

2017

# Singapore : Severe Acute Respiratory Syndrome (SARS)

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## Augustana Digital Commons Citation

Lipps, Dexter. "Singapore : Severe Acute Respiratory Syndrome (SARS)" (2017). *Global Public Health*.  
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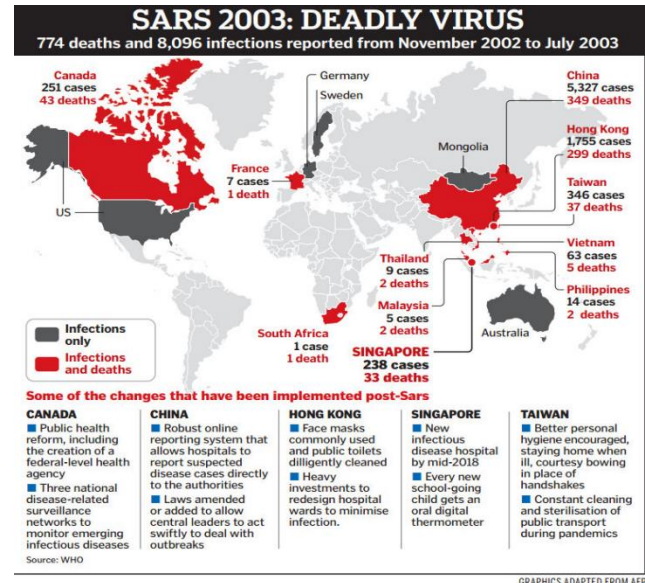
## Demographics

Singapore is an island-city nation located on the southern edge of Malaysia. Singapore has an estimated population of about 5,888,926 people in an area of less than 720 km<sup>2</sup> making it smaller than Rhode Island but has a larger population than Los Angeles. Its population is made of 74.3% Chinese, 13.3% Malay, 9.1% Indian, and 3.3% of the population is other ethnicities. A large number of the population identifies to some type of religion: 33.9% Buddhist, 11% Christian, 14% Muslim, 11.3% Taoism, and 5.2% Hindu while 16.4% do not practice any religion. Singapore is a parliamentary republic led by a prime minister and a president. The president is elected via a popular vote but is often seen as solely a ceremonial position. Singapore does not face many challenges either externally nor internally. It has one of the highest GDP of any developed country, its unemployment rate is around 2%, and it has fairly good foreign policy. It has had some border disputes with neighboring countries like Malaysia but steps have been made to resolve these conflicts ("The World Factbook: Singapore", 2017).

## SARS Outbreak

Singapore is a relatively healthy nation and its healthcare system is ranked among the highest in the world. That being said, there are a few public health issues that face the country, one of these being severe acute respiratory syndrome or SARS. SARS is a virus causing disease that results in pneumonia and nosocomial transmission which is when the patients are not correctly diagnosed and have the potential to then spread the disease (Severe Acute Respiratory Syndrome-

Singapore, 2003). In 2003, there was a major outbreak where 238 cases were observed and 33 deaths occurred (Chew, 2009). This is shown in the below figure as well as the total global outbreak of SARS in 2003.

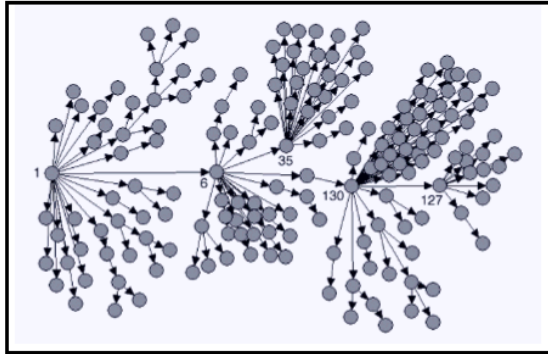


Almost 41% of these infections were healthcare workers and 23.8% were family members.

## Transmission

SARS was brought into the country from three Singaporean women who were in Hong Kong (Chew, 2009). While two of them did not suffer any major complications, one of the women is credited with infecting 22 people. She was classified as a super spreader for infecting a large number of people, most of whom were healthcare workers. Infections were easily facilitated through the healthcare system due to the large number of people coming in and out of facilities like hospitals. Many of the healthcare workers themselves became super spreaders which helped in the rapid spread of the disease.

**FIGURE 2. Probable cases of severe acute respiratory syndrome, by reported source of infection\* — Singapore, February 25–April 30, 2003**



\* Patient 1 represents Case 1; Patient 6, Case 2; Patient 35, Case 3; Patient 130, Case 4; and Patient 127, Case 5. Excludes 22 cases with either no or poorly defined direct contacts or who were cases translocated to Singapore and the seven contacts of one of these cases.  
Reference: Bogatti SP. Netdraw 1.0 Network Visualization Software. Harvard, Massachusetts: Analytic Technologies, 2002.

The above image helps illustrate the effects of the super spreaders. One person was responsible for infecting many people. Usually the disease stops at the net person or only continues to one or more people. Occasionally one of those infected would become a super spreader and transfer the disease to many other people thus restarting the process. Through this process, an epidemic started in the country.

### Controlling the Outbreak

The government did a thorough and quick job to maintain the outbreak and within three months Singapore was not listed as a SARS-affected area. Most Singaporeans felt safe after the breakout, according to a report that came out the following year (Quah & Hin-Peng, 368). Most people did not feel at all threatened and felt that the government were doing their best to contain the problem. The best way to minimize the danger was through protective masks. By using masks, airborne particles would be less likely to infect other people. While SARS has not been seen in years, some are concerned of a possible outbreak again.

The best possible way to prevent future outbreaks is to be constantly monitoring the population and practicing proper sanitization routines.

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