

Adult Admission and Care Pathway during COVID-19

Purpose and scope

This pathway aims to guide staff working primarily in the Respiratory Red Zone (ED, Medicine COVID-19 team. Paediatrics +/- ICU) at Whangarei Hospital regarding the identification. assessment, management and disposition of patients presenting to our facility who may have COVID-19 infection as a presenting issue or comorbidity.

This pathway will necessarily be flexible and needs to be adapted in response to the demands we face in terms of patient numbers and acuity, community prevalence of COVID-19, staff availability and competencies, departmental layouts, and the availability of beds and other resources. It should not be a static document, but rather refined as together we work out what works.

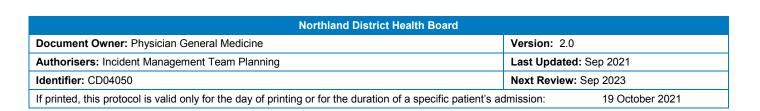
Method

Is the patient COVID-19-PCR positive or at high risk for COVID-19?

- Close contact of known case
- Attendance at location of interest
- Classical COVID-19 symptoms/signs/investigations
- Resident in area with uncontrolled community spread

Does the patient require hospitalisation?

- Severe dyspnoea at rest, or sustained SaO2 \$92% on room air despite self-proning (see below)
- Signs of other end-organ compromise including renal impairment, acute cognitive changes, falls)
- Released under Social issues, lack of home support or access to help
- Inability to access satisfactory follow-up





What is the severity of disease?

Mild No evidence of lower airway disease; may have troubling benign symptoms, e.g., sore throat, anosmia, fever, cough □ No medical indication for admission □ Give (self-)proninstructions ■ Paracetamol PO PRN symptoms, e.g., sore throat, anosmia, fever, cough □ Consider inhaled budesonide (800 mcg BD for 14 days)* □ Self-monitoring volute oxymetry avirtual support if possible ■ Moderate Evidence of lower respiratory tract infection and dyspnoea or other compromise. No oxygen requirement. □ Consider medical admission □ Goal-directed flue Aim for peutral (or negative) fluid balance or other compromise. (800 mcg BD for 14 days)* □ Give (self-)proninstructions ■ Moderately severe Evidence of lower respiratory infection and new oxygen □ Medical admission □ Continuous monitoring if nonrebreathing mask or rebreathing mask or respiratory infection and new oxygen	
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severe respiratory infection and new oxygen Infection Infec	
and new oxygen Enoxaparin 40 mg SC OD rebreathing mask	_
- Red ward requirement: SaO2 Paracetamol RO PRN HFNC used	
Dexamethasone (see below) social/spiritual/cu	ultura
□ No abtibiotics unless bacterial infection likely (see below)	
□ Censider remdesivir (see	
below)	
Severe Evidence of severe □ ICU/ILC admission	
- ICU (or ILC) respiratory compromise requiring Enoxaparin 40 mg SC BD	
invasive ventilation or	
high-flow has al cannulae or severe Dexamethasone (see below)	
inflammatory response requiring invasive monitoring □ No antibiotics unless bacterial infection likely (see below)	
□ Consider tocilizumab (see below)	

*If >65 or >50 years with co morbidities

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Investigations on admission

Blood tests:

- □ standard: FBC, U&E, LFT, CRP
- □ in (moderately) severe disease add:
 - Markers for disease severity: ferritin, coagulation studies incl. D-dimer, LDH
 - o Note: Do not use D-dimer to rule in/out PE
 - Gas exchange: ABG
 - Procalcitonin and TnT
- ation Act □ Two sets of blood cultures if febrile OR sepsis OR CRP >100 mg/dL
- □ bHCG in women of childbearing age
- □ Portable CXR
- □ ECG (document QTc on admission)
- □ Nasopharyngeal COVID-19 PCR-swab if not done prior

Monday-Wednesday-Friday investigations (until stable)

- □ FBC, U&E, LFT, CRP
- $\hfill \square$ ABG, procalcitonin and other markers as clinically indicated

Nasopharyngeal swabs

□ Retain in isolation if clinical suspicion remains high despite a negative first COVID-19 PCR, and repeat swab the following day. If still negative, discuss with microbiology/infectious diseases SMO.

Imaging

- □ Portable CXR on admiss
- Repeated imaging is not indicated unless significant deterioration.
- Further imaging (CXR or CTPA) may be helpful if clinical suspicion of bacterial superinfection or bulmonary embolism.

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Antibiotics

- **Do not routinely prescribe antibiotics** as secondary bacterial infection is rare (around 5% on admission, around 20% on day 7 of admission).
- If **high clinical suspicion** for bacterial superinfection AND serum procalcitonin >0.25 ng/ml OR CRP >50 mg/dL, OR new-onset sepsis (defined as **qSOFA score 2 or higher**):
 - □ consider **ceftriaxone 2g** IV OD for maximum 5 days, adding **azithromycin 500mg** PO/NG OD if in ICU, maximum 3 days.
 - □ only consider replacing ceftriaxone with **piperacillin-tazobactam 4.5g** IV q8h if high suspicion of hospital-acquired pneumonia AND hospital admission for at least V2h
- Note: fever is not an indication to start or switch antibiotics.

□ RR 22 or above	□ Altered mental	□ SBP <100mmHg SPFA score:
	status	

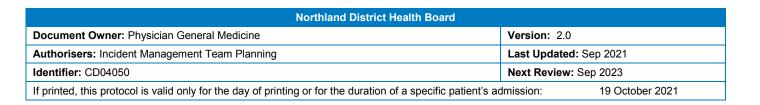
Oxygen

- □ Aim to **establish SaO2 at 92%**, and maintain at **>90% or higher**, unless known CO2 retainer (aim 86%)
- Use **nasal cannulae** in the first instance (1-3l/min), graduating to **Hudson mask** (max 4-8L/min) or **non-rebreather masks** (6-15L/min) if required.
- If unable to maintain SaO2 >92% or discomfor with dry oxygen; consider **High Flow Nasal Oxygen (HFNO "Airvo")** or **CPAP with supplemental oxygen**. Discuss with Respiratory or ICU SMO at this point.
- **Non-Invasive Ventilation (NIV)** remains appropriate in hypercapnic patients e.g., those relating to COPD exacerbation, heart failure, and OSA/OHS.

Fluids

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□ IV bolus as required. Aim for neutral (or negative) fluid balance.





Antipyretics

- □ Paracetamol PRN, preferably PO
- □ Consider NSAIDs if still distressed with fever and no contraindications

Anticoagulation

- □ Commence **enoxaparin 40mg** SC OD (if eGFR > 15ml/min) for all patients admitted to hospital in the absence of contraindications. Give BD prophylaxis in ICU/ILC patients.
- In women >20 weeks pregnant, consider prophylactic **heparin** after discussing with obstetrician.
- □ Consider **omeprazole 40mg** PO/IV OD for critically unwell patients or those with high risk of GI bleed, carefully balancing with the increased risk of a bacterial respiratory superinfection.

Steroids

- □ Commence **dexamethasone 6mg** IV/PO OD for ten days in all admitted patients if all of the following apply:
 - □ oxygen requirement
 - □ disease duration **five days** or longer
- $\hfill \square$ Assess response after two to five days, reconsidering concurrent pathology if no improvement.
- □ Steroids can be discontinued on discharge.
- In **pregnant patients**, reassess after four days and **discuss** with an obstetrician whether a switch to **prednisone** thereafter is appropriate.
- For **patients taking long-term steroids** who do not require dexamethasone, consider stress-dose prednisone (double the normal tose) for two days, then return to normal dose if clinically improving.
- □ Do not use oral steroids to treat mild OVID-19. Consider inhaled budesonide in patients over 50 or with comorbidities.

Remdesivir

- The benefits and risks of this drug are not yet fully clarified by empirical evidence. It is not yet registered in New Zealand, requiring section 29 approval and postage from Auckland.
- □ In consultation with the admitting consultant, consider **remdesivir** (200mg IV, then 100mg IV for four days) for adults with moderate-severe disease who satisfy **all** of the following criteria:

new SaO2 <92% on air

do not require ventilation

- □ either ALT <3x ULN with bilirubin <2x ULN and/or ALT <5x ULN
- □ do **not** have multiorgan failure eGFR <30, cardiomyopathy, coagulopathy, significant impairment to ADLs, or significant life-limiting intercurrent illness

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Tocilizumab

□ Consider **single dose 8 mg/kg** (max. 800 mg) IV in deteriorating ward or ICU patients, in discussion with respiratory/microbiology/infectious diseases SMO. Do not start if neutropenic, thrombocytopenic, hepatitis, or at high risk of TB. Funding for this indication currently requires a rapid NPPA (ward pharmacist can help with this).

Regular Medications

- □ Continue ACE inhibitors or ARBs except in case of AKI.
- □ Continue statins, metformin, and aspirin if normally taking these.
- □ **Discuss** immunosuppressants and immunomodulators with prescribing doctor at the earlies opportunity.

Inhaled Medications

- □ All inhaled medications should be given **via MDI** and nebulizer use kept to a minimum to reduce aerosolisation risks.
- □ Continue patients' normal inhaled medications as possible.

Self-proning

□ Advise patients on **self-proning**, a non-pharmacological therapy to delay to time to respiratory deterioration. See https://onlinelibrary.wiley.com/doi/10.1111/acem.14067 for instructions.

Ceiling of care

- □ Discuss and **clearly document ceiling of care** with patient and their whānau **at admission**, including candidacy for CPR, ICU, and intubation, while carefully considering resource allocation, likelihood of satisfactory clinical outcome, and cultural appropriateness.
- □ Seek palliative advice early in case of uncontrolled symptoms in a deteriorating patient.

Skin cares

□ Regular **pressure point checks** and consider pressure mattresses.

Social/psychological cares

- □ Enable **virtual communication** with family and friends.
- □ Attend to needs for **in-person social interaction** as much as possible within distancing constraints.
- □ Facilitate liais privith spiritual/cultural leaders if appropriate.
- □ All Māori patients must be offered virtual consultation with **cultural support worker**.

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