Impact of COVID-19 pandemic on ophthalmology service provisions and training

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Although the world is full of suffering, it is also full of the overcoming of it.

—Helen Keller

In the realm of infectious diseases, pandemic is the worst-case scenario. When an epidemic spreads beyond a country’s international border, then it snowballs into a pandemic. Communicable diseases existed during humankind’s hunter–gatherer days, but the shift to agrarian life 10,000 years ago created communities that made epidemics possible. Diseases such as malaria, tuberculosis, leprosy, influenza, smallpox, and others first appeared during this period. The more civilized the humans became, building cities and forging trade routes to connect with other cities and waging wars with them, the more likely the pandemics became.

The plague of Justinian struck in the sixth century and killed as many as 50 million people, perhaps half the global population at the time. The Black Death of the 14th century, likely caused by the same pathogen, might have killed up to 200 million people. Three influenza pandemics occurred at intervals of several decades during the 20th century, the most severe of which was the so-called “Spanish flu” (caused by A/H1N1 virus), estimated to have caused 20 to 50 million deaths in 1918 to 1919. Milder pandemics occurred subsequently in 1957 to 1958 (the “Asian Flu” caused by an A/H2N2 virus) and in 1968 (the “Hong Kong Flu” caused by an A/H3N2 virus), which were estimated to have caused 1 to 4 million deaths each.

On December 31, 2019, the World Health Organization’s (WHO) China office became aware of first reports of a previously unknown virus behind several cases of pneumonia in Wuhan, a city in Eastern China with a population of over 11 million. What started as an epidemic that was mainly limited to China has now become a truly global pandemic. The International Committee on Taxonomy of Viruses coined the term “severe acute respiratory syndrome coronavirus 2,” or SARS-CoV-2, because this respiratory illness caused by coronavirus was related to the virus that caused the SARS outbreak in 2003. On February 11, 2020, the WHO announced the official name, COVID-19, a shortened version of coronavirus disease 2019. On March 11, 2020, WHO declared COVID-19 infection as a global pandemic.

The pandemic that started in China rapidly spread to the West. The outbreak of COVID-19 in Europe started in northern Italy in mid-February 2020, when the local government issued shutdowns that brought routine eyecare to a standstill. As this infectious wave continued across Europe, it swept almost every country into lockdown, bringing countries to a standstill, pushing hospital systems to the brink, and dragging the global economy into recession. Most healthcare systems stopped elective outpatient eyecare and surgery because their resources were stretched beyond capacity to dealing with the pandemic. Slow resumption of routine eyecare services across Europe began in May and June 2020 based on local scenarios and public health guidelines. However, this has caused considerable backlog of routine surgical procedures such as cataract surgery and has had a significant impact on residency training.

A recent survey among ophthalmology trainees in the United Kingdom to access the impact of COVID on training showed that lack of cataract surgery training was the single most-often concern raised. The pandemic has necessitated triage to prioritize urgent cases requiring an examination and possible intervention. Although waiting rooms are not crowded and in-person chronic disease management is less regular, this assessment process might provide a unique learning experience for involved trainees. Effective use of surgical simulators and online surgical videos can be helpful and might augment the trainees’ learning curve.

The pandemic has also resulted in adjustments to national board examinations, with varied adoption of virtual methods. The American Academy of Ophthalmology is exploring at-home testing with its Ophthalmic Knowledge Assessment Program, and the American Board of Ophthalmology is transitioning to a virtual format for its oral examination. The U.K. Royal College of Ophthalmologists for the first time has replaced in-person clinical examination of patients with video clips of clinical examinations as part of their fellowship examinations.

With the advent of physical distancing norms, face-to-face interactions in large numbers are no longer feasible. As such, departmental Grand Rounds, seminars, and other didactic sessions have been cancelled or are now held virtually through online platforms. Major international ophthalmology organizations such as ESCRs, ASCRS, and the American Academy of Ophthalmology had to cancel their face-to-face meetings and switch over to virtual
meetings. These societies have always served as powerhouses, providing a platform for presenting scientific information, learning cutting-edge new advances in our field, and networking and building friendships with our colleagues and peers across the globe.

Overall, however, in the midst of this global crisis, clinical activity within eyecare has significantly diminished. Cataract surgery is probably the most cost-effective, quality of life improving procedure performed by the National Health Service (NHS) in the United Kingdom. Prior to the pandemic, it was the most common operation in the NHS: approximately 500,000 NHS cataract procedures were performed in the 12 months preceding April 2019. At the start of the pandemic, routine cataract surgery was suspended to protect patients. It is likely that COVID-19 will continue to affect NHS activity for at least another 18 months. Recently, the Royal College of Ophthalmologists published a white paper on restarting and redesigning of cataract pathways in response to the COVID 19 pandemic, detailing the issues and ways to address the cataract backlog in the United Kingdom. In this issue, Aggarwal et al. (page 1456) analyze the impact of COVID-19 on cataract surgery backlog among Medicare beneficiaries in the U.S. healthcare system. Using stochastic Monte Carlo simulation modeling, they predict a backlog of 1.2 to 1.6 million cataract cases in the United States despite potentially lower surgical demand.

At the time of writing this editorial (September 19, 2020), globally, there have been 30,295,744 confirmed cases of COVID-19, including 947,933 deaths, as per the WHO coronavirus disease dashboard. There is a clear resurgence of positive infections in the United Kingdom, Spain, France, and Germany, indicating a second wave is beginning to sweep through Europe. We all live in unprecedented times. This pandemic has required rapid adaptation to continue to educate our medical students, provide surgical training for our residents and fellows, and, most importantly, provide adequate and much needed care to our patients. Although most education has gone virtual, we must also be vigilant that the best of being human—high-quality human engagement with our patients, colleagues, peers, and students—is not diminished permanently.

REFERENCES
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