

Down Memory Lane: Epidemics Revisited

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Editorial Note:

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The flu-like epidemics that the world has faced in this century have lessons and insights that could help us cope with the present SARS outbreak.

THE SPANISH FLU PANDEMIC OF 1918-1919

The Spanish Flu, or Spanish Lady, killed more people than World War I (WWI). It infected one billion people (half the world's population at that time) and killed 40 to 50 million people. This makes it the most devastating disease of man known, surpassing the bubonic plague of the 14th century, smallpox in the 16th century, and AIDS today.

The name "Spanish Flu" came about because Spain, who was not involved in WWI, could report freely on the pandemic. The first case was traced to Camp Funston, Kansas, USA on 8 March 1918. This heralded the start of the devastating pandemic that spread around the world. However, the enormity of the pandemic was not uppermost in people's minds, due partly to the tendency of human nature to shut out bad experiences, and most people were more concerned with the war.

The usual symptoms of influenza: rapid onset with high fever, chills, headache, muscle ache in back and legs, and dry cough, were reported. The majority recovered within a week following bed rest, though many experienced a "depression" which took months to overcome. Some were dead within 24 hours. Others died within 2 to 3 days, essentially by drowning as their lungs filled with fluid or blood due to haemorrhage. At autopsy, lung and heart damage was common with frequent occurrence of bleeding.

An unusual feature of the Spanish Flu was that the majority who died were between 20 and 40 years old. The gathering of this age bracket for the purpose of war, declining standards of hygiene and nutrition often associated with crowding, increased stress due to preparations for and fighting of the war, were probable reasons for their susceptibility to the epidemic.

The unprecedented movement of people around the world in 1918 also gave the Spanish Flu the best possible chance of spreading.

Although many governments and local councils imposed public health measures, such as bans on public meetings, closure of places of mass entertainment, compulsory wearing of masks in public, and quarantine of ports, it was too late.

The Spanish Flu spread like wildfire. Cities and towns ground to a halt as there were insufficient healthy people to run services. Medical facilities were overwhelmed with sick people, and the number of deaths led to a shortage of coffins and introduction of mass burial in some areas, to remove the chance of further public health problems.

THE VIRUS

So what caused this outbreak? Viruses have been described, as early as 1898, as infectious disease-producing agents of small size, which could pass through filters that would hold back ordinary bacteria.

Type A viruses, found in birds, are often associated with the most severe diseases, and show great variation in their properties from year to year. Horses and pigs are also frequently infected. Some researchers have suggested that the pig holds an important position as a mixing-pot for bird and human influenza strains, resulting in new combinations that may infect man.

In the 1950s, the ability to isolate, detect and produce influenza viruses in tissue culture for research purposes and vaccine production, sparked new interest in the cause of the 1918-19 pandemic. However, 2 expeditions to the Alaskan Arctic to retrieve tissue samples from victims of the Spanish Flu were unsuccessful in reviving the Spanish Flu.

More recently, molecular biological techniques have confirmed that the Spanish Flu was indeed due to an influenza virus.

THREE OTHER PANDEMICS

In this century, 3 other major pandemics have occurred. The Asian influenza in 1957 killed over a million people. In 1977, the Russian influenza appeared and was shown to be a virus closely related to viruses circulating in the 1950s. The Hong Kong influenza in 1968 claimed nearly $\frac{3}{4}$ million victims.

THE HONG KONG "BIRD FLU"

In 1997, the Hong Kong "Bird Flu" became the first documented case of direct transmission between birds and man. The implications of this event were potentially catastrophic as there was no established immunity to this virus in the human population. Fortunately, only 18 cases of infection have been confirmed, with 6 deaths, and there is no evidence for human-to-human transmission. In order to contain the outbreak, the Hong Kong authorities ordered the destruction of over a million chickens. Their prompt action may have saved the lives of many millions of human beings.

THE OVERDUE PANDEMIC – HAS IT COME?

From written records and ongoing surveillance studies, many scientists predicted that we are overdue for another pandemic influenza outbreak. SARS may be it.

In some ways, conditions prevail as they did in 1918: the huge volume of international travel, war zones with their inherent problems of malnutrition and poor hygiene, large populations living in cities, many of which have decaying infrastructures and waste disposal problems.

Today, we are in a much better position. We have anti-influenza drugs

that prevent or delay infections, to allow production of the required vaccine and antibiotics to deal with secondary bacterial infections.

Meanwhile, continuing research on the Spanish Flu, the Hong Kong Bird Flu, and now the SARS attack, will hopefully give new insights into what determines the severity of an influenza outbreak and find answers to put these outbreaks to a halt.

There is also one more insight from immunology – the convalescent serum of those who have recovered from SARS have antibodies that could be used to mop up the SARS virus. Apparently, Hong Kong is having some encouraging results on the SARS victims. (Source: <http://straitstimes.asia1.com.sg/topstories/story/0,4386,180672,00.html?>) ■