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Healthcare Professionals Speak to the Need for CBRN Training

By
Dr. Terry Oroszi
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FBI Director Christopher Wray, in a February 2018 meeting with eighteen local public sector leaders, spoke of the ever-changing US landscape when it comes to Chemical, Biological, Radiological, and Nuclear (CBRN) events. During the Cold War (1947 – 1991), the predominant fear in the US was a domestic nuclear attack. The most likely threat scenario has evolved to attacks in small clusters, or localized events around the country using a wide spectrum of CBRN

hazards. The potential for such an incident to occur without warning has prompted the government to fortify preparedness efforts in hospitals. That preparedness may not extend to the health care professional's knowledge of CBRN response.

Health care professionals are the first line of defense when it comes to identifying and treating patients that have come into contact with CBRN hazards. If a patient arrives with nausea, vomiting, and tremors a physician lacking CBRN training may lean toward a diagnosis of Parkinson's disease, epilepsy, or an opioid overdose. Physicians with advanced CBRN training may consider diagnoses such as nerve agent exposure or acute radiation sickness.

Biological incidents can provoke fear and panic for both the patients and the medical professionals. Bioterrorism attacks such as the Anthrax letters of 2001, and natural outbreaks such as the Ebola outbreaks in western Africa place unexpected and extreme burdens on emergency room facilities and staff. CBRN incidents often require special triage, decontamination and isolation, and patient treatment procedures. The Center for Disease Control and Prevention (CDC) distributes readiness plans and has identified hospital competencies, but the training typically stops there. Lessons learned from the Tokyo sarin attack in 1995, and chemical attacks in Syria since 2012 indicate the urgent need for medical professionals to become aware of the special requirements of CBRN incidents (Francis, 2012, and Rosman, et al., 2014).

An article by Alexander and Wynia (2003) acknowledges the physician's need for advanced knowledge to better prepare them for an event. The article states that only 21% of physicians feel prepared to manage victims of a CBRN incident, and that 20% of physicians may not be willing to treat infected patients. To learn more about the importance of advanced training in CBRN, two medical students that have incorporated CBRN advanced training as part of their medical curriculum share their thoughts on why they sought the training and how it will make them better physicians.

Medical students weigh in on why they participated in CBRN training:

Megan Smith, MPH – Pathology:

I discovered the field of CBRN through my studies with the Wright State University Master of Public Health program. Before engaging with the coursework, I knew almost nothing about the role of medicine and public health in preparing for CBRN incidents. After studying CBRN Defense, I wish more medical students were exposed to this material. Though CBRN incidents are thankfully uncommon in our area, studying these threats allows for a more inclusive differential diagnosis when encountering potential CBRN patients. This means that victims may be recognized, treated, and reported earlier so that the public health response to the threat is expedited. On top of the utility of studying CBRN as a future physician, the subject is simply fascinating. I can't predict where my career will take me, but I would love to integrate my CBRN experience with pathology and public health to protect the well-being of our communities.

Jaree Naqvi – Anesthesiology/Emergency Medicine:

Through the CBRN program, I was able to experience medicine from a perspective that is not traditionally taught in medical school. As future physicians, we learn about physiology and pharmacology as we know it in the laboratory or clinical setting. However, CBRN exposes students to the morbid reality of chemical and biological warfare agents and their horrifying effects on our brothers and sisters around the world. Although these realities are difficult to face, they help us learn and grow as students of science and medicine. The courses were a great supplement to medical school as they reinforced important concepts from microbiology, physiology, pathology, and pharmacology. However, the true value of the program is the confidence and knowledge that it has instilled in me to become a leader in the field of public health and crisis management. The insight that one gains from this program by experiencing healthcare from such a practical perspective makes for a better-rounded

student. A CBRN-trained physician is well-equipped to serve as a guardian of their community and a leader in times of crisis no matter where in the world they find themselves. I firmly believe that CBRN should become an integral part of medical education as every student will benefit from this program.

The preparedness of physicians and other healthcare professionals should include training in CBRN. A healthcare provider with an understanding of chemical threat agent history, toxicology and medical intervention or the most important biodefense and emerging infectious agents, their epidemiology, pathogenesis, animal models and medical/environmental countermeasures with reference to regulatory requirements will be better prepared in an emergency setting.

Once such program located in the Boonshoft School of Medicine, a mid-sized medical school in the United States, offers an online three-course graduate level CBRN training curriculum for medical and other post bachelors' students interested in a medical approach to understanding the threat of a CBRN incident.