

Involving Physicians-in-Training in the Care of Patients During Epidemics

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As international travel grows, the risk of exposure to new and reemerging infectious diseases and the potential for epidemics continues to rise. Health care professionals are at particular risk for exposure during outbreaks. Training programs have varying policies regarding the involvement and safety of physicians-in-training (ie, medical students, residents, and fellows) in the care of patients with a highly infectious pathogen. Given that epidemics and emerging infectious diseases are becoming more common, the participation of trainees in the care of patients with a highly infectious pathogen requires further consideration, balancing safety, education, and duty.

The risk of exposure to communicable diseases is intrinsic to health care, and professionals regularly care for patients with contagious diseases such as human immunodeficiency virus (HIV), hepatitis B, and influenza. While the use of universal precautions to mitigate this risk has developed and evolved, the risk to health care professionals becomes most evident during epidemics, such as the HIV epidemic at the end of the 20th century. During the early days of this epidemic, a physician recounted his experience of contracting HIV in 1983 as a resident after accidental exposure to a shattered capillary tube filled with blood, from a patient eventually diagnosed with acquired immunodeficiency syndrome (AIDS).¹ In his commentary, the author highlighted the importance of physician safety in the workplace. "Health workers must not deny care to the victims . . . But if we are to be in the front lines, then we must make sure that we are better protected in all aspects."¹

Since the 1980s, the risk of HIV acquisition from occupational exposure has been found to be low.² However, the public and trainees' perception of risk, along with the emotional experience tied to exposures, was higher than expected. In the early 1990s, there was heightened awareness of HIV transmission in health care settings after a cluster of patients were exposed to a dentist with HIV.³ Based on the concerns of pediatric trainees, the American Academy of

Pediatrics released guidelines for pediatric residents on the care of patients with HIV.⁴ These guidelines recommended that trainees be expected to care for patients with HIV, but first must be trained on modes of transmission and safety precautions.⁴ It also urged institutions and medical training programs to address the psychological and emotional aspects of caring for patients with HIV, including providing support to those with an occupational exposure. This guidance recognized that for physicians-in-training, there must be a balance between the risk of exposure to infectious diseases and the duty to provide care, while engaging in practical learning.

Experiences with the transmission of bloodborne pathogens (such as HIV, hepatitis B, and hepatitis C) from sharps injuries have transformed our training of health care professionals in recent decades. A survey study showed that 40% of needlestick injuries occur among surgical staff and medical students.⁵ Given the prevalence of bloodborne pathogens, it has become clear that physicians-in-training must be taught safe practices without being sheltered from patient care. Providing care for such patients allows trainees to uphold their duty as physicians, while learning the art of medicine.

However, Shaw and colleagues noted that the duty to treat is not absolute, and physicians have an obligation to care for themselves first, so they do not become patients themselves in times of crisis.⁶ Lim and colleagues suggested potential alternatives to real patient interactions to address the challenges of medical education during epidemics, while avoiding placing trainees at risk. These alternatives included utilizing patient simulators, e-learning modules, and video vignettes.⁷ Ultimately, this approach may be more feasible and appropriate for medical students rather than residents or fellows.

Lack of preparation and involvement of physicians-in-training during epidemics has the potential to negatively affect medical education by disrupting teaching opportunities and challenging the professionalism and humanity of trainees. Times of crisis allow physician educators to model professionalism to trainees. A qualitative study in a Canadian training

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program during the severe acute respiratory syndrome (SARS) epidemic of 2003 demonstrated that there was fear and anxiety surrounding the potential risk of trainees acquiring SARS. Residents felt that this epidemic affected their scheduled rotations, and other educational activities were sacrificed.⁸ One participant in another study regarding physicians during the SARS epidemic stated, “I think it is unfortunate that we took the medical students out of the loop. I wonder what the message sends about professionalism and altruism in the health care field.”⁹ These types of emergency situations can be beneficial to medical trainees; however, safety training must precede such participation.

More recently, the 2014 Ebola Virus Disease (EVD) outbreak raised the question of whether trainees should be allowed to care for these patients. The Accreditation Council for Graduate Medical Education published guidelines stating that all residents and fellows know the basic signs and symptoms of Ebola infection, that they be trained on proper protocols for all care settings, and that they only provide care for patients under direct supervision of attending physicians trained in treatment and infection control protocols.¹⁰ Individual training programs then adopted their own policies regarding limiting resident exposure to potential EVD. Bernstein and Shayne argued that it is a physician’s responsibility to educate students and residents who are expected to participate in disaster responses,¹¹ while recognizing that proper training and supervision be employed. Completely removing trainees from these situations can be detrimental to their overall experience and education and possibly trainees’ understanding of their professional role. Most trainees are restricted in their ability to provide international relief care during outbreaks despite receiving appropriate training. Regarding the role of trainees in caring for EVD patients abroad, Rosenbaum stated, “. . . if we avoided all situations that we couldn’t understand in advance and that posed any risk, we would spend our lives in a state of paralysis.”¹²

Highly contagious infectious diseases will continue to arrive at our doorsteps, and the need to balance trainee safety with patient care will remain ever present. Lessons from previous experiences with HIV, SARS, and EVD can help create a roadmap to providing optimal patient care and education. These experiences can cultivate a sense of duty and allow trainees to learn about, and potentially participate in, the care of patients with highly contagious infectious diseases. First and foremost, the needs of patients and health care personnel must be met. In its current state, health systems develop protocols for disease recognition, isolation needs, and training of

BOX Tips to Improve Physicians-in-Training Education During Epidemics

- Establish institutional protocols for recognition, isolation, and staff training for highly contagious infectious diseases.
- Provide physicians-in-training opportunities for education on these protocols.
- Implement virtual learning tools or patient simulators for medical students who cannot participate in patient care.
- Involve appropriate physicians-in-training in preparedness drills to reinforce learning and demonstrate capabilities.
- Develop protocols on how specific groups of physicians-in-training can become members of response teams, as feasible and after appropriate training.

frontline staff. In extreme situations, such as EVD, trainees should be excluded during the initial implementation of these protective protocols. However, once established, training programs may provide physicians-in-training opportunities to be educated on these protocols to ensure proper understanding (BOX). Involving trainees in preparedness drills can help reinforce and demonstrate capability and comprehension. Training programs, such as those in emergency medicine, internal medicine, and pediatrics, may consider having trainees become members of response teams, as feasible. By educating our next generation of physicians in these situations, we will not only protect them and our patients, but also foster their desire to serve, empower them to contribute in a meaningful way, and prepare them to provide safe care. Infectious pathogens do not recognize national borders. Training programs and health care systems should seize this opportunity to educate physicians-in-training on the safe care of patients who may have a highly contagious pathogen to prepare for the next epidemic.

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