

# **Involving Medical Students in Disaster Response:**

## **Ethics, Education and Opportunity**

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## **Abstract**

Every large-scale disaster renews discussions of the proper role of health care workers in emergency response. Too often, these discussions overlook the potential role of medical students. Indeed, future physicians can contribute to surge workforces and mitigate for professional absenteeism. While students who are still in training can pose risks to themselves and to others, history demonstrates they can serve with distinction in disaster situations. With appropriate training and supervision, medical students can be used not only to leverage available professional resources but can effectively sustain interpersonal aspects of patient care in mass casualty situations. Such service raises a number of important ethical issues that should be included in medical school curricula as well as disaster planning and training for public health emergencies.

## **Introduction**

The scope of physicians' duty to treat is re-evaluated during and after each disaster.

During emergencies physicians must be willing to assume duties in the face of uncertainty and risk for which they have not been prepared. Nurses, physician assistants, and other health practitioners have the skills and experience to cross-cover during emergencies. It is less clear what role, if any, is appropriate for medical students.

Training programs vary, but medical students typically do not become intimately involved in patient care until their third year; then in their fourth year, under supervision, they routinely conduct history and physical exam, place IV lines, perform CPR compressions on actual patients, help conduct informed consent, and deliver grave news to patients. Nevertheless, they are indisputably the least trained part of a medical team and rely on the more experienced team members.

Although limited knowledge and experience precludes them from functioning as fully licensed physicians, students can reasonably serve, nonetheless, as qualified workers in an emergency. With appropriate education and supervision, medical students can leverage available personnel resources and thereby contribute to the emergency response mission. However, if poorly prepared or inadequately supervised, medical students can endanger both their patients and themselves. Advanced training in life support and triage is included in certain programs and subspecialties. There may be broad attempts to address medical students' understanding of disaster planning and response; however, attention to questions of ethics in connection with mass casualty incidents has not been a feature of undergraduate medical education nor of disaster planning in general. In order for medical students to serve competently, their education and

supervision must also address the ethical issues that arise when extraordinary circumstances warrant alterations in standards of care and exceptions to training requirements.

### **Benefits and Risks of Students' Involvement**

Medical students have shown themselves eager to respond in emergencies. An astonishing 96.4% of U.S. medical students reported that they would participate in disaster response, and 80.9% felt an obligation to participate. (1) Students are likely to have fewer family obligations than established physicians and so may be more available in emergencies. As students they are keen to learn and take pride in practicing seemingly mundane tasks such as peripheral line placements, suturing, and physical exams. Moreover, they customarily devote themselves to taking time to explain and to comfort patients when more experienced physicians must sometimes move on to the next patient. For these reasons, patients' experiences are often enhanced by medical students' involvement.

Nevertheless, well-meaning medical students – who are normally closely supervised to prevent them from exceeding their capabilities – can harm patients in less structured circumstances such as mass casualty emergencies. Patients are rightly advised when medical students are part of a care team but may assume that students have already obtained a medical degree. (2) Students may have difficulty explaining their qualifications or their roles participation in invasive procedures such as lumbar puncture, for instance, or surgery. One study showed that clinical students are less likely than pre-clinical students to inform patients of their student status in the surgical setting. (3) One might therefore hypothesize that students would be even less likely to introduce themselves accurately to patients in disaster situations, thus allowing patients to infer wrongly that they are qualified practitioners.

Moreover, students are more likely to injure themselves due to inexperience; one study demonstrated health care professionals are most likely to be injured by sharp instruments during the first year of their clinical training. (4) Mass casualty emergencies may exacerbate the potential for direct injury and exposure to quarantined patients. Another study noted that students appeared to be easily distracted if a multi-casualty triage scenario included pregnant women or children. (5) In emergency situations, students may be interacting with difficult patients, injured or distressed children, and even patients with poorly treated mental illness. (6)

Obviously, if the risks of including students in public health emergency surge plans outweigh the benefits, they should not so serve. (7) One could still argue that disaster situations serve as excellent learning opportunities for medical students, and such experiences should not be denied to them. Such experiences, even with its risks, would enhance their skills in non-emergencies but also in future disaster response. Preventing medical students from being placed in situations beyond their ability by including these sorts of challenges in their clinical training will allow them to safely respond to disaster and public health emergencies.

### **The Role of Students in Disaster Response**

Historically, medical students have contributed to emergency response efforts in clinical settings, in the field, and for disaster response organizations. In the 1950s, when poliomyelitis was rampant, 1500 medical and dental students in Europe mechanically ventilated patients with respiratory failure. (8) More recently, during the September 11, 2001, terrorist attack, medical students participated in surgical and resuscitation teams and as "runners" to carry information between triage stations. (9) Some of them also worked with psychiatrists to provide emergency mental health care to victims, affected families and rescue workers. (10) After an earthquake in

Kashmir in 2005, local medical students participated in search and rescue and performed emergency care in a semi-supervised environment. (11) In the aftermath of the 2010 Haiti earthquake, medical students from Miami assisted with surgical care and logistics. (12) In the Chilean earthquake in 2010, medical students working with physicians and public health workers administered vaccinations, provided medication and prescriptions, treated infections, and offered psychological support to the victims. (13)

Decision-making in disaster situations is often difficult. In the Haiti earthquake experience, physicians faced three important issues for every patient: urgency of a patient's condition, resources to care for that condition, and the practicality of saving that patient. (14) The first issue is purely clinical knowledge. In one study, even 1st-year medical students achieved parity with emergency physicians in the triage of patients into not injured, delayed injured, life-threatening or dying categories. (15) Medical students can triage patients into stratified groups, but decisions regarding amputations, surgery, and prioritization of care must be left to qualified physicians and incident commanders. However, medical students having completed surgery and medicine ward clerkships would be able to assist in operations and resuscitation management. In addition to clinical duties, medical students can work in call centers, help prepare food and deliver supplies within organizations such as Medical Reserve Corps, American Red Cross and Salvation Army. (16)

In disasters, expectations regarding standard of care may sometimes have to be altered in order to maximize resources or optimize lives saved. Limitations of care and prioritization of resources during triage is challenging for all physicians, and perhaps more so for medical students. After the Haiti earthquake, a committee of three physicians was established to guide decisions on clinical management. (14) It is worth noting that even in such an extraordinarily

difficult and minimally resourced situation, patients who might have been triaged into the black, or dying, category were not because physicians were – mistakenly – unwilling to abandon them.

(17)

### **Duties of the Profession**

On the first day of medical school, students are formally welcomed by their deans to a distinguished profession. If the deans get it right, they will make clear that the practice of medicine is about service, perhaps the profession's greatest honor. One aspect of that service is the ongoing recognition of an uncontroversial duty that follows from the free choice of a profession dedicated to healing and service: if one can help others in need, then one ought to do so. Physicians worthy of that calling, even if off-duty, are expected to volunteer in support of local emergency response because of their unique skill set and social responsibilities. (18, 19) Physicians are the most highly trained health care workers and decision makers in most medical situations. If they are unavailable, the tasks, risks and judgment calls are left for someone less experienced: trainee physician, nurse, paramedic, and so forth. (20)

In considering physicians' responsibilities during large-scale emergencies, it is often asked whether the professional obligation to render aid is countervailed by the degree of personal peril it attends. The root of the obligation, however, as Chalmers Clark argues, lies not in the potential danger to physicians but in the special capacity of physicians to actually render the aid that is required. (18) Thus, the special abilities of physicians to know what to do for illness or injury create greater obligations to assist in health related emergencies beyond those who lack such specialized knowledge and training. Before considering whether this analysis of physician obligation is applicable to medical students – who do have some knowledge and training but are

not fully fledged – we should revisit philosopher Judith Jarvis Thompson’s classic analysis of obligation on which Clark’s conclusions are based. (21)

Thompson sought to analyze whether there could be a right to life-saving assistance. In the now-classic case, she concludes that there is no such right, even if death results. Thompson went on to consider whether there could be a moral obligation that is not based on rights to provide lifesaving assistance. According to Thompson, it could not be considered *unjust* to refuse to aid someone in desperate need, but it certainly would be self-centered – that is, not *minimally decent*. While moral indecency and moral injustice may both be serious, they are not the same thing morally, if by “morally” it means having to do with a violation of what is due someone, or of someone’s right to your assistance. In other words, I am not justified in demanding the aid of another to save my life, but the person refusing me aid in such situations cannot be said to be acting ethically.

In her analysis, Thompson distinguishes among the Good Samaritan, the Splendid Samaritan and the Minimally Decent Samaritan. Samaritanism here is a species of charity rather than a species of duty. The Good Samaritan, following the Old Testament parable, is one who takes risks or incurs costs in order to aid someone in need. The Splendid Samaritan is someone who goes above and beyond, who willingly acts for the sake of another in a way that may cost her life. The actions of the Splendid Samaritan are beyond norms or expectation. Both the Good Samaritan and the Splendid Samaritan act unselfishly for the benefit of another but the risks are of a different order. A third possibility, the Minimally Decent Samaritan, refers to what one is obligated to do as a matter of moral decency, that is, the minimum required to avoid moral indecency or unethical behavior. Of course, what is morally indecent depends on context and, unlike rights, may be a matter of degree; it may vary with the situation and with a person’s

capacity to render aid. But if it were within one's capacity and without great cost, it would be morally indecent not to come to the aid of someone whose life is genuinely at risk.

As we can see, Thompson's distinction between the Good Samaritan, the Splendid Samaritan and the Minimally Decent Samaritan allows us to understand how Clark derives a general standard of obligation for physicians. Clark argues that for members of the medical profession, "minimal decency" is determined by factors such as the relative ability of physicians to render aid of the requisite sort in medical emergencies, by the fact that physicians in some sense consented to be put at risk when they joined the profession, and that the profession as a whole can be understood to have something akin to a contractual obligation to society such that they will respond in dire medical circumstances.

We can think about medical students as not yet having these same obligations, although they might at some future date. However, on such an analysis, we could only conclude that those students who wish to volunteer and understand the nature of that service should be allowed to do so. It is for this principle that almost the entire first-year NYU medical students showed up to evacuate patients during Hurricane Sandy after receiving an email from their administration. (22) Alternatively, medical students could be somewhere on the continuum between non-physician and physician and calibrate their location to some specific set of responsibilities. Neither of these approaches grounds the obligations of medical students *qua* moral actors. Thompson's analysis actually allows a more robust moral conclusion. For Thompson, there is an obligation for everyone to do what is required to avoid moral indecency. So, in cases where there is no sacrifice of comparable moral importance, it should be understood as minimally decent and perhaps obligatory for medical students to volunteer in medical emergencies.

## **Legal Issues in Disaster Response**

Legal immunity for “Good Samaritans” must be established otherwise before students no less than licensed physicians risk litigation or criminal sanctions. Experienced health care professionals faced criminal charges in the Hurricane Katrina aftermath, despite the facts of the impossible life-and-death decisions they faced during the disaster. (23) Now over the past decade, volunteer health care professionals have come to enjoy some legal protection as long as they have a current license and perform duties within a reasonable standard. (24) However, because medical students are not licensed to practice medicine, their supervisors – and institutions – might presumably be held responsible for mistakes (or at least bad outcomes). Most states have liability protections for emergency response volunteers who are trained, called up and assigned through an incident command system. These plans should be reviewed with respect to medical student involvement and liability so as to address these questions before students are deployed in any emergency response.

Additionally, medical schools are likely to be responsible for their students if they are injured or become defendants in a lawsuit. During the Severe Acute Respiratory Syndrome (SARS) epidemics, several medical schools in Asia were forced to cease or restrict contact with SARS patients because of pressure from students’ families. (25) However, some risks of Samaritanism can be minimized. Emergency first-responders –including military personnel and healthcare workers – are prioritized in disaster plans to be the first to receive protective equipment or vaccinations. Medical students who volunteer could similarly be assigned such priority. Indeed, vaccines, chemoprophylaxis and personal protective equipment should arguably be given to less experienced responders to decrease the occupational risks associated with newly trained personnel. (21)

Perhaps most importantly, an assigned supervisor in disaster response will help ensure that medical students do not exceed their roles; and pre-disaster training and exercises will enable students to perform as part of a team. Well-defined roles predetermined and practiced by students can keep them functioning within their scope of training. In other words, the importance of training and practice for medical students will ensure they have sufficient knowledge and experience to perform vital skills even in stressful times. This component of preparedness reduces risk to students and patients and so is ethically optimal and legally wise.

## **Disaster Education and Training**

Although medical students might share some responsibility in disaster response, they lack the training needed to perform effectively. In fact, while 96% are willing to volunteer, only 17.2% believe they are adequately prepared. (1) With respect to medical knowledge, students have received at least some education in microbiology and infectious diseases, but have little experience with poison control. While bioterrorism is sometimes covered in microbiology courses, disaster triage is not. In a California study, 29% of medical students reported having had personal disaster experiences, but only 6% participated in emergency drills. (26) Fourth-year medical students are more comfortable performing procedures that they have learned during clinical rotations, such as suturing lacerations and drawing blood, but still lacked sufficient emergency knowledge and training. (26) It follows that if medical students are to realize opportunities to contribute in such circumstances, the importance of disaster medicine needs to be recognized and emphasized – despite that challenges in medical education already include competition among many components of the formal curriculum. (27, 28)

In addition to clinical training, disaster triage, and public health principles, students also should be appropriately prepared and have the opportunity to discuss the ethical issues that arise in mass casualty situations. That discussion might begin with their role itself: at ground, balancing the desire to contribute and need for the contribution with the risks to patients and students. Further and for instance, terrorists and criminals may be the very recipients of care so nobly envisioned; Do Not Resuscitate orders and hospice care issues will arise with patients triaged to the “black” category; and challenges related to quarantine, isolation and prioritization arise frequently in emergency situations. (28-31). The ethical principles so carefully demonstrated in medical school are not so clearly applicable during mass casualty and severe resource shortages.

At institutions that have incorporated disaster medicine in their curriculum, core competencies include medical history and physical exam for public health emergencies and disaster triage and public health principles, which are largely learned from recent response to pandemic influenza and terrorist attacks. (32, 33, 34) Medical students in Japan, Singapore, and Hawaii are also exposed to simulation techniques and hands-on approaches, and these have been shown to foster enthusiasm for the subject and enhance the learning experience. (35) In a recent survey, only 9 U.S. medical schools have included disaster medicine in their curriculum (36), but several schools have incorporated disaster response scenarios and drills that were rated highly by students. (37) Education and training are crucial in assuring medical students’ competence and usefulness in emergency response efforts.

## **Conclusion**

The number of fully licensed physicians is limited; medical students can provide important support to the disaster workforce. Medical students have clinical skills to appropriately triage patients as well as assist with life-saving procedures. With additional training, practice, and established supervision, they can help save lives. Ethical and legal considerations should be addressed to ensure sound decisions and to improve the safety and effectiveness of students' involvement. Medical schools should be encouraged to include disaster preparedness and response in their clinical rotations, because if adequately prepared, medical students can become valuable contributors to lifesaving efforts in the direst circumstances.

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