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## The state of emergency preparedness and disaster management response education and training in American medical schools: Preparing the future generations of medical professionals



The Covid-19 pandemic has required an unprecedented mobilization of healthcare resources. A disaster is a sudden calamitous event that overwhelms the resources of the community. In medicine, disaster training is emphasized primarily in Emergency Medicine (EM) residency training, and less so in other training programs [1]. However, as recent events have shown, Disaster Management and Emergency Preparedness (DMEP) is crucial for the implementation of effective and successful response strategies [2]. DMEP are skills that all medical professionals should learn during their medical education. We aim to investigate the prevalence of DMEP training at the medical school level.

We looked at the curriculum of all 156 US allopathic medical schools through official school websites. Medical school course catalogs and available curriculums were searched for “disaster preparedness” or “disaster response” and “emergency preparedness and disaster response” training. Only 7 schools (4.48%) out of 156, had any mention of disaster response training. Three (of 7) schools had at least one elective course dedicated to disaster response training, and 4 schools taught disaster response as a learning objective in an EM elective. None of the schools required students to take a disaster response course.

The lack of DMEP courses available for medical trainees is concerning, for several reasons. First, when disaster strikes, efficient mass mobilization of resources, particularly of healthcare personnel, is necessary. As healthcare providers, we are often at the forefront of a disaster response, tending to both the acute and long-term health repercussions [3]. We are tasked with maintaining and bettering the health of our patients, no matter the circumstance. In a 2013 self-administered survey of physicians, all respondents agreed that they should have the skills applicable to a catastrophe response, are ethically obligated to help, and should receive additional training in the area [4].

However, a cross-sectional randomly-selected national survey of clinicians recently demonstrated that only 45% of physicians working in emergency, trauma, intensive, or critical care units felt that their teams are “prepared to provide outstanding care in a crisis or disaster.” [5] Based on specialty, this is likely the most prepared group.

Second, learning how to operate in a disaster response scenario teaches skills integral to being an efficient clinician, such as risk assessment, professional role clarity, and appropriate teamwork through communication [5]. These are skills that can and should be applied in any specialty, and have been proven to enhance patient care [6]. However, given the lack of opportunities, medical students will have fewer

opportunities to learn, practice, and implement appropriate communication techniques to enhance teamwork and team-based patient management. This in turn may negatively affect patient outcomes, even outside of a disaster scenario.

Third, this lack of learning opportunities points towards an underutilization of resources. The literature demonstrates that early medical student training significantly improves both self-confidence and actual performance in healthcare settings in a variety of settings [7–10]. In particular, simulation has been increasingly implemented in trauma settings, in both civilian and military scenarios [11,12].

While some may argue that medical students would not be needed in disaster scenarios, or that the experience may be traumatic and detrimental to professional development, the truth may be the opposite. As a matter of fact, an unfortunate real-life scenario allowed a fortuitous glimpse into the effects of DMEP on medical trainees. In March 2011, an earthquake, tsunami, and nuclear accident all struck northern Japan. Students from Fukushima Medical University, the closest hospital that remained open, rallied to serve the community, despite sustaining significant losses to their own families and friends. While undergoing significant trauma, the students involved in rescue efforts demonstrated greater posttraumatic growth and overall resilience. Furthermore, a positive correlation was seen between students' feelings of sadness and anger and their sense of resilience, implying that participating in disaster response may actually promote professional and personal growth, even at the medical student level [13].

The importance of adequate training in DMEP cannot be understated. As physicians, we have an ethical obligation to provide patient care under all circumstances, particularly during a disaster. These are skills most emphasized in trauma and EM specialties but are helpful and enhance patient care in any specialty. Finally, early training during medical school can not only enhance physician confidence but also may promote professional and personal growth as a student.

We believe that all medical students should graduate with knowledge of how to meaningfully participate in a disaster response effort. As physicians, we should be confident, capable, and supportive of the front lines of any disaster. Further, we should practice and develop effective teamwork through communication to improve patient care. We recommend that medical schools offer more opportunities for students to learn disaster response techniques through electives and simulated activities. Increased opportunities in learning disaster response will improve medical students' abilities to perform team-based patient management through practicing communication and ultimately improve healthcare response efforts in the face of future disaster.

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## Declaration of Competing Interest

Authors disclose no competing interest.

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