

# The Pandemic Academy: Reflections of Infectious Diseases Fellows During COVID-19

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The COVID-19 pandemic has taken over the world at an unprecedented scale. As Infectious Diseases fellows, this has come straight into the heart of our specialty and created a unique impact on our training progress and perspective. Here, we reflect on our early experiences during the first three months of battling COVID-19 in Singapore and glean some lessons for this pandemic and beyond.

**Keywords.** COVID-19; education; ID training; residency.

As coronavirus disease 2019 (COVID-19) continues to spread with an exponentially rising death toll, around the world infectious diseases (ID) specialists remain in short supply [1]. Interest in our specialty has waned over the years [2], partly influenced by lower compensation compared with other specialties [3]. Yet, as ID fellows, we chose this path. For some, it was the thrill of the “detective work” required to diagnose a medical mystery [4]. For others, it was the opportunity to add value to the hospital and improve patient outcomes [5, 6] while working with the entire spectrum of medical and surgical disciplines. There are also those who were inspired by the extraordinary advancements in history’s other pandemics such as smallpox and HIV. Nevertheless,

for many of us, facing an emerging infectious disease of this unprecedented magnitude head-on might not have been what we expected [7].

On January 23, 2020, Singapore confirmed its first case of COVID-19, and by February 7, we moved to a heightened disease outbreak response level emphasizing the urgency of pandemic readiness [8]. This came with a complete and sudden overhaul of the usual hospital routine. Our ID attendings diverted their attention to driving both hospital and national pandemic preparations, while our residents were diverted to running clinical services. All in-person meetings and tutorials were suspended. In-training examinations, external hospital and laboratory rotations, and annual leave were postponed indefinitely. Many of the aspects that made ID our chosen specialty were rapidly replaced by a new version of ID training—one projected to last at least a few months or perhaps the remainder of the year.

As we mark 3 months of our fellowship in the COVID-19 era, we reflect on our experiences and the unique impact of this pandemic on ID fellows. We share the lessons learned (Table 1) to guide current and future ID fellows, especially if history is to repeat itself.

## Get Ready for a Crash Course in Outbreak Response and Management

What was lost in formal fellowship curricula was quickly replaced by the

sobering reality of pandemic preparedness and response planning. Though Singapore experienced severe acute respiratory syndrome (SARS) in 2003, our generation had watched it unfold as mere adolescents experiencing school closures for the first time. Thus, for us, outbreak management mostly formed an interesting theoretical chapter to be memorized for exams. Our ID fellowship accreditation requirements do not require a posting in an outbreak setting, and in reality there are barriers to overcome when attempting to achieve this as a short elective [9]. Hence, as daunting as it seems, we strongly encourage fellows to embrace this as the invaluable experiential learning opportunity that it is. Though simulations [10] can teach us about pandemic preparation, one can only truly appreciate the intricate interplay of all the components needed to manage an outbreak through experiencing one. The emergent need for new policies and workflows in the hospital has provided a unique opportunity for us to have a seat at the table and have a say in the development and implementation of infection control policies and clinical operational workflows.

## Learn Faster Than the Virus Spreads, and Find Your New Place as an ID Fellow

With a wide spectrum of manifestations, varying degrees of severity, and multiple

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**Table 1. Advice for ID Fellows During the COVID-19 Pandemic**

<b>Outbreak Response and Management</b>
<ul style="list-style-type: none"><li>• Get involved with your hospital's Infection Prevention and Epidemiology departments</li><li>• Assist with training, eg, becoming a trainer for powered air-purifying respirators, teaching proper donning and doffing of PPE</li><li>• Participate in operational meetings with health system executives and incident command centers</li><li>• Work on strategies and systems to track and optimize the consumption of essential supplies, eg, PPE</li><li>• Contribute to the decision- and policy-making processes, eg, summarizing evidence to support a modified testing criterion in special populations (PWH, transplant, pregnancy) and safe de-isolation criteria</li><li>• Volunteer to observe behaviors and infection control practices to develop interventions for population-dense facilities where clusters have occurred, eg, migrant worker dormitories, elder-care homes, prisons and detention facilities</li></ul>
<b>Rapid Learning and Growth</b>
<ul style="list-style-type: none"><li>• Regularly review publications and data on various aspects of COVID-19 (epidemiology, diagnostics, and therapeutics)</li><li>• Organize Journal Clubs to present and discuss updates, exercise caution and systematic approaches and "sieve the wheat from the chaff" in the high-volume of literature, eg, preprints, poor-quality studies</li><li>• Strive to become increasingly independent</li><li>• Reflect during this period of self-discovery</li><li>• Regularly debrief with your attending and program director—they are learning too!</li></ul>
<b>Core ID Training and Patient Care</b>
<ul style="list-style-type: none"><li>• Seek out evidence to manage your patients independently (with appropriate supervision)</li><li>• Leverage on peer learning by discussing cases with other fellows or holding your own "ID grand rounds"</li><li>• Keep up your general ID skills and guard against cognitive bias—not all those who cough have COVID-19</li><li>• Find a balance to avoid a delay in diagnosis or treatment</li><li>• Practice telemedicine for your stable outpatients (in line with your hospital's policies)</li></ul>
<b>Research Involvement</b>
<ul style="list-style-type: none"><li>• Help with ethics submissions, grant proposals, consent-taking, and collection of samples</li><li>• Consider strategies to pivot and redirect your preexisting or ongoing research projects (eg, by bringing in a COVID-19-related aspect) to avoid having research put on hold due to social distancing requirements and lockdowns</li><li>• Fellows may have to hold down the fort and ensure the smooth running of a regular ID service, so your research may be paused—don't feel too disappointed</li></ul>
<b>Mental Health and Well-being</b>
<ul style="list-style-type: none"><li>• Keep in contact with co-fellows (and those in other specialties) in a nonwork setting with virtual meetings</li><li>• Reconnect with old friends, and keep in touch with the extended family</li><li>• Find time to pursue hobbies and exercise</li><li>• Continue meeting regularly with your fellowship mentor or program director</li><li>• Help fellows with additional struggles, eg, those with young children to care for following school and child care closures</li><li>• Do not be afraid to ask for help—be it mental health or psychosocial support</li></ul>

Abbreviations: ID, infectious diseases; PWH, people with HIV and AIDS; PPE, personal protective equipment.

routes of transmission, COVID-19 has proven that it is more than just another respiratory infection. The unknown nature of an emerging infectious disease meant that both attendings and fellows were on similar learning curves, redefining the mentor-mentee dynamic. We read the same studies and learned at the same pace, sharing patient care tips and best practices in real time.

Strange as it may be for ID fellows, our specific role during a pandemic of this scale is not well defined. We lack the experience or seniority to participate in operational planning and yet are not junior enough to participate solely in clinical work. As cases increased, the limits of our workforce were continually tested. Hierarchies were flattened by necessity, as ID fellows stepped up to greater autonomy and attendings stepped down to do calls. It has been a period of steep learning, of

finding our own footing, avoiding missteps and discovering our own strength through struggle. Self-reflection and debriefing with our attendings and program directors have been important learning tools during this time.

**Do Not Forget Your Other Patients**

Attending to the growing epidemic and juggling that with maintaining a pared-down ID consult service has been difficult but necessary. While manpower and resources have been diverted to manage COVID-19, we have continued to treat patients with infections other than COVID-19. Our training and career progression may be delayed by this pandemic, but regardless, continuing to see a variety of cases has been important to combat burnout, continue to build our competency across ID, and fulfill our fellowship requirements. As

attending physicians were increasingly stretched by outbreak operational demands, this gave us the opportunity to find answers ourselves and accelerate our progress to managing patients independently.

Another important learning point was the recognition of cognitive biases in the management of patients presenting with respiratory symptoms—not everyone with fever and cough had COVID-19. Most patients isolated with concerns of COVID-19 turned out to have other diagnoses, such as tuberculosis or even newly diagnosed HIV presenting with pneumocystis pneumonia [11]. It was important to balance the need to protect staff by excluding COVID-19 with the needs of our patients by ensuring that isolation policies did not become barriers to accessing diagnostic facilities and definitive care.

### Try to Get Involved in Research and Communicate Rapidly Evolving Information

Singapore was one of the first countries outside China to be seriously affected by COVID-19, and at the time there were still many unknowns. Some of us participated in research early on in the pandemic [12], assisting with patient recruitment for observational cohort studies or clinical trials and even writing papers. For studies that were widely quoted in the media, it was equal parts exciting and terrifying to realize how our research impacted how the disease was handled internationally.

Another challenge was dealing with the rapidly evolving information and trying to communicate this to patients and their families, while at the same time trying to provide reassurance and comfort to patients with COVID-19. Outside of clinical trials, discussions regarding experimental treatments have been difficult conversations. In a world where we like to tell patients that everything we do is informed by evidence, having to manage this delicate balance was another new skill to learn.

### Understand That It Will Take a Mental, Physical, and Emotional Toll

This toll may be especially unrelenting given that you are in ID and that this will be a day-to-day reality until this is over. During SARS in 2003, it was widely reported that health care workers experienced heightened levels of anxiety, burnout, and post-traumatic stress disorder in its wake [13]. Thus it was not surprising that many of us felt this way in the midst of the COVID-19 pandemic [14].

Social distancing has been actively practiced in the hospital, with team segregation and even isolation during meal times. This sense of isolation has also extended to our families due to a fear of acquiring COVID-19 and passing it to a loved one [15]. Many of us have developed elaborate decontamination rituals before entering our homes, and some have already moved out to protect our families. With disruptions in supply

chains and increasing demands [16], we anticipate that we may face a shortage of personal protective equipment as well and reflect with sorrow and dread at the difficult decisions being made in many parts of the world, where physicians have to manage the shortage of critical resources such as ventilators [17].

In our hospitals and in the media, there have been obvious efforts to maintain a sense of social solidarity. This has been particularly important as reported incidents of discrimination against frontline or health care workers did occur in Singapore early on during the pandemic [18]. One touching effort was the Clap for #SGUnited [19], inspired by #ClapforNHS in the United Kingdom, where Singaporeans applauded the efforts of doctors, nurses, emergency services, cleaners, supermarket staff, and everyone working to keep the country safe. Within the community of fellows and residents, novel social interactions, such as yoga classes over Zoom (conducted by no less than the fellowship program director), provided a good avenue for stress relief, maintaining team camaraderie, and networking. It is these gestures and little moments of reprieve that have made all the difference, such as “sharing” ice cream with your residents at the end of another long day—even if this means sitting rooms apart.

### CONCLUSIONS

Though many have called this the “new normal,” we must remember that there is nothing normal about this. We are training under exceptional circumstances and are expected to act exceptionally in them. When there is so much to do, it is only natural to feel you are not doing your best. Just as SARS defined the experience and training of our seniors, COVID-19 will define ours—this is our coming-of-age story. For us, it is unique to be in the middle of ID training during a (hopefully) “once-in-a-century” pandemic [20]. The inevitable sacrifices will be momentous,

but this experience will teach us invaluable lessons. If nothing else, it has put us in better stead to fight the next one.

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