New Zealand Government

MINISTRY OF HEALTH
MANATŪ HAUORA

COVID-19

Interim Guidance - Clinical Management of COVID-19 in Hospitalised Adults

Introduction

Updated: 10 September 2021 – Next planned update 24 September 2021

- This guideline is for the clinical management of COVID-19 in hospitalised adults only
- The Clearance from Isolation section has been updated

This guideline is intended to be an accessible summary of key components of hospital management of **ADULTS** with **confirmed or probable COVID-19**. It has been adapted from international 'living' guidelines for the New Zealand context by an advisory group of New Zealand clinicians, including representation from Infectious Diseases, Respiratory Medicine, Intensive Care, General Medicine and Pharmacy.

New evidence informing the optimal management of patients with COVID-19 continues to accumulate rapidly. This document will be reviewed and updated periodically, or in response to significant changes in evidence and/or recommendations by international guideline groups.

Further detailed guidance, including treatments that are either not recommended, or recommended only within a clinical trial, can be accessed in links to international guidance at the end of this document. Local specialist services with expertise in managing COVID-19 may consider emerging treatments outside of this guideline.

COVID-19

Initial Management

	MILD	MODERATE	SEVERE / CRITICAL
DEFINITION	No symptoms **OR** URTI symptoms only **OR** cough, new myalgia or asthenia without new shortness of breath or reduction in oxygen saturation	Stable adult patient presenting with shortness of breath and/or systemic symptoms or signs. Able to maintain oxygen saturation ≥92% (or ≥90% for patients with chronic lung disease) with up to 4 L/min oxygen via nasal prongs	Adult patients meeting any of the following criteria: • Respiratory rate ≥30/min • Oxygen saturation <92% on 4L/min oxygen via nasal prongs • Clinically deteriorating
BASELINE TESTING & WORK-UP	• Pulse oximetry • Other tests only as clinically indicated • Low value testing is discouraged	• FBC, Creat, electrolytes, LFTs, CRP • ECG only if specific indication • Chest x-ray • Arterial blood gas • Investigations for CAP (e.g. urinary antigens, sputum PCR panel) if radiography suggests bacterial infection • Blood cultures if febrile or shocked • d-dimer & ferritin	• FBC, Creat, electrolytes, LFTs, CRP • ECG • Chest x-ray • Arterial blood gas • Investigations for CAP (e.g. urinary antigens, sputum PCR panel) if radiography suggests bacterial infection • Blood cultures if febrile or shocked • Coag screen, d-dimer, ferritin, BNP, Troponin
	• 'Probable' COVID-19 (i.e. high suspicion with inconclusive testing): Collect serum sample in acute phase, repeat ≥2 weeks later, for 'COVID-19 serology'. Discuss confirmatory testing options with local Microbiology/ID		
TREATMENT ESCALATION PLANNING	• Assess ability to manage in a quarantine (hotel) setting and communicate any difficulties to Public Health (e.g. use of usual nocturnal CPAP for OSA) • Consider & document risk factors for severe COVID-19	• Assess & document individual risk factors for poor outcome • Early discussion of patient goals of care, including existing advanced care plans, with patient and their family/whānau • Early, clear documentation of resuscitation decision and treatment escalation plan for all patients, specifically including appropriate modalities of respiratory support	
	• **NOTE – any new deterioration > 5 days post onset of illness requires careful assessment, observation & judgement. Severe COVID-19 frequently develops with a rapid deterioration**		
DISPOSITION DECISION	• Encourage discharge • Liaise with Public Health or Regional Isolation and Quarantine (RIQ) according to regional processes	• Admit to hospital • Discuss with local COVID team	• Admit to hospital • ICU and/or Respiratory review
MONITORING & MARKERS OF CLINICAL DETERIORATION	• Monitor for progressive respiratory failure and sepsis, especially after day 5 of illness • Only repeat CXR in people with confirmed COVID-19 for specific clinical indications • Perform a chest CT scan only if it would change management, in particular if concern for pulmonary embolism • Anticipate complications such as delirium, pulmonary embolism, other thromboembolism, arrhythmias, cardiac impairment, acute kidney injury, sepsis, shock and multi-organ dysfunction, and address using existing standards of care. Also be aware of potential medication complications • Repeat baseline investigations (see above) periodically in patients who are not clearly improving, in order to detect & manage the above complications		

NOTIFICATION	• Discuss all cases with local COVID team at the earliest opportunity • If not already notified according to regional process, (e.g. by laboratory) contact local Public Health Unit
CLINICAL TRIALS	• As the optimal management of COVID-19 is not yet known, the **standard of care is to be offered enrolment in a clinical trial,** if available • **All** patients should be screened for eligibility for a locally available COVID-19 clinical trial (e.g. 'REMAP-CAP' and 'ASCOT-ADAPT')

Supportive Management

MODALITY	PATIENT SUB-GROUPS	RECOMMENDATION
RESPIRATORY SUPPORT	All patients	• Switch nebulisers to metered dose inhalers via spacer if possible • Monitor closely for worsening hypoxia if elevated work of breathing or respiratory rate
	SpO_2 <92% at rest	• Administer dry oxygen (1-4 L/min) via standard nasal prongs • Aim for SpO_2 92–96% (88–92% for those at risk of hypercapnic respiratory failure) • Use Hudson mask (5-10 L/min) or Venturi device if higher flow rates required • Consider use of self-proning
	Unable to maintain SpO2 ≥92% on conventional oxygen at 6 L/min via Hudson mask (required Fi02 >36%)	• Consider CPAP or High Flow Nasal Oxygen (HFNO) • *Choice depends on availability, staff expertise, patient tolerance* • Consider use of self-proning
	Hypercapnic patients with underlying COPD or OHS	• Consider BiLevel Non-Invasive Ventilation (NIV)
FLUID MANAGEMENT	• Assess for hypovolaemia and correct as required. Anticipate and monitor ongoing fluid losses • Avoid excessive resuscitation or 'maintenance' fluids	
VTE PROPHYLAXIS	• ***All patients enrolled in ASCOT-ADAPT or REMAP-CAP (anticoagulation domains)***	• ***As per trial protocol***
	Hospitalised adults with: • mild COVID-19 and any additional VTE risk factors • <u>OR</u> severe and critical COVID-19 <u>AND</u> no contra-indication to anticoagulation e.g. risk for major bleeding	Enoxaparin 40mg SC once daily (standard prophylaxis) • Adjust dose for impaired renal function
	Moderate COVID-19	Therapeutic dose anticoagulation **may be considered** over standard prophylaxis for up to 14 days, or until clinical recovery (discharge or resolved hypoxia) if there are NO additional risk factors for bleeding • Enoxaparin 1mg/kg SC twice daily (max 150mg BD) • Adjust dose for impaired renal function **All other patients should receive standard prophylaxis** as detailed above

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<tr><td>INTENSIVE CARE</td><td colspan="2">Regular, open and early discussions between ward-based clinicians and local ICU team is strongly encouraged. In addition to local referral guidelines, ICU review should be prompted by the following:
• Significant oxygen requirement (e.g. requiring FiO2 of 0.4 to maintain SpO_2 >92%, or needing HFNO or CPAP)
• Increased work of breathing with impending respiratory failure
• Haemodynamically unstable and / or hypotension not responsive to fluid bolus
• Rapidly worsening tachypnoea or hypoxaemia

Detailed clinical guidelines for ICU care of COVID-19 is beyond the scope of this guideline</td></tr>
<tr><td rowspan="3">ANTIBIOTIC THERAPY
(not routinely indicated)</td><td>Mild or moderate COVID-19 without specific evidence of concurrent bacterial infection (rare in the first 7 days of illness)</td><td>Do not use antibiotics</td></tr>
<tr><td>Severe/critical COVID-19 especially with any deterioration occurring >7 days post onset and/or >3 days after hospital admission</td><td>• Evaluate for secondary infection, including hospital-acquired infection
• Discuss with local Infectious Diseases / Microbiology team if concern for secondary infection</td></tr>
<tr><td>Any severity of COVID-19 <u>AND</u> specific evidence of concurrent bacterial pneumonia (e.g. positive culture/antigen, purulent sputum, focal/unilateral consolidation, unilateral pleural effusion, neutrophilia)</td><td>Antibiotics as per local guidelines for community acquired pneumonia</td></tr>
<tr><td>COMMUNICATION & HOLISTIC CARE</td><td colspan="2">Encourage for all patients:
• Clearly communicate typical symptoms and anticipated clinical course with patient, family/whānau or carers
• Reinforce importance of complying with all Public Health messages, including self-isolation and testing
• When possible, explain risks, benefits and likely outcomes of treatments with patients, family/whānau or carers
• Use an interpreting service to assist communication if required
• Facilitate regular clinical updates, and video calls between patient family/whānau or carers
• Routinely refer to local cultural and/or spiritual support services
• Consider early involvement of Palliative Care and/ or Liaison Psychiatry services to assist with symptom management, particularly anxiety, dyspnoea and delirium/agitation
• Ensure appropriate housing, financial and social support is in place prior to discharge (including a working phone). If concerns, refer to social work
• If welfare or cultural support issues identified, liaise with Public Health or Regional Isolation Quarantine (RIQ) according to regional processes as part of discharge planning</td></tr>
<tr><td rowspan="4">THERAPIES FOR EXISTING INDICATIONS</td><td>• Nocturnal CPAP for Obstructive Sleep Apnoea</td><td>Consider change usual vented CPAP mask to a non-vented mask + expiratory port + filter (decision depends on equipment availability and staff expertise)</td></tr>
<tr><td>• ACE-inhibitors / ARBs
• Oral contraceptive pill (with or without oestrogen)
• Antenatal steroids for high risk of preterm birth</td><td>• Usual care (i.e. may be continued in COVID-19 unless otherwise contra-indicated)</td></tr>
<tr><td>• Corticosteroids for asthma/COPD (inhaled or oral, with or without bronchodilators)</td><td>• Usual care
• Do not use a nebuliser unless definite clinical need</td></tr>
<tr><td>• Oral menopausal hormone therapy / HRT</td><td>• Consider stopping until after recovery</td></tr>
<tr><td>SURGERY</td><td colspan="2">• Elective surgery should generally be deferred until at least eight weeks following recovery from COVID-19
• Non-deferrable surgery should be discussed with local ID and infection control services</td></tr>
<tr><td>PREGNANCY & PERINATAL CARE</td><td colspan="2">• Out of scope for this guideline; detailed guidance is included in the Australian COVID-19 guidelines
• Input from Obstetrics, in discussion with ID and/or other relevant specialties, is essential</td></tr>
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COVID-19 Therapeutics

MODALITY	PATIENT SUB-GROUPS	RECOMMENDATION
STEROIDS	Adults who do not require oxygen	Do not use systemic steroids to treat COVID-19
	Adults without oxygen, but another evidence-based indication for systemic steroids (e.g. asthma/COPD exacerbations)	Steroids as per usual practise
	Adults with sustained oxygen requirement	Dexamethasone 6mg daily IV/PO for up to 10 days OR until hospital discharge Consider a minimum dexamethasone duration of 5 days, if discharged within this time
ANTI-VIRAL THERAPY	***All patients enrolled in ASCOT-ADAPT trial (anti-viral domain)***	***As per trial protocol & randomisation (in addition to remdesivir, if indicated below)***
	Adults with mild COVID-19	• Do not use remdesivir • Do not use any other anti-viral outside of a clinical trial
	Adults within the first 7 days of illness, with moderate COVID-19 • *Note – must have ALT <5 x ULN and/or ALT <3 x ULN and bilirubin <2 x ULN*	Commence remdesivir: • 200mg IV on day 1, then 100mg IV q24h for up to further 4 days (maximum 5 days total) • PHARMAC access form to be completed
	Adults with severe / critical COVID-19 who require ventilation (invasive or non-invasive)	• Do not start remdesivir • Complete course (5 days) if started earlier in illness • Do not use any other anti-viral outside of a clinical trial
	Adults with significant immunocompromise	Discuss with local infectious diseases team
IMMUNE MODULATION THERAPY	**In patients receiving systemic steroids in combination with immune modulation, we recommend screening for, and consider empiric treatment of latent infection, e.g. Hepatitis B or strongyloidiasis (in patients who have lived in an endemic region)**	
	There are no trials of immune modulation therapies currently recruiting in New Zealand	
	Adults with moderate COVID-19: • AND receiving both oxygen + systemic steroids • AND elevated CRP or other evidence of severe systemic inflammation • AND there is not another active, severe concurrent infection Adults with severe / critical COVID-19: • Within 48h of starting HFNO, NIV, mechanical ventilation or organ support • AND receiving systemic steroids • AND elevated CRP or other evidence of severe systemic inflammation • AND there is not another active, severe secondary infection	Give tocilizumab: • 8mg/kg (actual body weight) rounded to nearest 200mg (max dose 800mg), as a single dose • Complete PHARMAC funding application on next working day • *Notes:– risk of secondary infection is increased; CRP response is inhibited, and consequent reduction in CRP does not necessarily correlate with response to treatment*
	COVID-19 not meeting the criteria above	Do not use immune modulation therapy

Discharge Planning and Follow-up

Patients with Suspected, Probable or Confirmed COVID-19 who are being considered for discharge need to have specific decisions made about the following aspects of post-discharge care:

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<tr><td>FURTHER INVESTIGATIONS</td><td colspan="2">• Follow-up investigations are not universally required after COVID-19
• A repeat chest x-ray in 6-12 weeks to confirm resolution of pulmonary opacities should be arranged for individuals with significant radiographic abnormalities and / or risk factors for lung cancer
• Ensure follow up serology is arranged for ‘probable’ cases</td></tr>
<tr><td>DISCHARGE DESTINATION</td><td colspan="2">• Suspected cases being discharged before results are available should be notified to the Medical Officer of Health, who may request discharge to a quarantine facility
• All probable/confirmed cases who remain in isolation will be discharged to a quarantine facility. Exemptions may be approved by Public Health in exceptional circumstances</td></tr>
<tr><td>CLEARANCE FROM ISOLATION</td><td colspan="2">1. While each case is different, the following guidance is designed to assist individual decision making. This advice applies to patients in ICU, hospitalised, and those in hospital (due to COVID-19) for part of their illness.
a) In general, a case should be released if it has been at least 14 days since onset of symptoms and the individual has been symptom free for at least 72 hours.
b) In most cases a patient can be considered to no longer be infectious 20 days after symptom onset (even if symptoms persist) if they have developed an antibody response.
c) Consider serology to determine antibody response especially if patient is immunocompromised or has had a prolonged admission to Intensive Care.
d) Note that PCR testing is not a useful modality for determining release from isolation as shedding of non-infectious viral RNA may persist for many days or months.
e) When the determination for release is not clear, then the decision should be made in consultation with the medical officer of health, infection prevention and control, and infectious disease specialists.</td></tr>
<tr><td rowspan="3">FOLLOW-UP</td><td>All patients</td><td>Telephone follow-up within 6 weeks of discharge with Primary Care Provider: to assess trajectory of recovery, identify persistent symptoms and facilitate referral to specialty services as required</td></tr>
<tr><td>Patients with significant respiratory failure (and/or persistent dyspnoea), or other persistent organ dysfunction</td><td>Specialist clinic follow-up, investigations and support following discharge (as advised by local specialty services)</td></tr>
<tr><td>Patients discharged with nocturnal CPAP (usual OR new device)</td><td>Consider providing a non-vented mask + expiratory port + filter, depending on equipment availability and staff expertise. Can transition to vented mask on return to own home. Sleep service remote follow-up within 48 hours of hospital discharge is recommended.</td></tr>
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Links to other guidelines

- **Australian COVID-19 living guidelines:** https://covid19evidence.net.au/
- **NICE (UK) living guideline:** https://www.nice.org.uk/guidance/ng191
- **National Institute of Health (USA):** https://www.covid19treatmentguidelines.nih.gov/
- **WHO COVID-19 living guideline:** https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1
- **Ontario COVID-19 Science Advisory Group guideline (Canada) :** https://covid19-sciencetable.ca/sciencebrief/clinical-practice-guideline-summary-recommended-drugs-and-biologics-in-adult-patients-with-covid-19-2/
- **Australian guidance for Pregnancy and perinatal care:** https://covid19evidence.net.au/