



COVID-19

COVID-19: Aeromedical transfer of patients, Aotearoa New Zealand

12 September 2022

Purpose

This document is a national guideline for the aeromedical transport of patients, including suspected and confirmed COVID-19 positive patients. It aligns with Government recommendations and is subject to continuous review.

The document is intended to inform decision-making by health professionals when considering the aeromedical transfer of patients. It will help to ensure the health and safety of staff undertaking work in this environment. It deals with the likelihood of aeromedical resources being overwhelmed and aims to contribute to maintaining sufficient capacity and capability to respond to wider demands on the transfer service.

Evidence about the risk associated with airway and ventilation procedures continues to evolve. This guideline represents known safe practice. However, reviews and discussion within the sector are ongoing, and they will trigger further guideline updates. The standard operating procedures of aeromedical providers will reflect the principles in this guideline and comply with Civil Aviation Authority regulations and health and safety requirements.

Overall considerations

Where high acuity patients clearly require inter-hospital transfer via rotary wing transportation, this should be requested. However, where clinically safe and feasible, medical staff are encouraged to consider road transport prior to fixed wing transport, and fixed wing transport before rotary wing transport for all patient transfers (irrespective of COVID-19 status).

This decision-making process will help reduce the risk of transmission of infection and preserve limited aeromedical resources (particularly air ambulance helicopters) to meet wider demands.

Transport mode selection

Transport mode selection decisions require a complex balancing of factors. These include, but are not limited to:

- Patient status, pre-transport condition, risk of deterioration in transit, urgency, and availability of care.

- Mode suitability for patient and patient condition, including considerations of altitude and pressurised vs unpressurised aircraft
- Mode suitability for accompanying medical personnel, including currency and recency on chosen transport mode
- Transit time to place of definitive care and time out of department for hospital staff
- Specialist staff availability to join skill-critical inter-hospital transfers
- Inter-operability of equipment especially for the aircraft / road interface if required
- Mode availability
- Time of day (weather, scene-related hazards and other aviation considerations are the responsibility of the Pilot-in-Command)
- Environmental, staff, and patient risks, and feasible mitigations.

Rotary wing aeromedical services should generally only be utilised for patients that are likely to benefit from them due to:

- Access constraints and geographical reasons
- Time critical response required
- Skill-critical response and/or specialist equipment required.

Due to the complexity involved in considering all the factors above, transport mode decision-making should only be undertaken by clinicians with appropriate expertise and experience. Hospital-based transport teams and the Air Desk staff should make joint decisions in relation to rotary wing tasking, particularly if there is an issue related to tasking prioritisation.

Clinical considerations

- Health and safety of aeromedical staff is paramount, and they should not be placed at unacceptable risk.
- Where possible, the most experienced personnel should be used for transportation. Familiarity with aeromedical environment is key to ensuring safe transfer in complex missions.
- Transport operations should be undertaken with the minimum number of clinical crew considered safe. Equipment not directly related to the clinical need or aviation requirements should be removed from the aircraft.
- Where appropriate, COVID-19 testing of patients should be performed at the earliest opportunity to guide transfer risk stratification. Rapid testing (preferably polymerase chain reaction testing but antigen is acceptable) should be performed prior to transfer, or within a clinically relevant timeframe, whenever feasible.
- Considerations for specialist retrieval should be discussed with the appropriate retrieval team.
- Transport of passengers or non-critical personnel should be minimised wherever possible.
- Good and early communication between the transferring hospital, transferring team and receiving hospital is key.

Medical therapies

Pre-hospital and interhospital guidelines on the medical management of COVID-19 patients should be followed by the respective teams. Focus should be on clinically safe, quality and supportive care.

Oxygenation and ventilation support

- Selected patients may benefit from aeromedical transfer on ventilator-driven continuous positive airway pressure (CPAP). These patients on non-invasive ventilation should be generally cooperative, not agitated and not in shock.
- Strict attention to mask fit and circuit integrity is required. Attention to the oxygen requirements of the ventilator in CPAP mode, coupled with patient characteristics and anticipated oxygen use must be calculated with respect to the limited oxygen available in aircraft. This may influence mode of transport choices.
- High flow nasal prong/high flow nasal oxygen therapy is not recommended.
- The use of helmet CPAP is not recommended.
- The prone position for intubated (and awake) patients (at 135 degrees with the patient facing towards the cabin) may be considered, subject to retrieval team experience and patient factors.
- Intubation in flight (impossible in some aircraft) is very complex, and with a COVID-19 positive transfer, increases risk for both patient and crew. Intubation should be anticipated prior to patient transfer. Emergency in-flight intubation should be avoided in all circumstances.

Infection prevention/personal protective equipment (PPE)

- Vaccination and appropriate PPE significantly reduce the risk to staff when transferring a COVID positive patient. Frequent hand hygiene measures are important and glove use does not replace the need to perform hand hygiene using an alcohol-based hand sanitizer.
- The incidence of occupational infections of health-care workers from aeromedical missions should be zero.
- Recommendations for clinical crew treating known or suspected COVID-19 patients:
 - [PPE use for a known COVID-19 case](#). The standard operating procedures of each provider will ensure that PPE is appropriate to the aeromedical environment, in addition to meeting the minimum standards. [Standard and Transmission-based precautions should be applied](#). Crew should be fit tested for P2/N95 particulate respirators and competent at fit checking the respirator each time they wear one.
 - A medical mask should be worn by patients that are not on oxygen (if tolerated).
 - Simulation to practice infection prevention measures is essential.
 - Aircraft Environmental Control System (ECS)/Air-conditioning should flow from cabin front to rear, in non-circulation mode (ie, no heating).
 - It is the decision of the Pilot-in-Charge as to whether fogging with P2/N95 particulate respirators and night vision goggles precludes safe flying of the aircraft.
 - Crew must maintain awareness that communications may be impaired when wearing PPE.
 - Isopods and Epishuttles are not recommended for COVID-19 transfers.

- Where feasible, pilots should not be directly involved in loading and unloading patients but should wear a mask if their assistance is required. For single pilot operations, the use of ambulance staff may be required.
- A surveillance testing policy for all clinical and aviation crew involved in these transfers is strongly encouraged.

PPE breach

Any significant PPE breach during transport must be followed by a risk assessment and mitigation strategy. This should involve establishment of the contamination risk based on patient factors, and the likely staff exposure based on the breach.

In healthcare settings, responsibility for the management of staff in relation to their exposure to COVID-19, including advice around their return to work, sits with hospital occupational health teams and/or Public Health Units. Occupational health teams at hospitals or Public Health Units should manage workplace exposures according to guidance provided in 'Risk Assessment and Categorisation of Healthcare Workers Exposed to COVID-19' - this guidance is updated regularly and available to occupational health teams at hospitals and Public Health Units.

Aircraft equipment and cleaning, decontamination procedures

- Procedures already in place for aircraft and equipment cleaning following transport of a patient with an infectious illness such as influenza are sufficient.
- Following cleaning and disinfection the aircraft is 'good to go' once all surfaces are dry. Leaving the aircraft doors open for 30 to 60 minutes or placing an air dehumidifier in the aircraft to aid the drying of surfaces is not required.
- The use of disposable equipment, where possible, is preferred.
- The following option is not supported by evidence: nebulisation devices (eg the Dyna-fog hurricane system) with Nanocyn disinfectant, which have been certified by Boeing and Airbus for aviation disinfection. This option delays the return to service of the aircraft however it may provide reassurance to staff.
- Overall time for completion of COVID-19 missions is assumed to be double that of standard non-COVID-19 missions (based on experience of overseas aeromedical services).