Twenty years of warning

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Twenty years ago, a Pulitzer prize-winning author, Laurie Garrett, wrote a book called *Betrayal of Trust* [1] which decried the breakdown of the global public health infrastructure. She chronicled and warned that the collapse of systems intended to prevent the spread of infectious diseases, gross inequities between the rich and poor, and failure to protect the environment and ecosystems, would lead to economic, social and political instability on a global scale. In an earlier book, *The Coming Plague*,[2] written in 1994, she warned about the emergency of recurrent eruptions of newly discovered emerging diseases. She complained that society tended to learn little from past mistakes and ignored the signs that resources were needed to support healthcare infrastructure, public health capacity, and basic human needs.

In November of 2002, a new strain of influenza coronavirus arose, called severe acute respiratory syndrome (SARS). It began in Guangdong province, China, and spread via Hong Kong and international air travel to dozens of countries over the next several months. By the time the outbreak had been curtailed, more than 8 000 people had become infected and 916 had died.[3] It wasn't until well after the disaster that studies reported that the agent was transmissible through aerosols, and that the infectious virus could exist for several hours in the air. We also came to learn that healthcare workers comprised one fifth of the global cases.[4]

A number of important lessons were provided by the SARS outbreak. One was that hospitals were ill-prepared to track infected patients as they entered healthcare facilities, so it was difficult, if not impossible, to identify which staff or other patients had come in contact with SARS patients before they were diagnosed. Another lesson was that hospital ventilation systems were woefully inadequate to help protect workers and patients from SARS. Last, there was a misunderstanding of what personal protective equipment (PPE) was appropriate for nurses and physicians treating SARS patients, and the guidelines changed several times over the progression of the outbreak.

It is unspeakably disappointing that, after 20 years of mesmerising advancement in areas such as information technology, communications, and other specialties, our medical and public health systems in many countries – even the most advanced – have lagged far behind. The lessons learned from the SARS disaster were forgotten and never adequately addressed, and we are now plagued by the same problems during the COVID-19 pandemic. Hospitals cannot accurately identify, track and segregate infected patients and identify asymptomatic individuals; as a result, healthcare workers and other patients are being infected. The inability of hospital ventilation systems to minimise the concentration and spread of airborne virus aerosols allows the agents to spread throughout the environment.

Even though inadequate nursing protocols and failure to use PPE properly were identified as primary causes for the spread of SARS in 2003, neither the US Centers for Disease Prevention and Control (CDC) nor the World Health Organization (WHO) are able to agree on what PPE should be worn for healthcare workers assigned to COVID-19 patients. In a 2005 study by Yassi et al. on the lack of understanding of effective controls against SARS, it was reported that, "it is likely that a pandemic strain of influenza could produce similar or worse effects if these issues are not addressed".[5] Studies of nursing practice since the SARS outbreak have shown that only 20–90% of healthcare workers practise correct PPE compliance.[6,7] In a study in 2008, only 60% of healthcare workers received respirator fit-testing and training annually, as required.[8] We seem to have learned very little over the past 20 years in the area of infection control, and occupational health and safety for healthcare practitioners.

Occupational hygiene is the profession dedicated to the protection of worker health and safety. Despite the fact that communicable diseases contribute 9% of occupational fatalities, on average, and up to 30% in developing nations,[9] and hospital-acquired infections occur in up to 25% of hospital patients globally,[10] there has been little expansion of the use of occupational hygiene principles or practice in healthcare. Occupational hygienist expertise in ventilation, contamination control, environmental monitoring, and personal protection is a recognised asset to general industry and is seen as an economic benefit, yet it often goes underutilised by hospital medical teams and administrations. Only the largest hospitals tend to have occupational hygienists on their staff. Smaller facilities hire consultants only when they are obliged to do so by legislation, or perceive a need and have the funds.

If there is a bright side to this pandemic, it might be that, in future, there will be an increased interest in the services and expertise that occupational hygienists can bring to infection control and protection of health workers.

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Disclaimer: IOHA would like to provide clarification on an article published in the January/February 2020 IOHA Newsletter &Technical Update *(Vol. 26 No.1 pg 29). While the article, entitled 'New Zealand Whakaari volcano eruption and occupational hygiene responses', was written by Philippa Gibson, CIH COH, WorkSafe New Zealand, all of the commentary and content of the article is her own opinion. It was not written on behalf of WorkSafe New Zealand or discussed with WorkSafe prior to publication; it should not and cannot be attributed, in any way, to WorkSafe New Zealand.*