My Future in Medicine: How COVID-19 Is Inspiring the Next Generation of Infectious Disease Specialists

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On the day that I defended my PhD thesis, there were 86,000 confirmed cases of coronavirus disease 2019 (COVID-19) globally [1]. I was one of the last students at Johns Hopkins University with an in-person defense, surrounded by family, friends, colleagues, and mentors. Soon after, the Centers for Disease Control and Prevention (CDC) released guidelines discouraging the gathering of more than 50 people in one place. Three weeks later—on the day I was scheduled to start the clinical portion of my medical training—there were 418,700 confirmed cases of COVID-19 globally [1]. By that time, many courses had started remote instruction, most research laboratories had been closed to all nonessential personnel, and medical school core clerkships had been temporarily canceled, all in an effort to decrease student exposure to COVID-19 and help “flatten the curve.”

Stuck between the 2 phases of my training as an MD/PhD candidate, I could not help but reflect on my future in the healthcare field. As a newly minted scientist specializing in microbiology and genomics, the biology of the virus immediately captured my attention.

I contemplated how similarities between coronavirus strains could be exploited to strategically design vaccines, how drugs targeting similar proteins in other viruses could be repurposed, and how unique mutations in this virus’s genome could be used to better understand and curb its high rate of transmission. But as a medical student eager to reenter the world of clinical care, the personal stories from the communities that would be most impacted by this relentless pathogen soon consumed my thoughts. These included communities in Baltimore with which I had worked over the past 7 years and communities in the Virgin Islands where I had spent many summers among my extended family. Their stories emphasized the effects of an increasingly global society on healthcare: Vulnerable populations everywhere are impacted by this virus, and more infectious disease-trained healthcare workers are needed.

In Baltimore County, the first case of COVID-19 was reported on 11 March 2020. One day later, K-12 schools across the state were ordered to close. Hearing this news, I immediately thought of the students I had worked with through several mentoring and outreach programs. I had taught them how to subculture bacteria, edited their college admissions essays, attended their prom send-off parties, and even spoken at their funerals. They live with their mothers, fathers, uncles, grandparents, and any other combination of direct and extended family. Schools had been closed, in part, so that these students would not bring COVID-19 back home, so that they would not have to become caretakers should their caregivers get ill. Many of their family members have diabetes, hypertension and other comorbidities that put them at increased risk of serious complications if infected with COVID-19 [2]. The health of these inner-city communities was already being ravaged by gun violence, police brutality, and institutionalized systems of discrimination that resulted in life expectancies well below the national average [3]. But these students and their families were now facing yet another threat to their health.

In the Virgin Islands, about 1600 miles south of Baltimore, the first case of COVID-19 was reported on 13 March 2020. This news shifted my thoughts again, this time toward my sprawling Caribbean family. As I talked to them about the CDC’s new recommendations on social distancing, I remembered the 2 hurricanes that had recently devastated their island, rendering basic necessities scarce, even before COVID-19. I thought about how overwhelming an outbreak there would be for a healthcare system that often struggles to meet the daily needs of its people, a healthcare system that, in typical times, must fly its citizens to hospitals in the United States for anything beyond routine care. I worried about what would happen if my 80-year-old grandfather or my 60-year-old aunt with severe asthma contracted COVID-19. The hospitals where they typically would not have to become caretakers would have been transferred are already operating at close to full capacity. And
the number of ventilators, N95 masks, isolation rooms, and healthcare workers on the island is undoubtedly insufficient to respond to even the slightest increase in demand.

In settings as varied as inner-city Baltimore and the Virgin Islands, the consequences of a virus that began in Wuhan, China are apparent. Few other events before have so poignantly highlighted the global nature of health, the vulnerability of certain populations around the world, and the need for more infectious disease specialists. The spread of COVID-19 has shown that rapidly mutating microorganisms are unrestrained by borders. This idea is not novel to the infectious disease field, but unfortunately, it has not risen to the forefront of international conversations. In the United States, this is partly due to the shortage of physicians specializing in infectious diseases. In 2020, only 80% of spots in infectious disease fellowships were filled [4], highlighting the need to foster more interest among medical students and residents. During this pandemic, the role of infectious disease specialists as leaders has become evident; they are top-tier advisors to policy makers, public health practitioners disseminating health information to society, researchers identifying treatments and vaccines for the virus, and front-line clinicians treating the most vulnerable patients. But the importance of infectious disease specialists will not end once the number of newly diagnosed COVID-19 cases starts to decrease.

This pandemic will cause a shift in medicine such that when clinical training across the world resumes I will join a healthcare workforce that is markedly different from that of my predecessors. At that time, the demand for physicians who specialize in infectious diseases will be amplified. They will be needed in laboratories not only to perfect the treatments for COVID-19, but to initiate research on other pathogens with pandemic potential. They will be needed in hospitals not only to streamline the use of personal protective equipment, but to strengthen our supply channels to prepare for future system surges. They will be needed in government not only to shape and disseminate public health recommendations, but to design policies that preemptively protect those most vulnerable to future pandemics. They will be needed in the clinics not only to treat the complications of COVID-19, but to promote healthy preventive habits. And above all, they will be needed as international ambassadors to strengthen scientific ties between countries in the fight against global health threats.

This is a decisive moment for students in healthcare fields around the world. The impact of COVID-19 on the rising generation of doctors, scientists, and public health professionals is undeniable. We are all part of, or connected to, communities impacted by COVID-19 today, but we are also all threatened by the next global pathogen of tomorrow. To protect those communities, we need more infectious disease specialists. I will be one of them. I call on others to join me.

Notes

Potential conflicts of interest. The author: No reported conflicts of interest. The author has submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest.

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