

A CORONAVIRUS COMMENTARY

2003 TO 2020

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There is much more media coverage on the coronavirus SARS-CoV-2, announced to the world by China on 31 December 2019, compared to the one responsible for SARS in 2002. Singapore was struck with SARS in January 2003 without knowing what the bug was. It was nosocomial and Tan Tock Seng Hospital (TTSH) was declared SARS central to combat the outbreak. The hospital inpatients were sent home if they were not that unwell, to make beds available for those very ill with pneumonia. Without a laboratory diagnostic test and relying mainly on clinical criteria, some patients discharged actually had the virus. When their conditions worsened, they were warded in other public hospitals, thus spreading the disease to Singapore General Hospital (SGH) and National University Hospital.

SARS and COVID-19: similarities and differences

The SARS virus originated in southern China, probably in Guangdong province. The COVID-19 epicentre was Wuhan in Hubei province. Both were associated with huge markets where live animals, some rather exotic, were traded, slaughtered and eaten. Today, the origin of the SARS virus has been traced back to bats and civet cats. For COVID-19, we are still not sure how the spread from animal to man has occurred.

Both Chinese doctors who sounded the first alarm of the new diseases died. The 61-year-old physician who made his way into Hong Kong in December 2002 to seek treatment for his pneumonia stayed in the Metropole Hotel in room 911. While in the hotel lift, he unfortunately spread it to some Singaporean tourists. These Singaporeans returned and were hospitalised at TTSH. The doctor in Hong Kong was subsequently warded at the Prince of Wales Hospital and died of SARS.

In the first week of December 2019, ophthalmologist Dr Li Wenliang, aged 34 years, found out about the new coronavirus causing respiratory problems in the people of Wuhan. He did his best to alert his colleagues and the world about this. Instead the police went after him. By the end of the month, he was proven right. He and his parents were affected by this virus. Dr Li's infection worsened over three weeks; he was in intensive care and intubated, but did not survive. His contact was a patient whom he was treating for glaucoma.

Unfortunately for us in Singapore, there were super spreaders among those infected during the SARS period. These patients themselves were relatively well, but spread SARS quite easily to others. I remember one patient at TTSH who spread it to a friend who visited her, and the friend's pastor and some family members succumbed. The virus also spread among the healthcare workers at TTSH which resulted in some deaths. Dr Alex Chao, who was in SGH at that time, also died of the disease. For COVID-19, this phenomenon of super spreaders seems to not be present. And for us at TTSH, with better preventive measures, there has been no nosocomial spread.

As SARS was unknown in early 2003, we were lucky that fever was the initial symptom in the majority of patients infected. Hence temperature taking twice daily for healthcare workers was the norm. Once febrile, the staff was quarantined and their contacts put under surveillance. At the hospital level, a great attempt was made to detect clusters of febrile staff early. Temperature screening was expanded to other facilities and airports as a means to detect patients early and quarantine them to protect the rest of society. For COVID-19, although fever is a prominent symptom of the disease, many infected appear to be

asymptomatic and without fever. One of our earliest cases in Singapore was a tourist from Wuhan who came to Singapore in January 2020. He passed through the airport thermal scanners without a fever – at that time he only had a sore throat.

The other lucky break with SARS was that during the incubation period of the disease, the person was not infectious. We found out with dismay that COVID-19 was different. With so many tourists from China in Singapore during their Lunar New Year break, and thermal screening not foolproof, some of them became sick while in Singapore, and probably spread the disease during its incubation period. First estimates of the incubation period was about two weeks, but the mean is about 5.2 days.

As was the case with SARS, the World Health Organization has recommended supportive treatment for these viral diseases. Ribavirin and steroids were tried during SARS, but to date there are no effective antiviral drugs. One theory for the severe lung destruction in some patients with SARS was the hyper immune response of the host to the virus causing the damage, rather than the virulence of the virus per se. Of course secondary bacterial infection can complicate the pneumonia. Mortality rates for SARS was around 10%, while it is said to be about 2% outside of Wuhan (where it is higher) for the new virus.

Containing the spread via contact tracing

Regarding public health measures for containment of the disease, one important difference was that during SARS, it was Singaporeans infected overseas who returned home with the disease and spread it to other Singaporeans (although we should remember that one healthcare

worker who died was from the Philippines). In contrast, the local COVID-19 outbreak did not start with Singaporean patients. The first cases in January 2020 were from China (specifically from Wuhan). They were mainly tourists, though some were also Singaporeans and permanent residents who had visited China and returned back to Singapore.

This China link proved vital in the contact tracing process to prevent the disease from spreading to the community at large. Unfortunately there was a private company conference held at the Grand Hyatt Singapore hotel in January 2020 and many of its delegates were from overseas including some from China. They met, they left for home. Soon after, a Malaysian, two South Koreans and a Briton at the same conference took ill with the disease. Following the conference, the Briton took a holiday at a ski resort in the French Alps, stayed in a chalet there and spread it to those around him.

Contact tracing is an arduous and meticulous process. Every minute of one's activity is tracked once a contact person is identified. Through such means, clusters of patients are identified. For a while, it was possible to link cases' origins back to a person with links to China and Wuhan. However, it became evident that community spread had occurred once no such links could be identified. As a result, on 7 February 2020 (Friday), Singapore raised its Disease Outbreak Response System Condition level to orange from the previous yellow.

Global effects of COVID-19

During the SARS outbreak, there was no diagnostic kit available. For COVID-19, as Chinese scientists had identified the new coronavirus and put its genome in the public domain, test kits were available for confirmation of the diagnosis. However, the existing kits took more than 24 hours to give a confirmatory result. Therefore suspected cases of the disease may have to be in quarantine or isolation till they are cleared. Fortunately, it was recently reported that A*STAR scientists have developed a new kit where the result is available after four hours.

The National Centre for Infectious Diseases (NCID) was opened just last year. This modern facility has enough capacity to deal with such outbreaks. This is a far cry from 2003 when TTSH facilities had to be evacuated of general patients and reserved for patients with SARS. So this round, TTSH can continue to function as the general hospital that it is and the public healthcare clusters are not deprived of some 1,000 beds for general acute care. Besides facilities, there is enough equipment for NCID to run its operations, including personal protective equipment for individual healthcare workers.

Globally, the situation is very different. More than 200 nations and territories now have the disease in their populations. By 27 February 2020, there were more new daily cases outside China than inside. Among the countries with high patient count were South Korea (cases linked to the Shincheonji Church of Jesus in Daegu), Italy (northern regions of Lombardy and Veneto), Japan and Iran (epicentre in Qom). By March, countries in Europe (especially Italy and Spain) and the US (including Hawaii) had cases. Italy took the drastic step of locking down 16 million of its population up north (in comparison, the lockdown of Hubei with Wuhan as its epicentre involved 11 million people) on 8 March and New York declared a state of emergency on the same day. In the US, Washington and New York State have had the most cases and deaths. Both in the US and in Spain, the numbers have surpassed those in China. The outbreak has now killed more than 82,000 people and infected 1.43 million worldwide.

The other unusual scenario compared to the SARS outbreak was the COVID-19 cases onboard huge cruise ships with nowhere to dock as no country wanted them. The Diamond Princess was quarantined off Yokohama in Japan, and the Grand Princess was parked outside San Francisco (with 21 people infected), until it was allowed to dock at Oakland. In each ship, there were more than 3,500 passengers onboard, confined to their cabins (the inner cabins have no windows or balconies). As they took ill, they were taken to land.

How Singapore is faring

Before the end of February, the new viral disease was renamed COVID-19 (from 2019-nCoV). By 8 March, there were over 1,400 cases with six deaths and 29 in intensive care. There were more than 32 clusters of cases with the latest at an old age home and in workers' dormitories. It was only in recent weeks that the number of daily new cases started to rise with some days registering over 100 new cases. Hence on Tuesday, 8 April, stringent measures were enforced as part of a circuit breaker strategy to limit the community spread of the virus. Parliament had approved extra budgets amounting to \$60 billion to support lives and livelihoods, and to save jobs.

All said, Singapore is well prepared to overcome this global viral outbreak. Come summer time, it is likely the virus will be less prevalent. Whether it will surface again is anybody's guess. The economic cost of this pandemic will be huge. Not only is tourism badly affected, but factories producing essential goods and supplies, especially in China, have shut down for close to two months. The world's stockpile of critical medical equipment is running low.

Optimism and hope should not be abandoned however. China seems to be overcoming the viral onslaught after some three months (counting from December 2019). The rest of the world will learn lessons from what China did right. One possible likely future scenario is that this virus becomes just like the seasonal flu. ♦

Information is accurate as at time of print.

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