Queensland Government

QUEENSLAND CARDIORESPIRATORY PHYSIOTHERAPY NETWORK

TITLE	**Physiotherapy management for COVID-19 in the acute hospital setting**
DESCRIPTION	This document outlines recommendations for physiotherapy management for COVID-19 in the acute hospital setting. It includes recommendations for physiotherapy workforce planning and preparation, a screening tool for determining requirement of physiotherapy, recommendations for the selection of physiotherapy treatments and personal protective equipment.
TARGET AUDIENCE	Physiotherapists and other relevant stakeholders.
VERSION	1.0, 23 March 2020
	Note: This is an interim guideline and is subject to change.

This document has been prepared to provide information to all Queensland Hospital and Health Services (HHS) about the potential role of physiotherapy in the management of patients with COVID-19.

COVID-19 is a disease caused by a new coronavirus. Symptoms of COVID-19 can range from mild illness to pneumonia. Some people will have mild symptoms and recover easily, while others may develop respiratory failure and/or become critically ill and require admission to intensive care.

It is important to note that many patients presenting with COVID-19 will have mild illness and will present with symptoms including coughing, a sore throat, fever, fatigue and shortness of breath. No specific physiotherapy treatment / airway clearance techniques will be required for these patients. However, there is potential that physiotherapists may be required to treat patients with COVID-19 who have respiratory failure and difficulty with airway clearance, for example due to secondary pneumonia with a suppurative presentation. Physiotherapy will also have a role in providing exercise, mobility and rehabilitation interventions (for example, to survivors of critical illness associated with COVID-19).

Recommendations for physiotherapy are outlined below according to:

- Physiotherapy workforce planning and preparation.
- Who to treat?
- General medical management and management in intensive care.
- Physiotherapy management
- Infection control and personal protective equipment

Physiotherapy workforce planning and preparation.

Recommendation
Identify potential additional staff who could be deployed to areas of higher activity associated with COVID-19 admissions. For example, the infectious disease ward, intensive care unit (ICU) and/or high dependency unit (HDU) and other acute areas. Prioritise staff with previous acute cardiorespiratory and critical care experience.
Plan for increased physiotherapy workforce if required e.g. additional shifts for part-time staff; elective cancellation of leave; casual staff; re-allocation of existing staff.
Physiotherapists with previous critical care experience should be identified by hospitals and facilitated to return to ICU.[1]
Develop a fast track learning resource for staff who could be deployed to ICU. For example: • eLearning package via Clinical Skills Development Service for Physiotherapy and Critical Care Management • Local physiotherapy staff intensive care orientation
Keep staff informed of plans. Communication is crucial to the successful delivery of safe and effective clinical services.
Staff who are judged to be of high risk should not enter the COVID-19 isolation area. When planning staffing and rosters, the following people may be at higher risk of developing more serious illness from COVID-19 and should avoid exposure to COVID-19 patients. This includes staff who: • have significant chronic respiratory illnesses • are immunosuppressed. • are older e.g. >60 years of age • have severe chronic health conditions such as heart disease, lung disease, diabetes • have immune deficiencies, such as neutropenia, disseminated malignancy and conditions or treatments that produce immunodeficiency[1,2].
Staff who are pregnant are potentially at increased risk of complications from any respiratory disease due to the physiological changes that occur in pregnancy. Presently there is no known additional severity of illness to the pregnant mother or harm to the baby due to COVID-19. Staff should liaise with local guidelines related to the allocation of pregnant healthcare workers in clinical areas where suspected or confirmed COVID-19 patients are being managed.
Workforce planning should include consideration for pandemic specific requirements, such as additional workload from donning and doffing personal protective equipment (PPE), and the need to allocate staff to key non-clinical duties such as enforcing infection control procedures[1]. Refer to **Appendix 1** for further information.

Consider organisation of the workforce into teams that will manage COVID-19 versus non-infectious patients. Prevent movement of staff between teams. Liaise with local infection control services for recommendations.
Be aware of relevant national, state and/or HHS guidelines for minimising transmission in health care facilities. For example, the Metro North Interim infection prevention and control guidelines for the management of COVID-19 in healthcare[2].
Senior physiotherapists in each department should be involved in determining the appropriateness of physiotherapy interventions for patients with suspected and/or proven COVID-19 in consultation with medical staff and according to a referral guideline.
Identify hospital-wide plans for allocation / cohorting of patients with COVID-19. Utilise these plans to prepare resource plans that may be required. For example, **Appendix 2** outlines a resource plan for intensive care physiotherapy.
Consider additional physical resources that may be required for physiotherapy interventions and to facilitate rehabilitation, while minimising the risk of cross-infection.
Identify and develop a facility inventory of mobility equipment and determine process of equipment allocation as pandemic levels increase (i.e. to prevent movement of chairs between infectious and non-infectious areas)
It should be recognised that staff will likely have an increased workload with a heightened anxiety both at work and at home[1].
Consider and/or promote debriefing and psychological support; staff morale may be adversely affected due to the increased workload, anxiety over personal safety and the health of family members[1].

Who should physiotherapists treat?

Respiratory physiotherapy in patients with COVID-19 should only be provided if there are clear clinical indicators for treatment.

The respiratory infection associated with COVID-19 is mostly associated with dry, non-productive cough and lower respiratory tract involvement usually involves pneumonitis rather than exudative consolidation[5]. In these cases, physiotherapy may not be indicated.

Physiotherapists will have an ongoing role in providing interventions for mobility and rehabilitation e.g. in patients with comorbidities creating significant functional decline and/or for intensive care acquired weakness.

physiotherapy should be rationalised to minimise staff exposure. Unnecessary review of patients with COVID-19 will also have a negative impact on PPE supplies.

Physiotherapists should meet regularly with senior medical staff to determine indications for physiotherapy review in patients with (or suspected) COVID-19 and screen according to set/agreed guidelines (Refer to Table 1).

Physiotherapy staff should not be routinely entering isolation rooms where patients with presumed/confirmed COVID-19 are isolated or cohorted just to screen for referrals.

Options for screening of patients via subjective review and basic assessment whilst not being in direct contact with the patient should be trialled first whenever possible e.g. calling the patients' isolation room telephone and conducting a subjective assessment for mobility information and/or providing education on airway clearance techniques.

Table 1. Screening guidelines for physiotherapy involvement with COVID-19

COVID-19 patient presentation	Physiotherapy referral?
Respiratory indicators	
Mild symptoms without significant respiratory compromise e.g. fevers, dry cough, no chest x-ray changes.	Physiotherapy not indicated for airway clearance or sputum samples[5]. No physiotherapy contact with patient.
Pneumonia but presents with features like: • A low-level oxygen requirement (e.g. oxygen flow ≤ 5L/min for $SpO_2 \geq 90\%$). • Non-productive cough • Or patient coughing and able to clear secretions independently	Physiotherapy not indicated for airway clearance or sputum samples. No physiotherapy contact with patient.
Mild symptoms and/or pneumonia AND • co-existing respiratory or neuromuscular comorbidity (e.g. Cystic Fibrosis, Neuromuscular disease, Spinal Cord Injury, Bronchiectasis, COPD) AND • current or anticipated difficulties with secretion clearance	Consider physiotherapy referral for airway clearance. Utilise airborne precautions.
Mild symptoms and/or pneumonia AND • Evidence of exudative consolidation with difficulty clearing or inability to clear secretions independently e.g. weak, ineffective and moist sounding cough, tactile fremitus on chest wall, moist/wet sounding voice, transmitted sounds on auscultation	Consider physiotherapy referral for airway clearance. Utilise airborne precautions.
Severe symptoms suggestive of pneumonia / lower respiratory tract infection (Increasing oxygen requirements, fever, difficulty breathing, frequent, severe or productive coughing episodes, chest x-ray changes consistent with consolidation)	Early optimisation of care and involvement of ICU is recommended. Consider physiotherapy referral for airway clearance. Physiotherapy may be indicated, particularly if weak cough, productive and/or evidence of pneumonia on chest x-ray and/or secretion retention. Use airborne precautions due to aerosol generating potential.
Mobility, exercise and rehabilitation indicators	
Any patient at significant risk of developing or with evidence of significant functional limitations e.g. patients who are frail or have multiple comorbidities impacting on their independence e.g. mobilisation, exercise and rehabilitation in ICU patients with signification functional decline and/or ICU-acquired weakness	Physiotherapy referral Use droplet precautions or use airborne precautions if close contact required and/or aerosol generating potential.

General medical management principles.

Aerosol generating procedures (AGP's) create an airborne risk of transmission of COVID-19.

Aerosol generating procedures include:

- Intubation
- Extubation
- Bronchoscopy
- High flow nasal oxygen use
- Non-invasive ventilation (particularly with a poorly fitting mask)
- Procedures on screaming children, or when people exhibit distress (e.g. crying / yelling)
- Tracheostomy
- CPR prior to intubation[1]

High flow nasal oxygen (HFNO): HFNO is a recommended therapy for hypoxia associated with COVID-19 disease, as long as staff are wearing optimal airborne PPE.

HFNO (e.g. at flow rates 40-60L/min) does carry a small risk of aerosol generation. The risk of airborne transmission to staff is low when optimal PPE and other infection control precautions are being used[3]. Negative pressure rooms are preferable for patients receiving HFNO therapy[1].

Respiratory support via HFNO should be restricted to patients in airborne isolation only. When possible, limiting the flow rate to not greater than 30L/min should be considered to avoid potential viral transmission.

Non-invasive ventilation: Routine use of non-invasive ventilation (NIV) is not recommended.

Current experience suggests that NIV for COVID-19 hypoxic respiratory failure is associated with a high failure rate. If utilised e.g. with a patient with COPD or post-extubation it must be provided with strict airborne PPE[1].

Nebulisation: Use of nebulisers is not recommended and use of metered dose inhalers / spacers are preferred where possible[1, 2]. It should be noted that some UK guidelines allow use of nebulisers, but this is currently not recommended in Australia.

If a nebulizer is required, liaise with local guidelines for directions to minimise aerosolization e.g. use of a Pari sprint with inline viral filter.

The use of nebulised agents (e.g. salbutamol, saline, hypertonic saline) for the treatment of non-intubated COVID-19 patients is not recommended as it increases the risk of aerosolization and transmission of infection to health care workers in the immediate vicinity.

Use of nebulisers and spirometry for lung function testing should be avoided and approval for their use sought from a consultant or unit director[5].

General medical management principles for ICU.

With increasing acuity, there is an increased risk of dispersion of aerosolised virus into the healthcare environment due to the nature of critical illness, higher viral load and the performance of aerosol generating procedures. It is recommended that airborne PPE precautions should be used to care for all COVID-19 patients in intensive care[1].
Intubation and mechanical ventilation: Patients with worsening hypercapnia, acidaemia, respiratory fatigue, haemodynamic instability or those with altered mental status should be considered for early invasive mechanical ventilation if appropriate[1].
Recruitment manoeuvres: Although current evidence does not support the routine use of recruitment manoeuvres in non-COVID-19 ARDS, they could be considered in COVID-19 patients on a case by case basis[1].
Prone positioning: Anecdotal reports from international centres dealing with large numbers of critically ill patients with COVID-19 related ARDS suggest that prone ventilation is an effective strategy[1].
Bronchoscopy: Bronchoscopy carries a significant risk of aerosol generation and transmission of infection. The clinical yield is thought to be low in COVID-19 and unless there are other indications (such as suspected atypical / opportunistic superinfection or immunosuppression) it is strongly advised to avoid the procedure[1].
Suctioning: Closed inline suction catheters are recommended[1].
Sputum samples: In a ventilated patient, tracheal aspirate samples for diagnosis of COVID-19 are sufficient and BAL is not usually necessary[1].
Any disconnection of the patient from the ventilator should be avoided to prevent lung decruitment and aerosolization. If necessary, the endotracheal tube should be clamped and the ventilator disabled (to prevent aerosolization)[1].
Tracheostomy: Early tracheostomy could be considered in suitable patients to facilitate nursing care and expedite ventilator weaning. Reports indicate that some patients have a prolonged course and recovery following ARDS. However, the performance of percutaneous tracheostomy with bronchoscopic guidance carries significant occupational risk of disease transmission due to generation of aerosols. Surgical tracheostomy may be a safer alternative, although the infectious risk is not eliminated. The merits of tracheostomy in patients with evolving multiple organ failure and / or sepsis would need to be weighed against the high reported mortality from COVID-19 in this group[1].

Physiotherapy management principles – respiratory care.

PPE: It is strongly recommended that airborne precautions are utilised during respiratory physiotherapy interventions.
Patient screening: It is strongly recommended that any physiotherapy interventions with COVID-19 are determined through consultation and agreement between a senior physiotherapist and senior medical staff member, and with utilisation of a guideline for screening referrals.
Cough etiquette: Both patients and staff should practice cough etiquette and hygiene. During techniques which may provoke a cough, education should be provided and assistance sort to enhance cough etiquette and hygiene. • Ask patient to turn head away during cough and expectoration • Patients who are able should "catch their cough" with a tissue, dispose of tissue and perform hand hygiene. • In addition, if possible, Physiotherapist should position themselves ≥ 2m from the patient and out of the "blast zone" or line of cough.
Many respiratory physiotherapy interventions are potentially aerosol generating procedures (AGPs). These include: • Cough-generating procedures e.g. cough during treatment, Huff, • Percussion, vibrations, positioning / postural drainage via triggering a cough. • Manual techniques (e.g. expiratory vibrations, percussion, manual assisted cough) that generate a cough and the expectoration of sputum. • Use of positive pressure breathing devices (e.g. IPPB), mechanical insufflation-exsufflation (MI-E) devices, intra/extra pulmonary high frequency oscillation devices (HFO) (e.g. The Vest, MetaNeb, Percussionaire etc). • PEP and oscillating PEP devices • BubblePEP • Nasopharyngeal or oropharyngeal suctioning etc. • Manual hyperinflation (MHI). • Open suction. Use inline suction systems. • Saline lavage via an open circuit • Sputum inductions • Any mobilisation or therapy that may result in coughing and expectoration of mucus.
Where AGPs are medically necessary, they should be undertaken in a negative-pressure room, if available, or in a single room with the door closed. Only the minimum number of required staff should be present, and they must all wear PPE as described. Entry and exit from the room should be minimised during the procedure[4].
BubblePEP is not recommended for patients with COVID-19 because of uncertainty around the potential for aerosolization, similar to the caution the WHO places on bubble CPAP[3]
There is no evidence for incentive spirometry in patients with COVID-19.
Avoid the use of MI-E, NIV, IPPB devices or HFO devices. However, if clinically indicated and alternative options have not been effective, consult with both senior

medical teams and Infection Prevention and Monitoring Services within local facilities prior to use. If used, ensure machine can be decontaminated after use and e.g. protect machines with viral filters over machine and patient ends of circuits. • Use disposable circuits for these devices. • Maintain a log for devices that includes patient details for tracking and infection monitoring (if required). • Use airborne precautions.
Where equipment is used, whenever possible use single patient use, disposable options e.g. for single patient use PEP devices
Re-usable respiratory equipment should be avoided if possible.
Physiotherapists should not implement humidification or NIV or other aerosol generating procedures without consultation with and approval by a medical consultant.
Sputum inductions should not be performed.
Saline nebs. Do not use saline nebs.
Requests for sputum samples. In the first instance, ascertain whether the patient is productive of sputum and able to clear sputum independently. If so, physiotherapy is not required for a sputum sample. If physiotherapy is required to facilitate a sputum sample then full airborne PPE should be worn. In patients who already have lower respiratory tract infection and have a productive cough, after they have rinsed their mouth with water, a deep cough sputum sample should also be expectorated directly into a sterile container[5]. The handling of sputum samples should adhere to local policies. Generally, once a sputum sample has been obtained the following points should be followed: • All sputum specimens and request forms should be marked with a biohazard label. • The specimen should be double-bagged. The specimen should be placed in the first bag in the isolation room by a staff member wearing recommended PPE. • Specimens should be hand delivered to the laboratory by someone who understands the nature of the specimens. Pneumatic tube systems must not be used to transport specimens.
Manual hyperinflation: Avoid MHI - utilise ventilator hyperinflation (VHI) if indicated e.g. for suppurative presentations in ICU and if local procedures are in place.
Positioning: Physiotherapists can continue to advise on positioning requirements for patients.
Prone positioning: Physiotherapists may have a role in the implementation of prone positioning in intensive care units. This may include leading prone teams, running simulation-based scenarios, or assisting in turns as part of the general ICU team.
Tracheostomy management: The presence of a tracheostomy and related procedures are potentially aerosol generating.

- Cuff deflation trials and inner tube changes/cleaning can be aerosol generating
- In-line suction is recommended, for both ventilated and non-ventilated patients.
- The use of inspiratory muscle training, speaking valves and leak speech should not be attempted until patients are over acute infection and the risk of transmission is reduced.
- Airborne precautions are recommended with infectious COVID-19 patients with a tracheostomy.

Physiotherapy management principles – mobilisation and rehabilitation.

PPE: Droplet precautions should be appropriate for the provision of mobility in most circumstances. However, physiotherapists are likely to be in close contact with the patient e.g. for mobility requiring assistance. In these cases, consider use of a high filtration mask. Mobilisation may also result in the patient coughing or expectorating mucous.

Refer to local guidelines regarding ability to mobilise patients outside of their isolation room. If mobilising outside of the isolation room, ensure the patient is wearing a mask.

Screening: For mobility reviews, discussion with nursing staff and patient (e.g. via phone) is recommended before entering their isolation room. For example, to try to minimise staff who come in to contact with COVID-19 patients, physiotherapists may screen to determine an appropriate aid to trial. A trial of the aid may then be performed by the nursing staff as required.

Only where there are significant functional limitations e.g. ICU acquired weakness, frailty, the elderly should the requirement for direct physiotherapy interventions be considered.

Early mobility is encouraged. Actively mobilize the patient early in the course of illness when safe to do so[3].

Patients should be encouraged to maintain function as able within their rooms
- Sit out of bed
- Perform simple exercises and activities of daily living.

Mobility and prescription should involve careful consideration of the patients' state (e.g. stable respiratory and haemodynamic function)

Equipment: The use of equipment should be carefully considered and discussed with local infection monitoring and prevention service staff before used with COVID-19 patients to ensure it can be properly decontaminated.

Consider the use of equipment that can be single patient use. For example, use Theraband use rather than distributing hand weights.

Avoid use of equipment, particularly larger equipment unless necessary for basic functional tasks. For example, avoid use of over-bed cycle ergometers; but consider use of Transmotion chairs or tilt tables may be appropriate for progression of sitting / standing.

Where heavier mobility is required e.g. rehabilitation / first walk post 1 week intubated in ICU:

- Plan well
    - identifying / use the minimum number of staff required to safely perform the activity
    - ensure all equipment is available and working before entering rooms
- Ensure all equipment is cleaned appropriately / decontaminated.
    - Specific staff training for cleaning of equipment within isolation rooms may be required
        - If possible, try to minimise movement of equipment between infectious and non-infectious areas.
        - If possible, keep dedicated equipment within the isolation zones, but avoid storing extraneous equipment within the patient's room.

Appendix 1. PPE Education

All Staff will be trained in correct donning and doffing of PPE, including N95 "fit-checking". A registry of staff who have completed PPE education and fit checking should be maintained
The evidence for fit testing effectiveness is limited and the variation in supply of N95 mask types may make any recommendation on fit testing difficult to implement from a practical perspective[1,2].
Staff with beards should be encouraged to remove facial hair to ensure good mask fit. If they decline, they should be re-allocated to non-infectious patients[2].
Standard care for all suspected & confirmed cases, at a minimum staff should wear: • **Droplet precautions** • Surgical mask for staff • Fluid resistant long sleeved gown • Goggles/face shield • Gloves[2]
Recommended PPE for staff caring for COVID-19 infected patients includes added precautions for patients with significant respiratory illness, aerosol generating procedures (AGP's), and prolonged or very close contact.
Added precautions when patients have significant respiratory illness; severe symptoms suggestion of pneumonia; aerosol generating procedures, prolonged or very close contact, sample collection e.g. NPA • **Airborne precautions** • N95/P2 mask for staff • Fluid resistant long sleeved gown • Goggles/face shield • Gloves[2]
Patients with COVID-19 will be asked to wear a surgical face mask during their admission. This includes during mobilisation or transport outside of their isolation room.
In addition, the following can be considered: - Hair cover for aerosol generating procedures (AGP). - Shoes that are impermeable to liquids. Recurrent use of shoe covers is not recommended as repeated removal is likely to increase the risk of staff contamination[1].
PPE must remain in place and be worn correctly for the duration of exposure to potentially contaminated areas. PPE, particularly masks should not be adjusted during patient care[2].
Use a step-by-step process for don/doff PPE as per local guidelines[2].
A change of uniform to scrubs may be recommended in local guidelines[1].

Check local guidelines for information on wearing uniforms outside of work if exposed to COVID. For example, staff may be encouraged to get changed out of their uniform, bag it for washing at home, and go home in a change of clothes.
All personal items should be removed (jewellery including ear-rings, watches, lanyards, mobile phones, pagers, pens etc) before donning PPE. Hair should be tied back out of the face and eyes[2].
Class N rooms are negative pressure isolation rooms used to isolate patients capable of transmitting airborne infection. A negative pressure room has a functional anteroom for donning and doffing PPE. Airborne PPE precautions are still required. **Doffing is performed in the anteroom†**. There are a limited number of negative pressure bays and pods and/or rooms across Australia and New Zealand[1,2]. Class S rooms are standard rooms which can be used for isolating patients capable of transmitting infection by droplet or contact routes. Class S rooms have no negative pressure capability and therefore no engineering controls. Open Cohort Areas have no negative pressure and no engineering controls. It is recommended COVID-19 patient's, ideally, be treated in a Class N negative pressure single room. If Class N rooms are not available then the preference should be Class S single rooms with clear areas demarcated for donning and doffing of PPE. Once all Class N and Class S single rooms are exhausted, patients will need to be cohorted in areas that are physically separate to areas containing non-COVID-19 patients. In an open ICU or ward cohorted areas with one or more COVID-19 patients, the whole area is recommended to require airborne PPE precautions. †There may be local variations in this e.g. some institutions may recommend removal of PPE gown and gloves with the patient's room, then removal of face shield/goggles and mask outside the patient's room.
Staff caring for infectious patients must apply correct PPE irrespective of physical isolation. For example, if patients are cohorted into a Pod with open rooms, staff working within the confines of the ICU Pod but not directly involved in patient care should also wear PPE. Similarly, once infectious patients are nursed on an open ward.
When a unit is caring for a confirmed or suspected COVID-19 patient that all donning and doffing are supervised by an additional appropriately trained staff member[1].
Avoid sharing ICU or ward equipment. Preferentially use only single use equipment. - Minimise personal effects in workplace - No personal devices in COVID-19 areas - Stethoscope use should be minimised[1]. If required, use dedicated stethoscopes within isolation areas[3].
Wear an additional plastic apron if high volumes of fluid exposure is expected[2]
If reusable PPE items are used, e.g. goggles – these must be cleaned and disinfected prior to re-use[2] e.g. with Clinell wipes.
The risk of aerosol transmission is reduced once a patient is intubated with a closed ventilator circuit[1,2].

Appendix 2. ICU Physiotherapy Resource Plan Example

Phase	Bed Capacity	Description & Location of patients	Physiotherapy Staffing	Equipment related to physiotherapy / rehabilitation
Business as usual	e.g. 22 ICU Beds, 6 HDU		e.g. 5 FTE	e.g. • 6 Transmotion/oxford chairs • 10 high back sitting chairs • 3 Rollators • 1 Tilt Table • 2 Cycle ergometers • Steps/blocks • Bariatric equipment
Tier 1	e.g. expansion to 30 ICU Beds within ICU	Less than 4 COVID-19 patients COVID-19 patients only in beds reverse flow isolation rooms (ICU resources = 4 reverse flow rooms)	e.g. additional 0.2 FTE per bed 1 Senior PT will screen patients with COVID-19 in consultation with an ICU Consultant. Patients will be provided treatment in isolation rooms.	If needed, 1 Transmotion chair allocated and quarantined for use. 1 Tilt table quarantined for use with COVID patients. Location for storage.
Tier 2	e.g. expansion to XX ICU	The number of COVID-19 patients exceeds the availability of isolation rooms necessitating care of an	e.g. calculation for additional FTE	Additional chair resources may be required.

	Beds within Pod 1 -4.	infectious patient outside the confines of a negative pressure room. Infectious patients will be cohorted on the open ward. Normal ICU admission / non-infectious patients located in a separate part of ICU	Infections Pod PTs allocated, including 1 Senior PT Non-infections Pod PTs allocated, including 1 Senior PT Infectious and non-infectious staff allocated, including on weekends.	Quarantine fleet for infectious and normal workload / non-infectious patients.
Tier 3	XX ICU Beds within ICU Additional beds outside of ICU	Surge in COVID-19 patients exceeds the capacity of Pod 3 & 4 COVID-19 patients allocated within all of ICU Non-infectious satellite ICU will be established in a separate location	e.g. calculation for additional FTE	
Tier 4	Additional beds e.g. CCU; operating theatres	Large scale emergency	e.g. calculation for additional FTE	

References

1. The Australian and New Zealand Intensive Care Society (ANZICS) COVID-19 Guidelines, Version 1, 16 March 2020.
2. Metro North Interim infection prevention and control guidelines for the management of COVID-19 in healthcare – interim version available at https://www.health.qld.gov.au/__data/assets/pdf_file/0038/939656/qh-COVID-19-Infection-control-guidelines.pdf (version 1.9, 6 March 2020).
3. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected. WHO Interim Guidance, 13 March 2020.
4. Chartered Society of Physiotherapy Website: https://www.csp.org.uk/news/coronavirus/frequently-asked-questions-about-coronavirus. Accessed 19/3/2020.
5. Queensland Health, Clinical Excellence Division COVID-19 Action Plan. Statewide General Medicine Clinical Network V1 March 13, 2020.

Document History

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