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COVID-19: Lessons From the Disaster That Can Improve Health Professions Education

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Abstract

COVID-19 has disrupted every aspect of the U.S. health care and health professions education systems, creating anxiety, suffering, and chaos and exposing many of the flaws in the nation's public health, medical education, and political systems. The pandemic has starkly revealed the need for a better public health infrastructure and a health system with incentives for population health and prevention of disease as well as outstanding personalized curative health. It has also provided opportunities for innovations in health care and has inspired courageous actions of residents, who have responded to the needs of their patients despite risk to themselves.

In this Invited Commentary, the author shares lessons he learned from three earlier disasters and discusses needed changes in medical education, health care, and health policy that the COVID-19 pandemic has revealed. He encourages health professions educators to use the experiences of this pandemic to reexamine the current curricular emphasis on the bioscientific model of health and to broaden the educational approach to incorporate the behavioral, social, and environmental factors that influence health. Surveillance for disease, investment in disease and injury prevention, and disaster planning should be basic elements of health professions education. Incorporating innovations such as telemedicine, used under duress during the pandemic, could alter educational and clinical approaches to create something better for students, residents, and patients. He explains that journals such as *Academic Medicine* can provide rapid, curated, expert advice that can be an important counterweight to the misinformation that circulates during disasters. Such journals can also inform their readers about new training in skills needed to mitigate the ongoing effects of the disaster and prepare the workforce for future disasters.

As I was planning the transition from my role as editor in chief of *Academic Medicine* on January 1, 2020, little did I know that COVID-19 would explode onto our health care, clinical research, and education systems. I imagined the journal would continue its focus on topics such as competency-based education, professionalism, workforce diversity wellness, new technologies for education, and other innovations in health professions education. I did not imagine former residents writing to me a few months later about the overwhelming numbers of patients on ventilators who were dying of a disease the residents had never seen before, one that was being described on a daily basis in journals around the world.[1] I did not imagine all of our educational conferences becoming online sessions because having students and faculty sit together in a room now posed too great a risk of infection. COVID-19 has disrupted every aspect of our health care and education systems,[2] creating anxiety, suffering, and chaos for our society and exposing many of the flaws in our public health, medical education, and political systems. In this Invited Commentary, I describe some characteristics of three earlier disasters, discuss some of the changes in medical education and health care that the COVID-19 pandemic has starkly revealed are needed, and explain what *Academic Medicine* can offer in such a confusing time, when unexpected events have thrown our plans off course, replacing them with new crises that demand our attention on a daily basis while every media outlet is competing for the newest health information.

Years ago, I found myself in unexpected dire situations that, like the COVID-19 pandemic, could be classified as disasters, and I thought I might share three of them. The first time was in 1976 in Guatemala as part of a disaster relief team after an earthquake.[3] We experienced numerous terrifying aftershocks and I worried that I might get crushed under a collapsing building. I often wondered what good we were doing amid all the destruction, but I came to realize that by being

there day after day, not giving up, helping injured people one at a time, and putting what we could back together we were slowly creating the foundation of the new town and the new hospital that would eventually replace what had been destroyed. I visited the town 40-years later and there was barely a trace of the earthquake or any memory of the trauma among the people I met.

The next time was in San Francisco at the beginning of the AIDS epidemic when I was a resident. Young gay men began to fill the wards with diseases that none of us had seen before; many of them were my age. Some invisible demon had entered their bodies, consuming them from the inside and outside at the same time. I would read the reports of increasing numbers of cases of a rare pneumonia and of what we would soon come to call AIDS in the *Morbidity and Mortality Weekly*.[4] The incessant rise in cases and deaths was terrifying, like the daily toll of COVID-19 deaths that flash on today's television and computer screens. I felt helpless, confused, and scared. As faculty and residents, we could not imagine that a new infectious disease could just appear that had not existed before, and we initially thought the disease must be from a toxin of some kind, perhaps a drug that poisoned the immune system. When we learned that it truly was something new, the effects of a virus on the immune system that had not been seen before in humans, it was a shock and a revelation that our medical education had not prepared us for this. It made me wonder about other gaps in my medical education, such as the role of public health in the prevention and spread of this new disease.

The third time was about 15 years later in New Mexico when several of my patients began appearing from the Four Corners region with respiratory failure and pulmonary infiltrates. They were mostly Navajos who had been previously healthy. Most died rapidly, and I thought that by the time anyone figured out the cause of the illness I would also die, carried off by the same

unknown infection. Fortunately, the hantavirus that caused the illness did not spread between humans, but if it had been like the COVID-19 virus, I probably would have caught it because the masks and gowns we had at the time were not very effective or used consistently. My colleagues and I wrote about the hantavirus epidemic as an example of an infectious disease disaster and made recommendations about how to address infectious disease disasters in the future.[5] At the time, we imagined a limited infectious outbreak and never conceived of anything as widespread as COVID-19. It was not until several years later after the attacks of September 11, 2001 that fears of a biological terrorist attack led to the funding of comprehensive training for infectious disease disasters and the development of what we now call personal protective equipment (PPE). The money and enthusiasm for such preparation soon dried up, however, as it became clear that planning for a serious but unlikely event required a continued investment that could not be justified in a world where annual return on investment was the operative principle. If there was no disaster for several years, the return on investment for training and stockpiling of PPE would be negligible.

Through those three experiences with catastrophes, I learned that fear and uncertainty are widespread during a disaster, information changes constantly and is often inaccurate, experts whom we depend upon often turn out to not really have any expertise in the particular disaster situation, and leaders can emerge from unlikely, unexpected places, often by chance rather than by design. Journals such as *Academic Medicine* can provide curated, expert advice based upon previous literature that can be an important counterweight to the circulating misinformation. They can also publish new information online quickly, as *Academic Medicine* has been doing, and can inform their readers about new training in the skills that will be needed to mitigate the ongoing effects of the disaster and prepare the workforce for new disasters. I have previously

written about the potential role of academic health centers (AHCs) in relation to disasters in this journal and described the importance of having expertise in disaster preparedness, research, education, and response that could be located at AHCs.[6] Unfortunately, disaster preparedness has not been a high priority at most AHCs, leaving them woefully underprepared for the COVID-19 disaster.

Something I noticed from previous disasters was that the victims were not distributed equally in the population. It was often the most vulnerable—for example, those who required chronic care like dialysis, or medications for diseases like diabetes whose care became disrupted—who suffered the most. People who were poor, homeless, mentally ill, or chronically debilitated often did not have the capacity to resist a new infection or an injury associated with a disaster. To address this problem, disaster teams needed to seek out members of vulnerable populations rather than expecting them to find their way to the care system, because many of them did not have the resources to seek care. Unfortunately, we are finding a similar pattern now with COVID-19 in the United States, with a disproportionate share of victims coming from minority, poor, and chronically ill populations.

Finally, I noticed that disasters can bring out the best in people. I encountered many individuals who were truly heroic. They were not persons who would normally stand out, but when they were thrust into critical situations, they would sacrifice their own safety to help others who were often strangers. I would put our current residents in that category. I am so proud of them for their courage and perseverance day after day to care for patients whose disease could be passed on to them and their families and could lead to their own illness or even death. If there is any silver lining to all the devastation that we have witnessed, it is the example set by our younger generation of residents and faculty, who have shouldered much of the weight of caring for

patients with this terrible disease. I have had the opportunity to work side by side with some of our residents and believe they could be the nidus of a movement to create a cultural change in our society that emphasizes service and sacrifice for others, which we need if we are to become a caring and compassionate healing community. When we ask our residents to risk their lives, all of us also need to share the responsibility for policy and education decisions that put their health at risk. Their courageous acts might not have been necessary if we had done more to prevent the spread of the disease, so we need not only to applaud our residents' acts but also to take steps to not put them in that dangerous position again.

Our health professions education community should use what we have learned from the COVID-19 pandemic to finally make the changes in our education system that promote the health of our trainees. Ripp et al[7] have described how a task force at Mount Sinai Health System in New York City addressed the wellness needs of the health care workforce in response to the COVID-19 pandemic; these included personal safety, food, childcare, transportation, sleep, communications, and psychological support. Aren't these the same needs of our trainees throughout their education? I don't think we can continue the abusive work schedules that had little evidence of positive impact and were driving many of our students and residents to the breaking point even before COVID-19 arrived. While disasters by their very nature overwhelm the normal health care resources, we were starting from a point of weakness with residents and students already burned out. I hope that one outcome of this COVID-19 pandemic is that our academic medical centers and our educational community will stand up for our residents and make the changes in work hours and schedules that would promote residents' health and wellness.

There are some other changes that our health professions education community should consider as we reflect upon the COVID-19 pandemic. Our emphasis on the bioscientific model of health has dominated our curricula and assessment systems in medical education since the Flexner era, but our curricula now must also incorporate the behavioral, social, and environmental factors that influence health. Surveillance for disease, investment in disease and injury prevention, and disaster planning should be basic elements of health professions education. This is not to denigrate the remarkable advances in our understanding of personalized health care that have come as result of scientific discovery, but rather to recognize the importance of an ecological framework for human health that wraps the individual and his or her story within the context of the community and environment in which that person lives. While the bioscientific model may produce clinician scientists who will ultimately create a vaccine for COVID-19, it will not produce the workforce that will prevent the next pandemic or provide the health system that will be able to respond effectively to it.

Finally, many of the sacred cows of medical education have been thrown into question during the COVID-19 pandemic, from in-person attendance at lectures, to proctored standardized content tests for recertification of practicing clinicians, to the structure of medical student clinical clerkships. Telemedicine has been recognized as a frequently effective alternative to in-person ambulatory visits. There is an opportunity to use what we have learned under duress to alter our current educational and clinical approaches to something better for students, residents, and patients. We appear to be able to improve quality of care, reduce cost, and improve health professionals' safety in some telemedicine innovations. Therefore, we should be able to integrate these innovations into our education programs.

I believe that as terrible as COVID-19 has been for our country and the world, it has pried our eyes open to the need for a better public health infrastructure and a health system with incentives for population health and prevention of disease as well as outstanding personalized curative health. Both approaches in health care are possible and necessary.

I hope we have learned that we cannot build walls that will keep us secure from all the dangers of the world. Just as weather patterns do not respect the borders between countries, neither do diseases. While our languages and cultures differ, all of us on this planet want our families, communities, and our selves to flourish and succeed. We can learn from each other despite our differences. We all gain with vaccines for disease, information about climate change, adequate food, and clean water and air. Poverty and disease in one country are problems for all of us, and border fences will not prevent their spread. As we move toward an election in the United States, it is important that our voices are loud about what we have experienced and learned. If the people of the world truly believe that our health professionals are heroes, we may have a unique opportunity to influence the political leaders of the world about the best path forward to improve the health of the world and every country in it. I look forward to *Academic Medicine* helping us to develop our messages in its pages over the coming months.

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