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Downwind from the Great Tohoku Earthquake: A Call to Global Action

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LIMITS OF OUR CAPACITY

The last 3 decades have seen a worldwide appreciation for advances in disaster medicine and public health preparedness that have accelerated our awareness of how humankind and nature interact. More than ever, societies need a comprehensive approach to anticipate, assess, prevent, prepare, respond, and recover from large-scale disasters worldwide.¹ Better research, education, training, and advanced technologies have markedly improved our capacities as responders at every level of management.² In support of the new emphasis on translational science, multiple disciplines from medical and public health, engineering, law, security, economics, the social sciences—to name but a few—along with freshly committed public and private sectors, confirm the benefits of a more comprehensive and formalized approach to all hazards. A better-educated citizenry has led to a convergence of dedicated volunteerism that works alongside newly defined crisis standards of care, highly professional rescue workers, and specialized teams expertly trained to identify and remove entrapped victims. Yet, new data had shown scientists that the frequency and severity of large-scale disasters had increased in the last 2 decades, reawakening a lingering and unsettling worry especially among those who study the earthquake and volcanic activities that make up the Asia-Pacific *Rim of Fire*.

Weeks and months have slipped by since the fateful earthquake and tsunami that struck the Sendai area of Japan on March 11, 2011. The amazing power of nature spoke once again, and confirmed the “every 100 years monster quake” that scientists had predicted. Despite the massive number of direct deaths, some solace could be found knowing the unique resilience, industry, and prowess of the Japanese people in returning Kobe to its former self within 6 months of the Great Hanshin earthquake of 1995. No country was better prepared than Japan.

What we call in disaster medicine an “indirect casualty event,” the failures in multiple nuclear reactors suddenly

silenced any optimism and immediately rewrote the tragedy in terms few could fathom or comprehend. It grasped the attention of the entire world in great part because it was not supposed to happen—revealing new questions and dilemmas that would challenge the very limits of human capacity. Tragically, the 40-year-old Fukushima Dai-ichi Nuclear Power Station was to shut down in 2 weeks’ time. Individual resiliency studies, critical to survival, have focused on acts of nature such as hurricanes and floods but generally exclude mass crises of the nature seen in Japan. While the recovery and rehabilitation is still expected to occur, it has clearly become a global task beyond that of Japan alone.

MORE WORK TO BE DONE

In the Western world we do well with crises we are familiar with and fear little. Preparation must meet the realities of the crisis. A study done in Australia rated nuclear events and reactor failures as the events most unfamiliar and feared by prehospital professionals.³ Disaster Medical Assistance Teams (DMAT) prepared to manage trauma victims had to reassess their role and capacities when they found themselves and their equipment totally unprepared to handle critical care patients who crowded the airport during the evacuation of New Orleans after Hurricane Katrina.⁴ Similarly, today Japanese DMATs find themselves unprepared and overwhelmed, attempting to maintain some semblance of primary healthcare and infrastructure protections (water, sanitation, shelter, food, and basic health) among the half-million evacuated survivors.

The reality of a similar event happening in 1 or more of 104 nuclear reactors in North America is not going away. The Great Tohoku earthquake and its aftermath are fixed in our consciousness and have catalyzed reassessments of those risks, uncomfortable but real, which threaten human security. Disaster medicine has a crucial role in this process of preparedness but it must resist the temptation to fit new crisis scenarios into existing response systems, protocols, and crisis

standards of care. Except in a few classroom and exercise settings, coordinating actual skill sets with emerging crises has not been a priority. Without delay we must now pay attention to developing requisite operational skill sets in:

- mass evacuation care,
- radiation detection, screening, and management,
- radiation-specific triage protocols,
- mass palliative care protocols,
- population-based psychosocial and behavioral care management, and
- to developing mass sheltering and communication assets.

DEFINING GLOBAL HEALTH

Collectively, the global community faces limited financial resources and political support, but that cannot diminish the responsibilities that must be met by every individual and community. This is especially true in communities compelled to look more closely at the potential risks of ageing reactors of the same design within their midst. This tragedy has also brought us closer to recognizing that we are already a global community. Both the Haitian earthquake and the Sendai tragedy have catalyzed major changes internationally to professionalize humanitarian actions, develop core competencies, and create a universal certification system for aid workers. Increasing numbers of engineers, economists, lawyers, and nurses are in joint degree programs in public and global health.⁵ It should not be a surprise that the younger generation is demanding more courses in global health at the undergraduate, graduate, and professional school levels. They know well that their productive years will be spent in some aspect of a globalized world that will demand global responsibilities and response to global tragedies. Crises bring communities together at strange times and usually advance our capacities to respond to future crises. The emergent use of social media, a critical component of globalization, is changing the way we communicate, especially during crisis situations. Half of respondents to a 2010 American Red Cross survey stated they would use social media channels (Facebook, blog, Twitter, etc) to transmit or receive emergency information. In the aftermath of the Sendai tragedy, as well the current Middle East democratic revolts, social media channels proved to be the major lifeline to loved ones eager to receive word of survival. Seventy-four percent expect response agencies to answer social media calls for help within an hour.⁶ Many lessons from the Great Tohoku earthquake will be digested over the coming months and years. Unique solutions, no doubt, will emerge from a better prepared and committed generation of global professionals.

WHAT ROLE FOR DISASTER MEDICINE?

The question remains: what role in promoting and accelerating progress will disaster medicine and public health preparedness play? Disaster medicine is a multidisciplinary,

professional discipline, made up of medical and public health professionals and a multitude of essential *nonhealth* professionals from every sector crucial to recovery from large-scale disasters and rehabilitation efforts. Domestic emergency medicine and management professionals number in the millions in the developed world, but in the developing world 30 years ago, the international humanitarian community could count on 2 hands who remained in the profession as a career. A decade ago those calling themselves humanitarian professionals increased to 100,000; today they number more than 220,000, with many dedicated health professionals in their ranks.⁵ While many spend their careers responding to large-scale crises in resource-poor countries such as Sudan, this generation of humanitarian professionals has not turned its back on domestic needs at home. In many respects we are seeing this play out in Japan today. A large and highly respected Japanese medical nongovernmental organization (NGO) called Humanitarian Medical Assistance is being supplemented by crucial Israeli health specialists that the NGO lacks. As global health matures it will no longer be a “them and us” mentality. The Great Tohoku disaster has made clear that this community of professionals will have to unite, share, and adapt its skills to solve regional and nation-state crises on a global playing field. The alternative is unthinkable.

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