

# COVID-19, circuit breaker and safe reopening - perspective from an ENT practice at a tertiary hospital in Singapore

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## ABSTRACT

COVID-19 has affected every walk of life, including the healthcare sector. In this article, we discuss how an Otolaryngology department in a tertiary hospital in Singapore had to adapt to the pandemic in areas of outpatient care, elective surgeries, personal protection, residency training, education and research.

Documenting our experience has helped us to understand the areas of work which can be affected in a pandemic and the factors that have helped to mitigate disruption. This will prove useful in our approach to subsequent pandemics.

## KEYWORDS:

*Coronavirus, COVID-19, circuit breaker, pandemic, Otolaryngology, Personal protection equipment*

## INTRODUCTION

Coronavirus disease 2019 (COVID-19), caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), started in Wuhan, China in December 2019 and was subsequently declared as a global pandemic on 11th March 2020.<sup>1,2</sup> Globally, as of 21st December 2020, 75,479,471 cases have been confirmed over 220 countries and has resulted in the deaths of 1,686,267 people.<sup>3</sup> Hopes have been raised as the first few COVID-19 vaccines have been granted emergency approval to be used while maintaining the safety of these vaccines.<sup>4,5</sup> As every country continues to battle this deadly virus, the unprecedented magnitude of the fallout on every aspect of society is painfully felt, in areas such as trade, tourism, leisure and recreation, and workplace challenges. Singapore has been no exception. Singapore confirmed its first local case on 23rd January 2020.<sup>6</sup> On the 7th April, the country went into a two month "Circuit Breaker" lockdown period to stem its ever-increasing number of COVID-19 infections, and has since observed a very gradual and safe reopening of the country starting from 1 June 2020.<sup>7,8</sup>

The healthcare sector was affected in different ways by the pandemic, and as Singapore moves into its second and third phases of reopening on 18th June 2020 and 28th December 2020 respectively, the healthcare sector has adapted to this "new normal" of balancing healthcare needs with safety aspects, for both healthcare workers and patients. In this article, we look at how COVID-19 has affected the healthcare sector, and in particular the Ear-Nose-Throat (ENT) practice at our hospital.

## Outpatient Care and Elective Surgeries:

In compliance with Singapore's social distancing rules, which stipulate that individuals must keep at least 1 metre apart, the number of seats available in the department's outpatient waiting area was reduced.<sup>9</sup>

In addition, the Ministry of Health directed that nonessential appointments be postponed during the 2 month "circuit-breaker" period. During this time, clinic cases were screened beforehand, and patients whose condition was stable or had normal investigation results were updated of their results over the phone and had their appointments postponed to a later date. This helped reduce the number of patients waiting in clinic, and led to our lowest clinic number of 781 patients in May 2020 during the peak of the COVID outbreak in Singapore (Figure 1).

Similarly, non-urgent surgeries were also postponed or cancelled. Operating theatres were segregated into COVID and non COVID areas, and manpower redistributed. This resulted in our ENT department's low number of 122 surgical cases in May (Figure 2). While this led to a longer waiting time for nonessential surgeries, the essential surgeries such as malignancy-related surgery continued as per usual, ensuring that patient safety was not compromised during this unprecedented global pandemic.

As the COVID-19 situation improved in Singapore and the country gradually reopened over the 2nd half of 2020, routine healthcare services were slowly resumed. Despite continuing to adhere to social distancing measures, the ENT department was able to restore clinic outpatient attendances to normal by the end of the year (Figure 1). Similarly, reopening of operating theatres resulted in a total of 977 operations in November, or around 90% of our usual surgical case load. By Jan 2021, the department will have resumed our normal 2 operating theatres per day. Despite the increase in number of clinic patients and surgeries, safe distancing regulations, stringent national level contact tracing procedures and appropriate personal protective equipment have ensured continued safe operation of healthcare services.

## Personal Protection Equipment during patient contact

ENT surgeons are at a higher risk of contracting COVID-19 due to our exposure to higher viral loads during aerosol generating procedures, i.e. clinical examination and invasive procedures related to the respiratory tract and airway-connected cavities.<sup>10</sup> A published article by our department recommended different levels of Personal Protective Equipment (PPE) based on surgical risk factors.<sup>11</sup>

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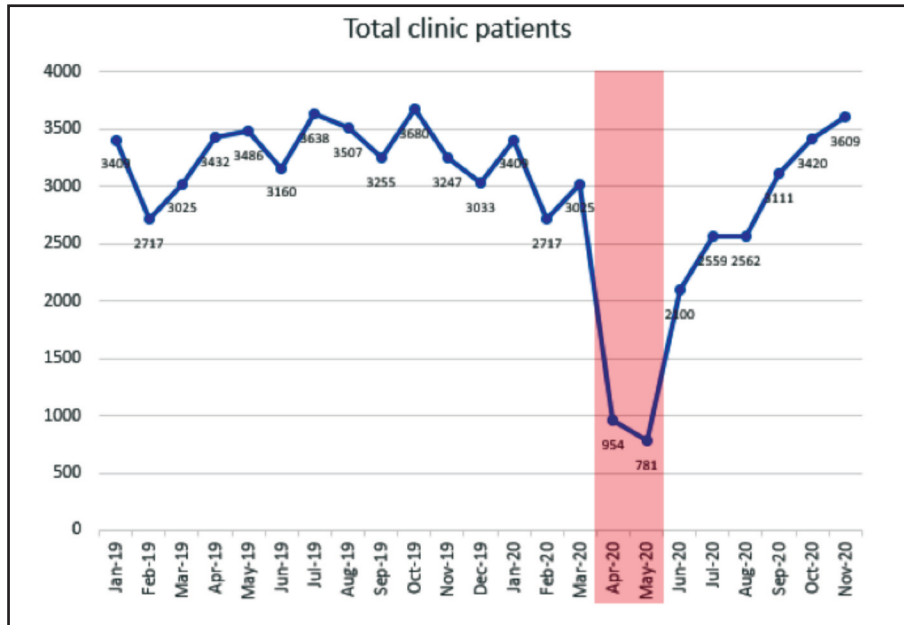


Fig. 1: Monthly number of outpatient visit in the ENT clinic. Shaded area indicates circuit breaker period of April and May 2020.

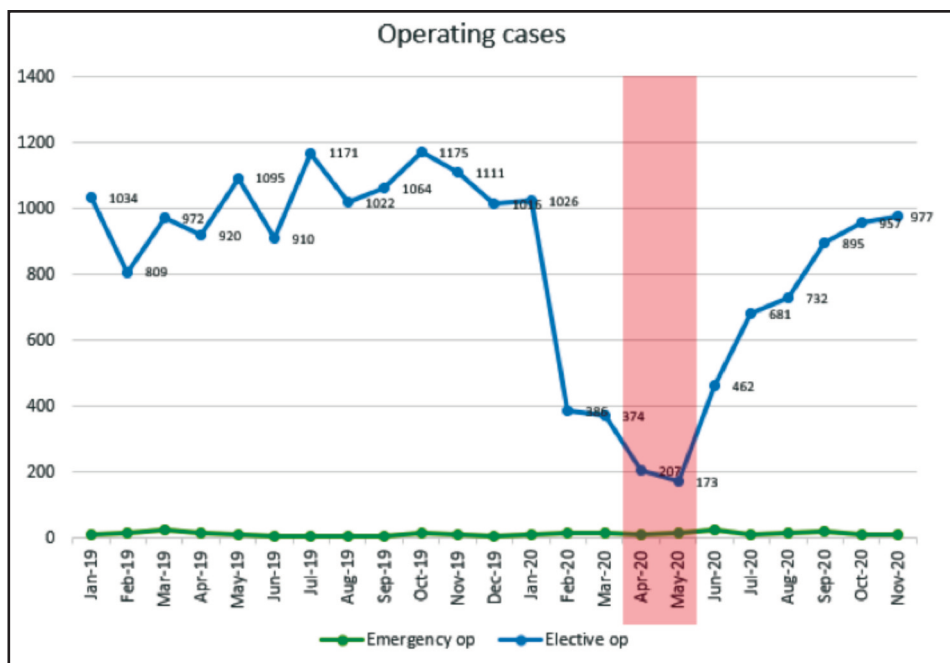


Fig. 2: Monthly number of surgical cases. Shaded area indicates circuit breaker period of April and May 2020.

PPE can be divided into 3 levels.<sup>11</sup>

Level 1: Surgical mask, eye protection, disposable gloves, gown, surgical cap

Level 2: Fitted N95 mask, eye protection, disposable gloves, gown, surgical cap

Level 3: Powered Air-Purifying Respirator (PAPR), eye protection, disposable gloves, gown, surgical cap, shoe covers

Level 1 is recommended for general patients who need procedures without any drilling or access to the upper aerodigestive tract.

Level 2 is recommended for general patients requiring airway or oropharyngeal or sinonasal procedures, or otological procedures that require drilling, or head and neck surgeries that require access of the upper aerodigestive tract.

Level 3 is recommended for all patients suspected or diagnosed with COVID-19 especially when they require procedures involving drilling or access of the upper aerodigestive tract

Currently, despite the low number of COVID-19 cases in Singapore, continued vigilance is still maintained to protect

both patients and healthcare staff. Thus, our department is still continuing with the PPE recommendations for all clinic patients and operations, and carefully titrating downwards, cognisant of the known psychological and thermal impacts of PPE on healthcare workers.

#### Manpower requirements for COVID frontline work

During the peak of the local outbreak, manpower from the ENT department was necessarily redeployed to serve in higher manpower requirement areas, such as the Emergency Department or the National Centre for Infectious Diseases (NCID) where COVID-19 patients were managed. This redeployment of manpower was only possible because of the concomitant reduction in nonessential ENT workload.

Following the reduction in the number of active covid-19 patients in Singapore towards the 2nd half of 2020, manpower has also been returned to the department, with only a standby roster for redeploying doctors if there is a future wave of COVID outbreak in Singapore.

#### Resident training

COVID-19 has had a significant impact on ENT resident training. Ultimately, reduced outpatient numbers accompanied by a resultant lesser number of surgeries, meant that clinical exposure was proportionately reduced for residents. An additional impediment was the national directive to limit interhospital movement of healthcare individuals, to limit cross infection, but also resulting in residents being unable to benefit from subspecialty rotations to other hospitals (e.g. paediatrics).

Limiting interhospital movement also meant that it was necessary to move the National Residency teaching programme onto an internet platform (eg. Zoom). Interestingly, this resulted in improved attendances at the didactic sessions, possibly because of increased convenience of the zoom platform, although interpersonal interaction between senior and resident was reduced.

Annual academic examinations were also delayed for a few months to reduce interhospital contact among both examiners and candidates, until the outbreak situation improved.

Towards the end of 2020, with Singapore gradually reopening in phases 2 and 3, residents have been able to re-establish their previous training norms prior to the onset of COVID-19.

#### Education and research

Department meetings and CME (continuing medical education) meetings were held with strict social distancing and mandatory mask wearing. Subspecialty board meetings which involved participation of other institutions were necessarily held over teleconferencing platforms to eliminate interhospital interaction amongst individuals.

Unexpectedly, this COVID crisis did create many opportunities to research and publish, with many journals fast-tracking relevant publications important to the developing pandemic. This resulted in a surge of research

projects within the department, including papers on safety considerations in performing tracheostomy in COVID patients, levels of PPE for ENT procedures and operations, the prevalence of anosmia in COVID patients, and other unique experiences of our ENT department in this pandemic.<sup>11-13</sup>

#### CONCLUSION

COVID has affected the ENT department in every aspect of our practice for the major part of 2020. But thanks to a Singapore whole-nation effort to contain the outbreak, rather than just efforts restricted to the healthcare industry, the incidence of COVID infection in the community has reduced to the point where we are now practicing ENT only slightly differently from previously. The main differences revolve around safety aspects such as social distancing, tracking of the movement of individuals with contact tracing, the mandatory use of face masks by both staff and patients, and heightened awareness that aerosol generating procedures (AGPs) remain a high risk procedure in ENT. Benefits that have accrued from the outbreak include increased COVID research and publications in the realm of Otolaryngology, and more widespread CME because of internet conferencing platforms.

Documenting our experience has helped us to understand the areas of work which can be affected in a pandemic and the factors that have helped to mitigate disruption. This will prove useful in our approach to subsequent pandemics.

Continued vigilance remains crucial in this time of uncertainty, and to prevent the possibility of a dreaded next wave of infection in Singapore. In our fight against COVID-19, our department will continue to adapt as necessary to ensure that our ENT services remain available and accessible to the public.

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## Commentary

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