeletons, or robotic suits, aid people in lifting heavy weights, which is useful for manual labor and caregiving during disaster response and recovery.
Virtual Reality and Brainwave Training	Early experiments in 2015 suggested that by recording the brainwaves of master pilots and then stimulating the brains of pilots in training in the same region of the brain, the trainee pilots’ learning was accelerated. ^h	Volunteers train for response in immersive virtual reality settings or receive brainwave training for specialized skills, such as cardiopulmonary resuscitation (CPR).

TABLE 1 Continued

Mechanism	Present-Day Signals	Potential Future State
Skill Matching	PulsePoint ⁱ allows everyday citizens who can verify they are trained in CPR to provide life-saving assistance to victims of sudden cardiac arrest. ^j CPR-trained people download the PulsePoint app, and when someone nearby is having a cardiac emergency and may require CPR, PulsePoint alerts them.	Volunteers' certifiable skills are cataloged so that when disaster strikes, they can be quickly dispatched to where their skills (e.g., medical care, psychological first aid, water sanitation) are needed most.
New Concept of Work	The first years of the 21st century have seen the erosion of jobs due to automation, which has contributed to a loss in morale, livelihood, meaning, and personal identity. The 2010s saw experiments in basic income guarantee programs ^k in Kenya, the Netherlands, and Oakland, California.	<p>A basic income guarantee program provides a global economic safety net for all residents. As a result, residents explore new roles in their community that provide meaning and identity. Neighborhood “koban”^l volunteers provide a friendly face and direct people to whatever resources they need at a given moment, whether an umbrella in a sudden down-pour or a friendly ear in a moment of trouble.</p> <p>Koban volunteers have critical roles in a disaster. They know not only who might need help but also the kinds of help they need, allowing the koban volunteers to fill in critical gaps in digital records. Most importantly, they are trusted by the communities in which they reside. In addition to these kinds of volunteers, there are specific disaster preparedness and response roles modeled after the purok system^m from the Philippines town of San Francisco. These people have the special responsibility of keeping their neighborhood informed and acting as critical go-betweens for local authorities.</p>
Lightweight Manufacturing	<p>In 2017, Autodeskⁿ and MX3D^o have collaborated to create the Global Village Construction Set, which is composed of multi-axis industrial robots that can 3D-print city infrastructure, such as bridges, on location without a print bed and without human intervention.^p The low cost compared to human labor, the shorter construction times, and the robots' ability to build in horizontal and vertical locations (without scaffolding in some cases) will make infrastructure construction faster, cheaper, and easier, allowing communities to dramatically transform public and private spaces at an unprecedented pace.</p> <p>Using wikis and digital fabrication tools, TED Fellow Marcin Jakubowski is open sourcing the blueprints for 50 farm machines, allowing anyone to build a tractor or harvester from scratch. This open sourcing is only the first step in a project to write an instruction set for an entire self-sustaining village (starting cost for the instruction set: \$10,000).^q</p>	3D printers are hard at work on everything from splints to temporary housing. In the next few years, they will even start building new infrastructure to replace what has been damaged.

TABLE 1 Continued

Mechanism	Present-Day Signals	Potential Future State
Prioritizing Social Resilience	<p>In the late 2000s, the Justice Mapping Center^r located a single block in a Chicago neighborhood where the government was investing \$1,000,000. The money was not spent on housing, food assistance, school programs, or rebuilding the street, but rather on incarcerating residents of this block.</p> <p>Chicago’s Million Dollar Blocks project,^s which grew out of the project by the Justice Mapping Center, crunched the numbers and found 851 blocks in Chicago where the public had committed more than \$1,000,000 to sentencing residents to state prison. The Center advocated pouring money into community-based violence deescalation and crime prevention programs to reduce costs related to incarceration of residents.</p>	Cities have become more resilient by using data to figure out how to use resources most efficiently, effectively, and equitably.

NOTES:

- ^a The Department of Homeland Security’s BioWatch Program provides early detection of a bioterrorism event and helps communities prepare a coordinated response. The combination of detection, rapid notification, and response planning helps federal, state, and local decision makers take steps to save lives and mitigate damage.
- ^b Human wearable sensor devices are devices with biomedical sensors used to monitor vital signs, motion, and other body-related information.
- ^c For more information about Propeller Health, see <https://www.propellerhealth.com/how-it-works> (accessed June 29, 2017).
- ^d Airbnb is an accommodation-sharing marketplace. For more information, see <https://www.airbnb.com/about/about-us> (accessed June 29, 2017).
- ^e For more information about Airbnb’s Disaster Response Program, see <https://www.airbnb.com/disaster-response> (accessed June 29, 2017).
- ^f For more information about Yerdle, see <https://www.yerdle.com> (accessed June 29, 2017).
- ^g Harvard Biodesign Lab is currently developing soft exosuits meant to augment the capabilities of healthy individuals in addition to assisting those with muscle weakness or patients who suffer from physical or neurological disorders. For more information about the project, see <https://biodesign.seas.harvard.edu/soft-exosuits> (accessed June 29, 2017).
- ^h For more information about the study, see <http://journal.frontiersin.org/article/10.3389/fnhum.2016.00589/full> (accessed June 29, 2017).
- ⁱ For more information about PulsePoint, see <http://www.pulsepoint.org> (accessed June 29, 2017).
- ^j For more information on sudden cardiac arrest, see <https://www.nhlbi.nih.gov/health/health-topics/topics/scda> (accessed June 29, 2017).
- ^k The basic income guarantee program is a form of social security in which all citizens of a country receive a regular, unconditional amount of money. For more information on the basic income guarantee programs, see <http://basicincome.org/news/2017/05/basic-income-experiments-and-those-so-called-early-2017-updates> (accessed July 25, 2017).
- ^l Koban refers to a substation of a police station in a community. For more information about kobans, see <http://www.pref.shizuoka.jp/police/english/duty/koban.html> (accessed June 29, 2017).
- ^m The purok system is a microstructure of governance at the village level that empowers communities by supporting community-level initiatives.
- ⁿ For more information about Autodesk, see <https://www.autodesk.com> (accessed June 29, 2017).
- ^o For more information about MX3D, see <http://mx3d.com/about> (accessed June 29, 2017).
- ^p For more information about the Global Village Construction Set, see <http://opensourceecology.org/gvcs> (accessed June 29, 2017).
- ^q For more information on Jakubowski’s open-sourcing project, see https://www.ted.com/talks/marcin_jakubowski (accessed June 29, 2017).
- ^r For more information on the Justice Mapping Center, see <http://www.justicemapping.org> (accessed June 29, 2017).
- ^s For more information on Chicago’s Million Dollar Blocks project, see <http://chicagosmilliondollarblocks.com> (accessed June 29, 2017).

DISCLAIMER: This Proceedings of a Workshop—in Brief was prepared by **Anna Nicholson** and **Justin Snair** as a factual summary of what occurred at the meeting. The statements made are those of the rapporteurs or individual meeting participants and do not necessarily represent the views of all meeting participants; the planning committee; or the National Academies of Sciences, Engineering, and Medicine.

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*The National Academies of Sciences, Engineering, and Medicine’s planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published Proceedings of a Workshop—in Brief rests with the rapporteurs and the institution.

REVIEWERS: To ensure that it meets institutional standards for quality and objectivity, this Proceedings of a Workshop—in Brief was reviewed by **Mary Casey-Lockyer**, American Red Cross, and **Skip Payne**, Medical Reserve Corps, Office of the Assistant Secretary for Preparedness and Response. **Lauren Shern**, National Academies of Sciences, Engineering, and Medicine, served as the review coordinator.

SPONSORS: This workshop was partially supported by the American College of Emergency Physicians; American Hospital Association; American Red Cross; Association of Public Health Laboratories; Association of State and Territorial Health Officials; Centers for Disease Control and Prevention (Contract No. 200-2011-38807, TO #54); Child Care Aware of America; Council of State and Territorial Epidemiologists; East West Protection; Emergency Nurses Association; GlaxoSmithKline; Healthcare Ready; Infectious Diseases Society of America; Meridian Medical Technologies; National Association of Chain Drug Stores; National Association of County and City Health Officials; National Association of Emergency Medical Technicians; Robert Wood Johnson Foundation (Contract No. ID#: 73289); Seqirus; Trauma Center Association of America, U.S. Department of Defense (Contract No. HHSP233201400020B/HHSP23337014); U.S. Department of Defense, Uniformed Services University of the Health Sciences (Contract No. HU0001-16-1-0022); U.S. Department of Health and Human Services, Administration for Children and Families (Contract No. HHSP233201400153P); U.S. Department of Health and Human Services, U.S. Food and Drug Administration (Contract No. 1R13FD005495-01); U.S. Department of Health and Human Services, National Institutes of Health: National Institute of Allergy and Infectious Diseases, National Institute of Environmental Health Sciences, and National Library of Medicine (Contract No. HHSN26300084); U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response (Contract No. HHSO100201550005A); U.S. Department of Homeland Security, Office of Health Affairs (Contract No. HSHQDC-15-C-00079); and U.S. Department of Transportation, National Highway Traffic Safety Administration (Contract No. DTNH22-14-H-00468).

For additional information regarding the workshop, visit <http://nationalacademies.org/hmd/Activities/PublicHealth/MedPrep/2017-APR-26.aspx>.

Suggested citation: National Academies of Sciences, Engineering, and Medicine. 2017. *Preparing for the future of disaster health volunteerism: Proceedings of a workshop—in brief*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24859>.

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