

The SARS attack on Hong Kong

History repeats itself. In 1894, Hong Kong was alleged to be the origin of the modern pandemic plague. However, the epidemic that occurred in Hong Kong was actually preceded by an outbreak in Guangzhou, China. Ironically, Chinese citizens in Hong Kong fled to Guangdong Province in fear and subsequently brought back more cases of plague on their return. Almost 110 years later, infectious diseases still know no boundaries; the only difference now being that they spread faster and farther. The 2003 outbreak of severe acute respiratory syndrome (SARS) began after the index case, a physician from Guangdong, stayed in a Hong Kong hotel.¹ As a result, other hotel guests became infected, leading to rapid dissemination of the infection to other parts of Hong Kong, mainland China, and the rest of the world—all in a matter of days.²

In the plague epidemic, Alexandre Yersin from the Institut Pasteur and Shibasaburo Kitasato of Japan raced to find the aetiological agent. Kitasato was the first to announce his findings, but it was Yersin after whom the bacterium *Yersinia pestis* was named, because his findings could later be confirmed by other researchers. Two weeks after beginning of the SARS outbreak in Hong Kong, at least three centres announced that SARS was caused by a paramyxovirus,³ but it was a novel coronavirus (SARS-CoV) that quickly became the widely accepted primary aetiological agent.⁴⁻⁶

In terms of public health, the plague in 1894 was largely the result of negligence in personal and environmental hygiene, overcrowded living conditions, and pest infestation. Those were the days when hygiene, science, and democracy were unknown to the Hong Kong Chinese community. To make matters worse, mass panic developed from rumours spreading that the corpses of people who had died from the plague were ground into powders for consumption by Caucasian royalties in Europe. Clearly, good public information was also lacking. In 2003, Hong Kong is a modern cosmopolitan city with a lively and effective mass medium, an elected legislature, and physicians and microbiologists working at the cutting edge of medicine. So what has gone wrong?

The extremely high density and mobility of people across Hong Kong's border with mainland China, and our increasing integration with the Pearl River Delta obviously accelerate the spread of infectious diseases within the region. But perhaps the most important factor is that we have forgotten that micro-organisms are capable of generating endless genetic mutations. Although it would be unkind to criticise officials for being complacent, because they know that an epidemic of the scale of SARS occurs only once in 50 to 100 years, when it does happen, we should find out what could have been done to alleviate it.

The uncomfortable scarcity of space in this crowded city—combined with various environmental mishaps—led to the disastrous SARS outbreak in Amoy Gardens. The uncomfortable scarcity of space is also seen in our public hospitals—the fact that beds lie within arm's reach of each other is hardly conducive to hospital infection control. In addition, the current practice of zero-based budgeting means that resources of the public sector—both the hardware and software—have little reserve to react to a massive influx of highly infectious patients and subsequent hospital outbreaks. Doctors and nurses are easily worn out by working in clumsy protective gear while complying to time-consuming infection control measures. These are just some examples of capitalism stretching cost-effectiveness to the limit.

Three decades of 'Clean Hong Kong' campaigns have not noticeably improved the environmental hygiene in this special administrative region. More importantly, the civic-mindedness of the local population still leaves a lot to be desired. The standard of our living environment is still far behind that of our neighbours Singapore and Japan. Investigations into the Amoy Gardens outbreak showed that SARS-CoV could be detected in cockroaches and the faeces of animals such as cats and rats, thus raising the possibility that pests and domestic, stray, or wild animals are mechanical carriers of the virus. Now is the critical time for the government to turn this crisis into a sustained campaign to improve the personal, environmental, and food hygiene standards of Hong Kong. It is also timely to review whether we continue to allow live poultry to be sold at wet markets after years of threat from avian influenza. We must steer the change of our culture in terms of how we live and eat.

How should we proceed? The first and most important step is to acknowledge that we have a serious problem. To make the effort sustainable, we should have a yearly ceremony to remember the more than 200 people who died from the SARS epidemic. A monument should be erected at the site of the start of 1894 plague epidemic at the Hong Kong Museum of Medical Sciences, previously the Bacteriological Institute. This will remind everyone in Hong Kong that we should learn from these bitter historical facts and change to a better living and eating culture.

The establishment of the Hong Kong Centres for Disease Control and Prevention (HK CDC), mirroring the functions of the United States Centers for Disease Control and Prevention in Atlanta, Georgia, has been zealously promoted recently. There is no doubt that a HK CDC—if properly established and managed—will be a major step forward in our ability to detect and control epidemics of infectious disease. The ability to coordinate research from different institutes, to perform epidemiological surveillance locally and internationally, and to conduct timely and high-quality

epidemiological studies are some of the expected functions of the HK CDC. Nonetheless, probably the most critical function of the HK CDC is its ability to respond promptly to imminent outbreaks—the task of a proposed Rapid Response Unit within the HK CDC. This function is reminiscent of the Epidemic Intelligence Service within the CDC of the United States, which is world renowned as a surveillance and response unit for all types of epidemic around the globe, including threats of bioterrorism.

Forty years after its first announcement of discovery by Japanese scientists in Hong Kong, *Yersinia pestis* was used by the Japanese military against Chinese civilians in Manchuria as a biological weapon. To the world community, bioterrorism is one of the biggest threats of international safety. Let us not forget that bioterrorism is also a potential cause of outbreaks of infectious disease on a massive scale. A good surveillance system for outbreaks of emerging infectious diseases is a prerequisite for preparedness towards bioterrorism. Although Hong Kong is generally regarded as a place with a low risk of bioterrorist attacks, there is truly nowhere in the world that can be regarded as a ‘safe’ place in this respect. History tells us that we are in a region where new infections have frequently emerged. We cannot prevent such diseases from emerging again, but there is definitely

something we can do to minimise or reduce the harm inflicted by future outbreaks.

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