MEDEVAC AEROMEDICAL SERVICES IN SINGAPORE

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Medical retrievals in and out of Singapore have been around for a long time. Our ability to transfer sick patients safely coupled with our high standard of healthcare has made Singapore an attractive medical hub.

The effects of COVID-19

In February 2020, the COVID-19 virus invaded Singapore. This quickly cascaded into a series of drastic changes in the aeromedical scene. The Ministry of Health (MOH) implemented new measures to safeguard our people against this invasion, which completely changed our lifestyle overnight.

On 17 March 2020, the flow of traffic along the Causeway between Johor and Singapore was halted. On 7 April 2020, Changi Airport came to a standstill. This coincided with the implementation of the nationwide circuit breaker. A Stay-Home Notice was imposed on 9 April 2020 to all returning Singaporean citizens, Permanent Residents and Long-Term Pass Holders. Short-term visitors were abruptly denied entry. The frequency of flights in and out of Singapore was much reduced. This was when our aeromedical wings were clipped.

In the good old days, once EMA Global received a request for a medical evacuation (medevac), we were able to be airborne on the same day. Getting entry into Singapore was usually not a concern even for patients who otherwise needed visas, as we could have an emergency visa issued at Seletar Airport on arrival for both the patient and the companion.

With the implementation of the circuit breaker however, all patients who wish to enter Singapore require the approval of MOH. Approval is obtained by the treating physician who has to justify why the patient needs treatment in Singapore. MOH would typically respond in two weeks, and the rejection rates are high. Two weeks of waiting can seem very long when the patients are sick and require urgent medical attention. Many have died while waiting for approval to enter Singapore. When MOH approval has been granted, the family still has to apply for the quarantine process through the Immigration and Checkpoints Authority. These processes are time-consuming and the delays make treatment of critical cases impossible.

Border restrictions also meant that our medical teams were not allowed to pass through immigration to receive the patients at their hospital. Instead, patients are brought to the airport to meet our team on the tarmac. Although this can be done, it is not good medical practice for the local team to bring sick patients on multiple supports to the airport. It is also not good practice to hand over sick patients on the tarmac where the ambience is not conducive to exchanging equipment and passing over the care of the patient. As a consequence of this regulation, we now tend to evacuate more stable patients where the continuation of care is not as crucial.

With the clamping down of patients entering Singapore, patients from neighbouring countries requiring medical treatment look to countries like Malaysia and the Philippines instead. The Malaysia Healthcare Travel Council can grant medical visas within two to three days and the country has attracted a substantial number of foreign patients. Manila has also attracted foreign patients for medical treatment via their Inter-Agency Task Force. Working with their Department of Health, foreign patients continue to seek treatment there. In some ways, Singapore has lost out on this medical tourism.

Adapting to the changes

The Singapore aerospace scene has drastically changed during this pandemic. Medevac patients used to consume 80% of the total flying hours in and out of Seletar Airport. Now, genuine patients consume only 20% of the total flight hours. The high frequency of non-medevac flights is partly due to the lack of commercial flights and these chartered flights, often termed "taxi flights", are now used by less-sick patients. Of the patients we handled, the majority of them were repatriations or foreign patients returning to their home countries. A handful of the cases bypassed Singapore and headed towards Kuala Lumpur and Manila. The few coming to Singapore were returning Singaporeans, Permanent Residents and Long-Term Pass Holders who have the right of abode in Singapore.

For any flight out of Singapore, we must inform MOH of our movements, including flight itinerary, the patient's condition, names of medical and flight crew and their polymerase chain reaction (PCR)/antigen rapid test status. This is to avoid having to serve quarantine upon our return home. When there is a patient on board, we have to don personal

protective equipment at all times, adding to the discomfort of the medical team. This is despite the patients' negative PCR results.

Whenever we handle a COVID-19 patient, there must be a Portable Medical Isolation Unit (PMIU) on board with negative pressure inside. There is a standard protocol in handling the PMIU. They are heavy (60 kg) even when empty and there is limited access to the patient inside. All procedures like intravenous cannulation and application of added oxygen must be done before the PMIU is closed. After the patient has been offloaded, there is a protocol for deep cleaning approved by MOH, as well as for the disposal of contaminated attire and medical waste.

Facing new challenges

One of the most challenging cases EMA Global has done in this COVID-19 era was to medevac a Singaporean from Hanoi to Singapore. He was a 68-year-old male working there, and he suffered an acute myocardial infarction which was complicated with a cardiac arrest. After resuscitation, he was put on arterio-venous extracorporeal membrane oxygenation (AV ECMO) and maintained on four inotropes. He was ventilated and sedated with two sedatives. A few days later, his family requested that he be repatriated to Singapore for further management.

We have done many ECMO and intra-aortic balloon pump transfers in the past, even from continent to continent. Ordinarily, this would not be a difficult task for us, but in this COVID-19 era, we were unable to receive the patient in the hospital – we had to receive him at the Hanoi airport. When the team saw him, he was attached to a ventilator, six infusion pumps and a cardiac monitor with the ECMO running. With 20 people watching, the glaring sun and the high background noise on the tarmac, we switched the equipment one at a time before even touching the ECMO. In less than 60 seconds, we exchanged the ECMO machines. We had of course done a few dry runs before we left Singapore. We then flew him home safely.

We know post-pandemic travel will continue to look different as the world slowly returns to "normal". It is imperative to ensure travellers and patients have access to quality medical transportation. EMA Global will react to any global medical situation with adaptability and flexibility to make medical transfers as safe as possible. We are also inspired to look for solutions to problems we have never encountered before and take pride in some of the amazing missions we have successfully undertaken in the face of these challenges. To blue skies ahead. ◆

Legend

1. Exchange of ECMO machines on the tarmac, possibly the first such instance being done

2. Transfer of care on the tarmac with full personal protective equipment

Dr Jong started a medical assistance company in 1991 as a hobby. This hobby has evolved into the current EMA Global, the first assistance company in the Asia Pacific to be accredited by EURAMI. They now have 24/7 alarm centers in Singapore, Kuala Lumpur, Manila and Guangzhou, and service clients from all corners of the globe handling the most difficult cases.