# Severe Acute Respiratory Syndrome (SARS) and boarder protection: A report of the Sydney airport experience

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## Abstract

*In early 2003 Severe Acute Respiratory Syndrome (SARS) became an international globe-travelling virus; it began this frequent flyer journey from mainland China, and travelled to 30 countries across the world. By the end of its worldwide journey it had killed over 800 people and infected over 8000. As part of Australia's response to contain the virus, screening of all arriving international passengers was introduced throughout all of Australia's international airports. This article is a reflection on the experiences that five infection control practitioners (ICPs) had with implementing and conducting this service at Sydney's Mascot International Airport.*

## Background

Severe Acute Respiratory Syndrome (SARS) is an illness characterised by atypical pneumonia caused by a novel coronavirus [1]. On 12 March 2003 the World Health Organization (WHO) took the dramatic position and issued a global alert about SARS.

The outbreak was originally detected in Guangdong province in the southern region of the People's Republic of China, and has since spread to over 30 countries across the globe. The second major warning that WHO issued related to international travel and was released on 15 March, with additional advice to airlines published on 27 March [1].

On 1 April 2003 the Commonwealth Chief Medical Officer, following consultation with a range of government agencies including the Australian Quarantine Inspection Service (AQIS), Australian Customs and the various State and Territory Health Departments, moved to increase the level of surveillance of SARS at Australia's international airports [2]. The increased surveillance was to include a medical presence at international airports to conduct SARS screenings of all arriving international passengers.

## The beginning

In the late afternoon on 3 April a call from the New South Wales Department of Health (NSW DOH) was placed to the
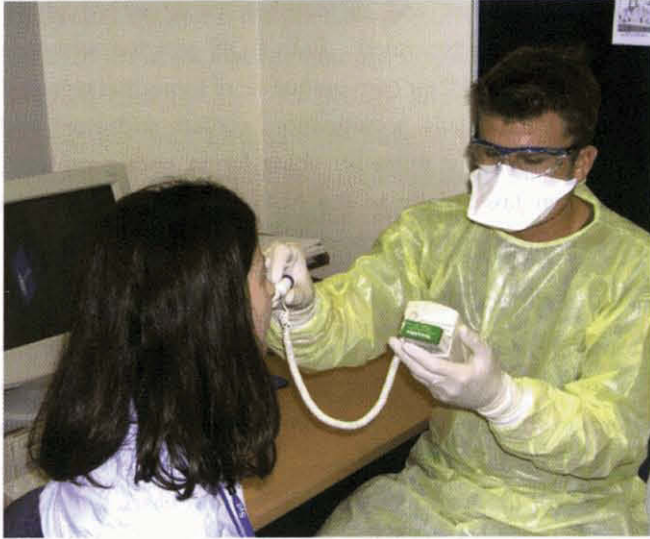
Centre for Hospital Epidemiology and Staff Services at the Prince of Wales Hospital (POW). The call instructed the staff to put together two SARS kits for the screening of arriving international passengers at Sydney's Mascot International Airport, which was to commence at 5am the following morning. This led the staff at POW to frantically source and collect equipment from around the hospital to be sent to the airport with the first staff member to begin the arrival screening.

The SARS kits comprised a digital thermometer, vast supplies of N95 masks, alcohol handrub, long sleeve disposable gowns, linen bags, clinical waste rubbish bags, protective eyewear, alcohol wipes and numerous sizes of gloves. Since the supply of these items was tight across all hospitals during the SARS crisis, the sourcing of stock was then undertaken by the NSW Infection Control Resource Centre. The number of kits required soon doubled to four, one of which was contained in a backpack, the rest, in old infection control conference satchels, with everyone wanting to use the backpack kit. The stock levels of the kits had to be checked daily and any required stock had to be ordered via fax from the NSW Resource Centre, who would collect the stock and send it out to the airport.

## Staff

The staff who made up the airport screening team was sourced from the current nursing staff levels from within South East Sydney Area Heath Service (SESAHS). In order to setup the screening service, the infection control practitioners (ICPs) from POW were required for the first weekend of screening while the additional staff were from the POWs

emergency department (ED) and infectious diseases (ID) ward. However, after this initial weekend, the staff that undertook the role were those staff wishing to gain overtime and therefore no experience in respiratory or infectious diseases was required. The range of nurses that worked at the airport during this time was vast, including ICPs, operating theatre, emergency, midwives, mental health, intensive care, orthopaedic and general surgical and medical ward staff. Therefore education of the staff became paramount.

A SARS screening nurse working at the airport was often in a totally different role to that of their usual job. For example, critical care nurses who were used to caring for critically ill patients and having access to all the latest equipment to monitor a patient, were finding themselves assessing an acutely unwell passenger with only a thermometer and their own skills of assessment.

## The airport routine

The screening nurses were to work in conjunction with AQIS and customs and cover the airport from 5am to 11pm each day. There were three nurses on the morning shift (5am to 1pm) and two on an afternoon to evening shift (1pm to

11pm). Each nurse was required to report to the AQIS and customs office in the airport at the commencement of every shift to be signed in, given a temporary ID and escorted to the main AQIS offices.

The areas that the screening nurses would be working in are classed as sterile areas by Customs and AQIS. These areas of the terminal are designated international areas and therefore officially not within Australia. Once past the 'red customs line' the screening nurses 'left Australia behind'; therefore they needed an AQIS officer to escort them everywhere they were required to visit. To get through any doorway in the international terminal a swipe card is required; the screening nurses were unable to get out of the AQIS office area without an AQIS officer to swipe them out.

Working with AQIS was a completely different culture to that of a hospital. The screening nurses were classed as 'official visitors', but on a day to day basis, the nurses were always considered as part of the AQIS team. The AQIS staff moved one of their own managers out of an office so that nurses could have their own area that was close to and accessible by AQIS staff. On an individual level, the AQIS staff were always happy to show the nurses what their job entailed and what their role in protecting the nation's international borders involved. There were numerous collaborations between the staff and many friendships were made.

AQIS set up the roving team system, which consisted of one nurse paired with one AQIS staff member. This team would meet the planes on arrival and view the passengers disembarking, then patrol the arrivals halls searching for a feverish, sweating passenger and listening for a coughing person. This task was made more difficult as it was required to be done in a sea of 2000 to 3000 people. This was further complicated by the fact that, as everyone who has experienced international travel will tell you, you are not looking or feeling your best after a long haul international flight.

The initial assessments were often done in crowded airport corridors, transit lounges, baggage collection areas and on planes, places very different to a clinical area. Flight crews would also contact AQIS and notify the staff of any passengers displaying symptoms that meant that the nurse and AQIS would have to board the plane and hold all passengers until the nurse reviewed the passenger. This was an enormous responsibility for many nursing staff, to review a passenger and give the all clear for a flight to disembark.

After each patient was reviewed, a paper record of the assessment was generated. Both AQIS and the screening nurses completed their own unique set of forms that recorded the patient's details, examination, contact addresses and travel history. The nurse screening forms, once completed, were then faxed daily to the NSW DOH for review and collation for statistical purposes.

## Communication

Communication was vital for maintaining the service; the link to the latest and most up to date information was via the Internet and e-mail. AQIS provided the nurses with a computer with Internet access, and an e-mail address was created for the service. On a shift by shift basis, the nurses would download the latest information about SARS from various websites. Any pertinent journal articles were downloaded and printed out and the information shared between the nurses and AQIS staff. Regular teleconferencing and meetings with SESAHS and NSW DOH staff were attended as well. Data for statistical analysis were collected and sent to the NSW Chief Medical Officer on a daily basis via e-mail or fax.

AQIS staff were equipped with radio devices for communication with AQIS managers while out roving in the terminals. The nursing staff also had mobile phones with which to contact the medical officer on call to discuss a suspect patient.

## Education

Until the SARS experience, the AQIS staff only had minimal health issues to deal with. SARS required a major change in focus related to gaining the knowledge and confidence in managing passengers potentially infected with SARS. For some AQIS and customs staff, fear was a predominate factor; however, for many, this was alleviated through both formal and informal education. The NSW DOH set the formal education in process, to which the AQIS staff responded very positively.

Follow-up formal education sessions were given to both AQIS and customs staff over a number of weeks, by the ICP of the Royal Hospital for Women. In these sessions they were taught the signs and symptoms of SARS and how to differentiate it from a cold, cough or flu; they were also educated in mode of transmission and prevention of the disease. There was much hilarity when practising how to put on a mask and gloves, then learning how to remove them without contaminating themselves or the environment.

As many of the nurses did not have infection control or public health as the major focus of their practice, informal education occurred continuously. At Sydney airport, the screening programme was fortunate to have a number of ICPs involved, all of whom were passionate about their practice and about instilling good values and practice to the other airport nurses. This also had the further value of the AQIS and customs staff being informally educated whilst the ICPs were on duty.

## Environment

Sydney's Mascot International Airport is Australia's busiest international airport[3]. Each year the airport handles over 8.4 million international passengers, which equates to over 23,000 passengers daily. The airport handles a total of 45,795 aircraft movements annually with a total of 34 aircraft gates and two customs halls to process these numbers[3].

The environmental structure at Sydney airport was not designed to cope with infectious diseases. The airport has one room in each customs hall set aside which they call the 'yellow fever room'. These rooms are mainly used for interviewing passengers who have returned to Sydney unvaccinated from an area where yellow fever is endemic. One yellow fever room was ideally located off one of the customs hall and had easy access. This room also had a hand basin located within it. However, the second yellow fever room in the other hall was not ideal, as access to it required the passengers to wander up two corridors and past a number of offices, all of which had the doors open. Containment of viruses disseminated via the airborne or droplet route would be very difficult in this environment. Also, the second room did not have a hand basin so, wherever possible, this room was not utilised; instead a custom's interviewing room was used, providing the room was not engaged in customs activities. The location of this room was ideal for that customs hall.

The design and location of the public toilets was also a major area of concern as one toilet could not be isolated for use by any potential SARS passengers and bedpans and urinals were certainly out of the question. Eventually a disabled toilet was identified as one that could possibly be isolated but it was not centrally located which meant that a passenger had to travel a distance and past many others people to access it. It was also hoped that a disabled person did not require use of the facility when it was quarantined.

## Cases

The following are actual cases seen by the authors during their time at Sydney airport.
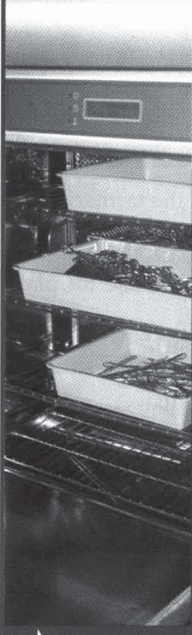
### Case 1

A banker on a domestic flight to the Gold Coast via Sydney presented with a slight fever, was perspiring and had a cough. He had recently returned to Australia following a month working in China. He had disembarked his international flight in Melbourne and was cleared by AQIS there. As he had become progressively sicker, and it was 17 hours since he left Beijing, consideration needed to be given as to whether this was the early onset of SARS; therefore the screening team were called to the domestic terminal to review him.

The domestic terminal staff were not used to the screening process and they were certainly fearful. An infectious disease physician was contacted and decided that the passenger may continue his travel to the Gold Coast and be followed up by the infectious disease doctors there. He left on the next flight isolated at the back of the plane, but he was delighted with this because he was able to lie down in all the empty seats.

## Case 2

The airport land crew requested an assessment of an elderly lady in a flight lounge area who had been observed coughing. The lady was from Sydney and was travelling to the UK. She hadn't even left the country yet! Staff at the airport, including the AQIS staff, were highly anxious and were reporting anyone in the airport who coughed or sneezed!

## Case 3

A passenger was returning from Bali following a holiday with her boyfriend (who was living in Hong Kong). The flight crew reported that she had started coughing and was feverish on the journey. I was whisked to the plane as it landed and was taken on board by the AQIS officer who informed the passengers and crew that they were under quarantine and were not allowed to leave the plane until I had given them the all clear.

As I walked on to the plane garbed in full personal protective equipment (PPE), clutching a thermometer and assessment questionnaire, I felt like I was in the movie *Outbreak* with Dustin Hoffman (only the AQIS officer wasn't as good looking). The crew and passengers from three rows in front of and behind the passenger were all wearing masks. The embarrassed passenger wasn't coughing but had a ticklish, dry sore throat, she also hadn't had a temperature at any time. She had coughed a few times to clear her throat when the cabin crew presented a mask for her to wear.

## Case 4

A call to AQIS from the flight crew from a London to Sydney flight suggested that four passengers were unwell, all with potential SARS. The plane was boarded on the tarmac, as the plane was directed not to dock, thus delaying disembarking of the passengers until cleared by myself. I boarded the plane and made my way through first class, then up the stairs to business class, then on to the final two passengers sitting in economy (all the while unable to get any trolley service).

All passengers reviewed displayed no SARS symptoms, nor had they travel or contact histories. They had simply coughed a few times, or were feeling hot during the flight, or were suffering from travel sickness, or had used the bathroom frequently due to a recent gastrointestinal illness for which they were on treatment.

During this time a wave of panic swept through the remaining passengers, they assumed that SARS was on board; this was not helped by the fact that a masked and yellow-gowned figure was wandering around the plane. Many of the passengers demanded to leave the plane immediately, not realising that after they had just spent 23 hours with these people, 10 more minutes would not change their predicament. This tense situation was not resolved until the captain and the AQIS officer spoke with the passengers.

## Conclusion

Over a period of 5 months beginning 1 April 2003, more than 700 international passengers were interviewed and screened by the nurses at Sydney International Airport. Of the 700+ screened, only two were sent to hospital and neither were probable cases. While Australia was lucky that SARS did not create the problem that it did in other countries, the entry point for a virus of this kind will almost certainly be an international airport.

The nurses who worked at the airport did so in difficult circumstances with very limited resources, in a crowed and unfamiliar environment, with language and culture barriers and limited clinical back-up. Confidentiality was always a concern, with the stigma and fear that SARS had. Passengers and airport staff were all extremely anxious and the mere act of coughing to clear your throat sent chills through all those around. The airport nursing staff were able to lead by example and diffuse many sensitive situations.

The authors of this report were proud to take part in preventing the entry of a potentially devastating infectious disease into Australia. The only disappointment we had with our experience was that we were unable to purchase any duty free items.

## Note

For security reasons places or names of any staff member within the Sydney Airport International Terminal cannot be given or explained in detail.

## References

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