

Hong Kong Hospital Authority selects IQAir® advanced filtration systems in the fight against SARS

Introduction

In February of 2003, newspapers began reporting a rapidly spreading atypical pneumonia. Now identified as severe acute respiratory syndrome or SARS, this highly contagious condition is caused by a new coronavirus for which there is no specific antiviral treatment. While the epicentre of the outbreak was China, the disease spread quickly across Asia and North America (especially Canada) with a total of 32 countries and areas eventually reporting cases.

The Cost of SARS

Until today, an estimated 8422 cases have been reported - with a total of 916 deaths attributed to the syndrome. In terms of profession, health-care workers (HCW) were particularly affected with a total of 1725 individuals (20% of the total) becoming infected. Adding to the tragic human cost, the SARS outbreak hit many economies very hard. Many economies were severely damaged as tourism and other travel related industries took a nosedive. Estimates of the financial cost of SARS have varied from a conservative figure of US\$30 billion according to the World Health Organization (WHO) to US\$ 150 billion globally. Some experts noted that even this high figure is likely to be a gross underestimate. Thus, the effects of SARS are now regarded as the affected regions' own "September 11" and the aftershocks are still unfolding.

Will SARS Return?

In an unprecedented effort to solve the SARS mystery, the WHO, the Centers of Disease Control (CDC) and many other organisations have brought hundreds of people together. Thanks to their collective work, the last two countries (China and Taiwan) were taken off the list of areas with recent local transmissions as of July 5, 2003. At this moment in time the most pressing question is whether SARS will return. Like the Ebola virus, the SARS virus could hide in some animal or environmental reservoir, only to resurface once the conditions again become ripe for the spread to humans. According to the WHO, "SARS might also behave like many other respiratory diseases of viral origin, dying out as heat and humidity rise and returning when the season turns cooler."

Preparedness is the Best Defence

Much like other respiratory illnesses, SARS is spread by close contact, when a person infected with SARS contaminates the immediately surrounding air with tiny droplets of infected matter. Someone in close proximity of the infected person can then become infected by breathing in the contaminated air. However, scientists are also considering other possibilities of transmission. According to the CDC, "it is possible that SARS can also spread more broadly through the air". Since there is no specific antiviral treatment for SARS, the most effective strategy is control. While it is the WHO's first objective to seal off opportunities for international spread of this deadly disease, many health-care institutions are looking for additional infection control measures that will help them to contain infections in the event that the coronavirus once again flares up in an outbreak.

One of the institutions that was particularly keen to implement special engineering controls as an additional precaution strategy in the fight against SARS is the *Hong Kong Hospital Authority* (HKHA). The HKHA currently manages 43 public hospitals, 47 specialist outpatient clinics and 13 general outpatient clinics. During the SARS crisis Hong Kong was one of the worst affected areas with 1755 reported SARS cases (376 of which concerned health-care workers), resulting in a total of 300 deaths. In view of these huge losses, the HKHA was determined to find a way to effectively contain the SARS virus in case the disease should resurface.

The Selection Process

In order to find the most efficient, reliable, flexible and cost effective solution the *Electrical and Mechanical Services Department* (EMSD) of the Hong Kong Government performed rigorous tests on behalf of the HKHA. They evaluated the suitability and performance of various filtration systems, including IQAir. With the help of a laser particle counter the EMSD tested the actual filtration efficiency of different systems. The tests quickly showed that most of the systems fell well short of effectively removing airborne particulates (in spite of claiming a filter efficiency in excess of 99.97% for particles of 0.3 µm and larger). With its certified filtration efficiency in excess of 99.97%, IQAir passed this test.

Having passed the preliminary selection process, the aim was to provide the HKHA with an infection control system that could be put into action in a matter of minutes and that would be able to effectively limit the threat of airborne disease transmission from a SARS patient to health care personnel by providing certified actual filtration performance.

Thanks to the professional support of a Hong Kong based authorised IQAir dealership and IQAir's previous experience in the field of hospital infection control (see IQAir press release "*Decentralised airborne infection control in health-care facilities*"), we were able to work closely with the Hong Kong authorities to develop a tailor-made infection control solution. After weeks of testing and the installation of several trial systems the HKHA finally chose IQAir as the only filtration solution for SARS patient rooms.

The selected IQAir filtration system consists of the *IQAir HealthPro Plus/250* model connected to the *IQAir FlexVac* mobile source capture system and a special air exhaust that enable the filtered air to be directed. In the case of a SARS emergency occurring, the self-contained mobile system can be positioned next to a Suspected SARS patient's bed to capture any airborne

It is clear that vigilance for SARS must be maintained, because resurgence of the virus is possible (as experienced in Toronto), and knowledge on the origin and exact means of transmission of SARS is still lacking. As a world leading manufacturer of mobile air cleaning systems we feel honoured and privileged that we are able to play such an important part in providing advanced air cleaning solutions in the fight against SARS.