Waitematā
District Health Board
Best Care for Everyone

Hospital Services
North Shore Hospital Campus
Shakespeare Road, Takapuna
Private Bag 93-503, Takapuna
Auckland 0740
Telephone: 09 489 0527

8 November 2021

[redacted]

Dear [redacted]

Re: OIA request – COVID-19 admission criteria

Thank you for your Official Information Act request received 26 October seeking information from Waitematā District Health Board (DHB) about COVID-19 admission criteria.

Before responding to your specific questions, it may be useful to provide some context about our services.

Waitematā is the largest and one of the most rapidly growing DHBs in the country, serving a population of around 650,000 across the North Shore, Waitakere and Rodney areas. We are the largest employer in the district, employing around 8,600 people across more than 80 locations.

In addition to providing care to our own resident population, we are the Northern Region provider of forensic mental health services and child rehabilitation services, plus the metro Auckland provider of child community dental services and community alcohol and drug services.

In response to your request, we are able to provide the following information:

Are you able to send through the criteria for determining whether a patient who has contracted COVID-19 is admitted to:
1. Hospital or not?
2. ICU.

It should be noted that the admission criteria change over time, based on both continuing advancements in our understanding of the disease as well as any non-clinically-determined constraints, such as availability of MIQ placements, etc.

Criteria for admission to hospital:
- patient requires supplemental oxygen to achieve oxygen saturations of 92-96% (or 88-92% if Type 2 respiratory failure); or
- patient is vulnerable or needs admission for other clinical or infection prevention and control reasons (e.g. if from an aged residential care facility).

Criteria for admission to ICU:
This follows our standard process for admissions into intensive care. Patients admitted to ICU will have a critical illness or disease (respiratory failure, shock, impairment of consciousness or multiple organ dysfunction/failure) that would benefit from critical care interventions. The decision to admit a patient to ICU is made by the duty critical care specialist after their clinical assessment of the patient in question.

Our policies and guidelines are living documents, subject to ongoing updates as required – please find attached our current clinical guideline for admission of COVID-19 patients to hospital and ICU:

- COVID-19 Waitematā DHB Clinical Guide - **Attachment 1.**

I trust that this information is helpful.

Waitematā DHB supports the open disclosure of information to assist community understanding of how we are delivering publicly funded healthcare. This includes the proactive publication of anonymised Official Information Act responses on our website from 10 working days after they have been released.

If you consider there are good reasons why this response should not be made publicly available, we will be happy to consider your views.

Yours sincerely

[redacted]

Executive Director Hospital Services
Waitematā District Health Board

COVID-19 Waitematā DHB Clinical Guide

Contents

1. Overview / Scope 2
2. Referral Pathways and Patient Flow 2
2.1 Referral Pathways 2
2.2 Identify Correct Classification for Patients Under Investigation 2
3. COVID-19 Severity and Initial Investigations 3
3.1 Initial documentation 3
3.2 Initial investigations 3
4. Management Recommendations 4
4.1 Treatment Escalation and Planning 4
4.2 Escalation and Goals of Care 5
4.3 Anticoagulation 5
4.4 Respiratory support 6
4.5 Monitoring and Markers of Clinical Deterioration 8
4.6 Therapies for Existing Conditions 8
4.7 Surgery 8
4.8 COVID-19 Therapeutics 8
4.9 Delirium 9
4.10 Palliative Care recommendations 9
4.11 Communication and Holistic Care 10
4.12 Legal considerations 11
5. Discharge Planning and Follow-up 11
5.1 Clearance from Isolation 11
5.2 Discharge Process 12
5.3 Follow-up 13
6. HITH / COVID@HOME 13
7. Links to other guidelines 13
8. Appendix 1: COVID and Thromboprophylaxis 14
9. Appendix 2: COVID-19 Respiratory Guide (V4) 16
10. Appendix 3: Release from Isolation (ARPHS) 20

COVID-19 Waitematā DHB Clinical Guide

1. Overview / Scope

At Waitematā District Health Board, patients are screened via the COVID-19 Screening and Clinical Assessment Tool to determine an appropriate management stream based on clinical criteria and epidemiological risk (higher index of suspicion).

Appropriate PPE and bedspace requirements can be found here.

This clinical guide is recommended for use in confirmed or probable COVID-19 cases. This includes patients who have had a confirmed COVID diagnosis in the community and are presenting for acute assessment in ED or ADU. It has been adapted from the Australian National COVID-19 Clinical Evidence Taskforce and the National Institute of Health COVID-19 Treatment Guidelines.

The Ministry of Health have issued national interim guidance for management of COVID-19 in hospitalised adults which contains comprehensive information on COVID-specific treatments and adjuncts. It can be used in parallel to this clinical guide, noting the different severity classification in the national document, and the integration with local pathways and best practices in this guide.

2. Referral Pathways and Patient Flow

2.1 Referral Pathways

COVID confirmed and probable patients may be referred for medical admission from ED, from an MIQ facility, from home isolation via GP or SIQ referral, and less frequently from other pathways. The referral process depends on the location of the patient, and the time of day. The COVID-confirmed admission process is found here.

2.2 Identify Correct Classification for Patients under Investigation

Medical teams will also see Blue stream patients. After evaluation they will be classified as under investigation, probable, confirmed, not a case and historical case with definitions found **here**.
A SARS-CoV2 nasopharyngeal swab (NPS) should be performed, with an expected turn-around time of 4 hours.

In most cases a negative NPS PCR result will allow re-streaming of a patient to lilac (respiratory symptoms) or white (no respiratory symptoms) stream. PCR has the highest sensitivity in the first week of illness (90-94%), with reported reduced sensitivity within the first 24h of symptom onset and after 2 weeks of symptoms. In deciding whether to stream a patient as lilac (respiratory symptoms) or white (asymptomatic) with a negative PCR result, consider vaccination status, current community prevalence, exposure history including contacts and locations of interest (and reliability of this history), and alternative causes for symptoms.

If you are not confident to exclude COVID-19 based on a negative PCR please contact the COVID ID SMO on call via switchboard. The patient will remain Blue Stream 'under investigation' until reviewed. Possible work-up may include a repeat NPS PCR, sputum if prolonged illness or specific CXR changes, additional imaging including CT chest, and serology if >14d of symptoms.

COVID-19 Waitematā DHB Clinical Guide

3. COVID-19 Severity and Initial Investigations

We have used the following markers of severity as a framework to guide therapeutics and disposition based on international studies and guidelines, but severity assessment has its limitations and should **always** be taken in the context of the patient's overall condition and trajectory. Remember that patients may deteriorate at or after day 5-7 of symptoms.

severity	Signs and symptoms
Mild illness	Symptoms and signs consistent with COVID-19 but no symptoms or signs of pneumonia and normal (or unchanged) oxygen saturation
Moderate illness	COVID-19 disease with pneumonia or dyspnoea but not meeting criteria for severe illness (SpO2 ≥ 92% on room air at rest)
Severe illness	COVID-19 pneumonia with one of the following: RR ≥30/min, oxygen saturation <92% on room air at rest, or PaO2/FiO2 ≤ 300.
Critical illness	Respiratory failure, shock, impairment of consciousness, or multiple organ dysfunction/failure

3.1 Initial documentation

Every COVID-19 admission should document the following:

1. Indication for admission
2. Date of symptom onset
3. Date of first positive PCR
4. Admission date and location
5. Epidemiology
    a. COVID19 vaccination status
    b. Family / epidemiological links
6. Symptoms
    a. Typical
    b. Atypical
    c. Other
7. Risk factors for severe disease (below)
8. Pregnancy and gestation
9. Social history including suitability for home isolation

3.2 Initial investigations

Mild illness

- Pulse oximetry
- Other tests only as clinically indicated - low value testing is discouraged

Moderate illness

- FBC, UEC, LFTs
- CRP, D-dimer and ferritin
- ECG, troponin if clinical concern for myocarditis or ACS
- CXR
- ABG only if specific indication
- **Consider** investigation for bacterial co-infection, noting very low rate in acute illness
  - CAP (urinary antigens, sputum MC&S and PCR panel)
  - Bacteraemia (blood cultures if specific concern eg late presentation with fever, hypotension)

Severe and critical illness

- FBC, UEC, LFTs
- CRP, D-dimer, ferritin
- ECG
- CXR
- ABG
- Coagulation screen
- Troponin
- **Consider**
  - CAP workup (urinary antigens, sputum MC&S and PCR panel) noting very low rate in acute illness
  - Blood cultures if critical illness or specific concern eg late presentation with fever, hypotension
  - Screening for latent infection if immune modulation will be given (Hepatitis B virus, strongyloides serology if spent time in endemic region)

4. Management Recommendations

4.1 Treatment Escalation and Planning

Patients with severe or critical disease will require admission, as will those with mild or moderate disease who are vulnerable or who need admission for other clinical or infection prevention and control reasons (eg if from an Aged Residential Care facility).

Mild illness

More than 80% of patients diagnosed with COVID-19 disease will have mild disease, and most can be managed in the community either with home isolation or at a Managed Isolation/ Quarantine facility. Advice regarding the discharge process can be found below.

Moderate and severe illness

☐ Assess and document risk factors for poor outcome / markers for deterioration:
Clinical:

- Unvaccinated or partially vaccinated
- Age > 65 (Age >45 Maori/ Pacifica patients)
- Chronic kidney disease on haemodialysis
- Organ transplant patients / active haematological malignancy / other significant immunosuppression
- Unstable asthma / severe COPD

COVID-19 Waitematā DHB Clinical Guide

- Pregnancy >20 weeks
- Obesity BMI >40
- Day 5-7 of illness
- Significant (>50%) involvement of lung fields

Laboratory:

- Significantly raised or climbing acute phase reactants (CRP, ferritin, D-dimer)
- Thrombocytopenia <50 x10^9 (cells/L)
- New AKI
- Raised troponin

4.2 Escalation and Goals of Care

- ☐ Discuss goals of care, resuscitation, and treatment escalation decisions with patient and whānau, documenting the outcome. Shared goals of care and advanced care planning resources can be found here
- ☐ Document which modalities of respiratory support will be appropriate
- ☐ Document the patient's advanced care plan and/or EPOA status.
- ☐ Refer patients who are unable to maintain oxygen saturation of 92% on 4L/min oxygen via nasal prongs with intensive care and respiratory medicine early.

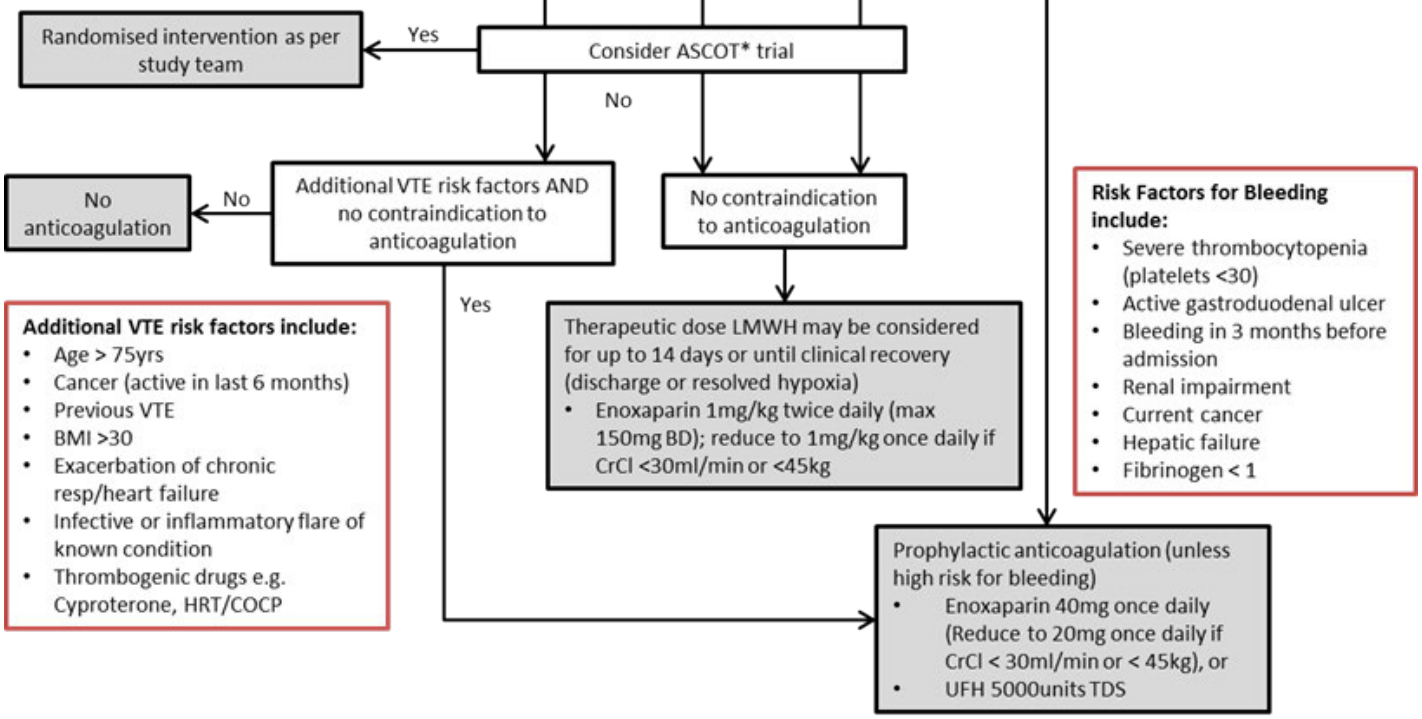
4.3 Anticoagulation

The frequency of Covid-19 related VTE is approximately 15%. Therapeutic anticoagulation with heparin in critically ill patients with COVID-19 disease was NOT superior to standard prophylaxis, with no difference in survival or organ support free days.

However, in the non-critically ill hospitalised patients, therapeutic anticoagulation with heparin was shown to increase organ support free days over standard prophylaxis and increase probability of survival to discharge. See detailed guidance in Appendix 1.

COVID-19 Waitematā DHB Clinical Guide

	Mild	Moderate	Severe	Critical
Symptoms and signs of COVID	•	•	•	•
Symptoms or signs of pneumonia		•	•	
RR≥30/min, oxygen saturation <92% on room air, or PaO2/FiO2 ≤ 300			•	
Respiratory failure, shock, impairment of consciousness, or multiple organ dysfunction/failure				•

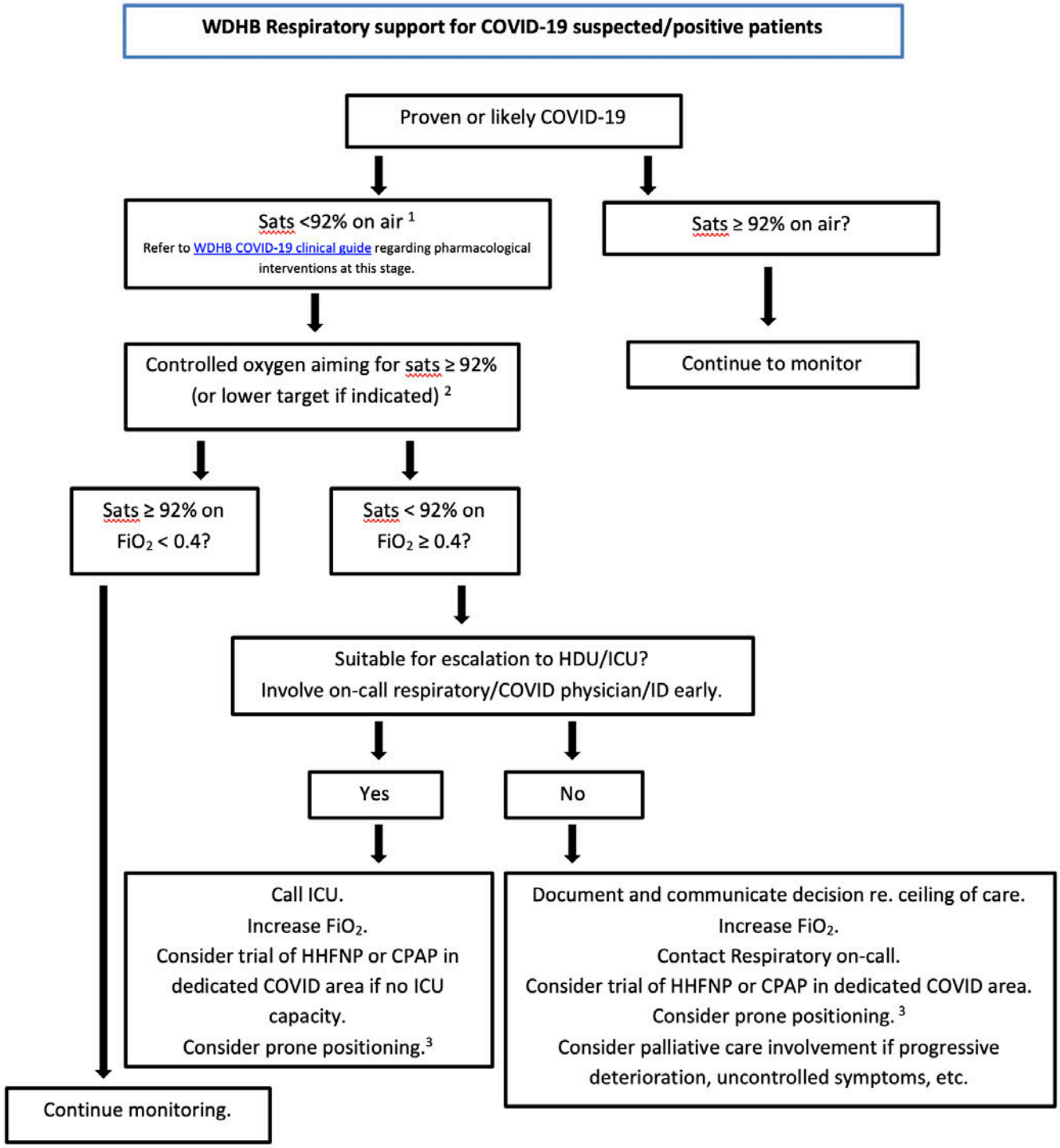


* Randomises non-severe hospitalised patients to standard prophylactic vs intermediate dose vs therapeutic dose anticoagulation); contact Dr Hasan Bhally, Infectious Diseases Physician

4.4 Respiratory support

Please refer to the excellent Waitematā DHB COVID-19 respiratory support document (initial flow chart below, full guide in appendix 2) for full guidance including HHFNP and CPAP, and Prone Positioning guide

COVID-19 Waitematā DHB Clinical Guide



Please note – this guide may not be suitable for patients with COVID-19 and decompensated type 2 respiratory failure due to COPD/chronic lung disease/OHS/restrictive lung disease were bi-level support (NIV/BiPAP) may be more appropriate. Please refer to the WDHB COPD bundle and discuss with on-call respiratory physician on a case-by-case basis.

COVID-19 Waitematā DHB Clinical Guide

4.5 Monitoring and Markers of Clinical Deterioration

- Monitor for progressive respiratory failure and sepsis, especially after day 5 of illness
- Only repeat CXR during admission for 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

4.6 Therapies for Existing Conditions

Nocturnal CPAP for Obstructive Sleep Apnoea	Consider changing usual vented CPAP mask to a non-vented mask + expiratory port + filter (decision depends on equipment availability and staff expertise)
ACE-inhibitors / ARBs; Oral contraceptive pill (with or without oestrogen) Antenatal steroids for high risk of preterm birth	Usual care – may be continued in COVID-19 unless otherwise contra-indicated
Corticosteroids for asthma / COPD (inhaled or oral, with or without bronchodilators)	Usual care. Do not use a nebuliser unless definite clinical need.
Oral menopausal hormonal therapy / HRT	Consider stopping until after recovery

4.7 Surgery

Elective surgery should generally be deferred until at least eight weeks following recovery from COVID-19. Non-deferrable surgery should continue, following COVID-19 theatre protocols

4.8 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 with sustained oxygen requirement including ventilator support	**Dexamethasone 6mg daily IPO/IV** for up to 10 days OR until hospital discharge
Anti-viral therapy	Adults with mild COVID-19	Do not use an anti-viral outside of a clinical trial
	Adults within the first 7 days of illness, with persistent oxygen requirement but not meeting definition of critical COVID-19 • Note – must have ALT <5 x ULN and/or ALT <3 x ULN and bilirubin <2 x ULN; must have CrCl ≥ 30	Consider **remdesivir** (protocol here): • 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 • Have a low threshold for cessation if any potential adverse effects from remdesivir

COVID-19 Waitematā DHB Clinical Guide

Immune modulation therapy	Adults with persistent oxygen requirement • AND receiving systemic steroids • AND elevated CRP or other evidence of severe systemic inflammation OR clinically deteriorating • AND there is not another active, severe concurrent infection	Give **tocilizumab** (protocol here) 8 mg/kg IV (up to 800 mg) as a single dose. **Note special authority needs to be applied for on the same day as administration.** • Note: Risk of secondary infection may be increased; CRP response is inhibited, and is no longer a reliable marker of response or development of secondary infection

4.9 Delirium

Delirium is a common development in the older adult with COVID-19 and may be part of the presenting syndrome.
Link to WDHB delirium CeDS site here and delirium management guide here; work is underway to provide COVID-specific advice and this guide will be updated once the work is complete. In the interim, the British Geriatric Society have provided guidance: Coronavirus: Managing delirium in confirmed and suspected cases | British Geriatrics Society (bgs.org.uk)

The Waitematā DHB psychiatry liaison service can be reached on 09 839 0000 or extension 42526 for additional support.

4.10 Palliative Care recommendations

The Palliative Care Service have developed COVID-19 Palliative Care pages on the WDHB intranet for guidance around symptom management, shared goals of care, communication, compassion, and care of the dying patient.

Symptom Management

Symptoms should be assessed and managed for all patients regardless of prognosis, alongside active and supportive therapies for COVID infection. There is a stepwise protocol for symptom management available on the intranet

Care of the Dying Patient

Information about care of the dying patient is outlined in detail on the intranet

- Inform family and whānau of what to expect when their loved one is dying
- Ask what practices are important for them.
- Ask if they would like additional support *e.g. chaplain or social worker*
- Be aware of particular changes in care around death *e.g. family unable to remain with the body or changes to funeral arrangements*

COVID-19 Waitematā DHB Clinical Guide

4.11 Communication and Holistic Care

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 – see sections below
- 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
- Ensure appropriate housing, financial and social support is in place prior to discharge – perform a risk assessment as follows, involving the ward CNM and/or social worker if concerns raised:

Whānau Tūroro risk assessment of the patient's confidence and comfort to be discharged. *Aim: to enable whānau to be part of the decisions made around their care, and to identify modifiable factors that could enable safe discharge.*

- ☐ Do you understand your condition / proposed care plan?
- ☐ Do you have any questions / concerns about your treatment
- ☐ Are you confident to manage your own cares at home?
- ☐ Do you have access to a primary care provider (GP)
- ☐ Do you have access to food, medication and hygiene?
- ☐ Do you have access to a phone and to transport, if needed?
- ☐ Do you know how to ask for help?
- ☐ Do you have a friend or whānau that can check in on you every day? *(By phone is OK)*

4.12 Legal considerations

LEGAL CONSIDERATIONS: *Guidance on how to safely manage non-compliant patients who do not follow infection control measures, or who decline COVID testing or medical care*

Unconscious/incompetent patients: Right 7(4) of the Code of Rights applies
We must satisfy both:

1. Care must be in the patients best interest
2. Make reasonable steps to ascertain what the patient might have wanted when competent or take into account the views of others interested in the patients welfare

Non-compliant patients:

- We don't have any additional legal powers to manage these patients
- We can take reasonable steps to keep staff and other patients safe. Use isolation and security to ensure staff and other patient safety
- If they are competent we cannot hold them. If they insist on leaving they should be escorted from the hospital grounds via the safest route to ensure staff and other patient safety.
- ARPHS and the police should be notified so they can recover the patient (they have powers under s70 of the Health Act 1956 to hold a patient in an MIQ or a location specified by the Medical Officer of Health with penalties including imprisonment for up to 6 months or up to $4K or both)

Who to contact: in hours (0800-1700):	Out of hours (after 1700):
• APRHS 021 199 6775 • Waitemata DHB: Tamzin Brott or the IC on for the day (via operator)	• Medical Officer of Health: 021 422 857 or 09 623 4600 • email: IncidentControlCentre@waitematadhb.govt.nz & tamzin.brott@waitematadhb.govt.nz

Disclosure of Covid status

- Generally, disclosure should be left to MOH/ARPHS
- Always try to get the patients consent before disclosing
- If there is urgent need (eg person at the bedside or transferring patient) and the patient refuses you can disclose under Rule 11(2)(d) if disclosing is necessary to prevent or lessen a serious threat to the life of an individual or public health. Information disclosed should be limited to the fact the patient is Covid +ve and any steps necessary to protect themselves/the public.

5. Discharge Planning and Follow-up

5.1 Clearance from Isolation

While each case is different, this 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

Interim ARPHS release from isolation requirements here and in Appendix 3

5.2 Discharge Process

Discharge of a COVID-19 confirmed case can be logistically challenging and for mild and moderate cases who may be fit for discharge the process should start immediately.

The current process map for discharge is found here

- Each DHB now has the delegation to complete a risk assessment on each patient to determine the safest destination, either home or into MIQ.
- Patients that have presented and are known COVID positive can return back home on discharge
- Patients that were referred from MIQ are to be discharged directly back to the referring MIQ by completing a medical/nursing handover (no repeat referral required)
- Patients that have tested positive on presentation and are for discharge, complete a risk assessment to determine disposition.

The Emergency Medicine CeDS site contains links to the required discharge paperwork including:

- Regional MIQ and Community SIQ discharge process document (Nov 2 2021)
- MIQ referral form (Oct 29 2021)
- Waitematā DHB positive patient process (Oct 27 2021)
- Community MIQ patient info fact sheet (Nov 2 2021)
- Discharge prescriptions for COVID-19 patients (Sept 10 2021)

COVID-19 Waitematā DHB Clinical Guide

5.3 Follow-up

All patients	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 Encourage vaccination if not fully vaccinated. Vaccination is recommended from 4 weeks after clinical recovery
Moderate or severe COVID-19 disease with COVID-compatible CXR changes	Referral to WDHB respiratory service at 6 weeks with spirometry and CXR on arrival
Patients discharged with nocturnal CPAP (usual OR new device)	Consider providing a non-vented mask + expiratory port + filter if discharging to MIQ, (depending on equipment availability and staff expertise). Sleep service remote follow-up within 48 hours of hospital discharge is recommended if non-vented mask set up is used. Can transition to vented mask on return to own home.

6. HITH / COVID@HOME

Work is ongoing to finalise both the WDHB and regional approach to discharge patient monitoring and details will be provided here as soon as they are available.

7. Links to other guidelines

Waitematā DHB Emergency Medicine COVID resources
Interim Guidance - Clinical Management of COVID-19 in Hospitalised Adults
Australian COVID-19 living guidelines
NICE (UK) living guideline
National Institute of Health (USA)
WHO COVID-19 living guideline
Australian guidance for Pregnancy and perinatal care

COVID-19 Waitematā DHB Clinical Guide

8. Appendix 1: COVID and Thromboprophylaxis

Background:

- The frequency of Covid-19 related VTE is approximately 15%, with a significantly higher prevalence in ICU at 23% vs 9% in non-ICU patients (1)
- Studies (REMAP-CAP, ACTIV-4a, ATTACC) have shown that therapeutic anticoagulation with heparin in critically ill patients with Covid-19 was NOT superior to standard prophylaxis, with no difference in survival or organ support free days and an increase in major bleeding (2)
- However, in the non-critically ill hospitalised patients, therapeutic anticoagulation with heparin (as opposed to prophylactic dose) was shown to increase organ support free days and increase probability of survival to discharge (3)

For the purposes of this document, severity of illness due to Covid-19 is defined as:

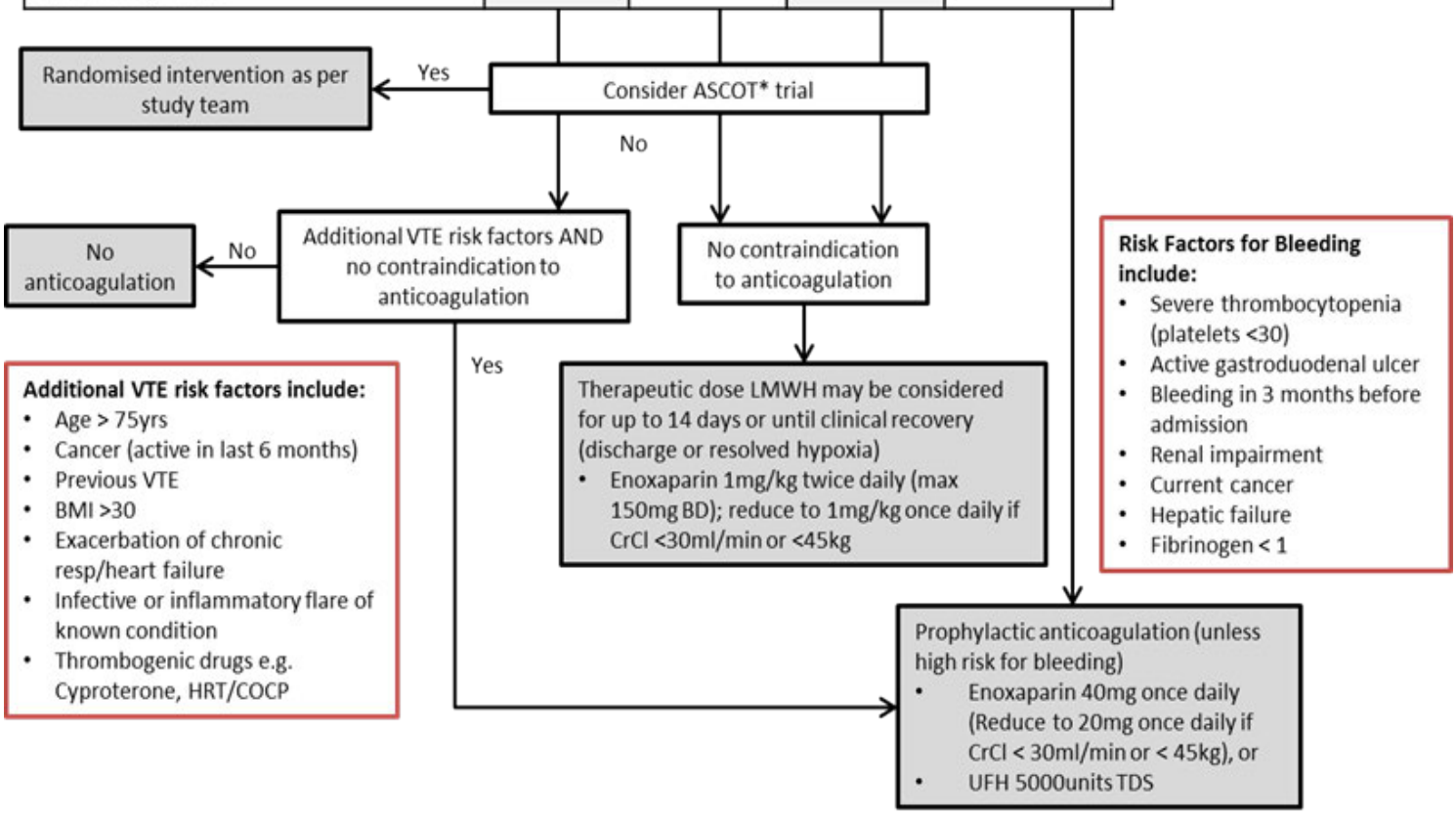
SEVERITY	SIGNS AND SYMPTOMS
Mild illness	Symptoms and signs consistent with COVID-19 but no symptoms or signs of pneumonia and normal (or unchanged) oxygen saturation
Moderate illness	COVID-19 disease with pneumonia or dyspnoea but not meeting criteria for severe illness (SpO2 ≥ 92% on room air at rest)
Severe illness	COVID-19 pneumonia with one of the following: RR ≥30/min, oxygen saturation <92% on room air at rest, or PaO2/FiO2 ≤ 300.
Critical illness	Respiratory failure, shock, impairment of consciousness, or multiple organ dysfunction/failure

References:

(1) Arterial and Venous Thromboembolism in COVID-19: a study-level meta-analysis. Tan BK et al. Thorax 2021; 76(10): 970-979.
(2) Therapeutic Anticoagulation with Heparin in Critically Ill Patients with Covid-19, The REMAP-CAP, ACTIV-4a and ATTACC Investigators. NEJM 2021;385: 777-789
(3) Therapeutic Anticoagulation with Heparin in Noncritically Ill Patients with Covid-19. The ATTACC, ACTIV-4a, and REMAP-CAP Investigators. NEJM 2021; 385:790-802.
(4) Interim Guidance: Clinical Management of COVID-19 in Hospitalised Adults. Ministry of Health NZ guidelines 2021.
(5) British Thoracic Society Guidance on Venous Thromboembolic Disease in Patients with COVID-19. August 2021.

COVID-19 Waitematā DHB Clinical Guide

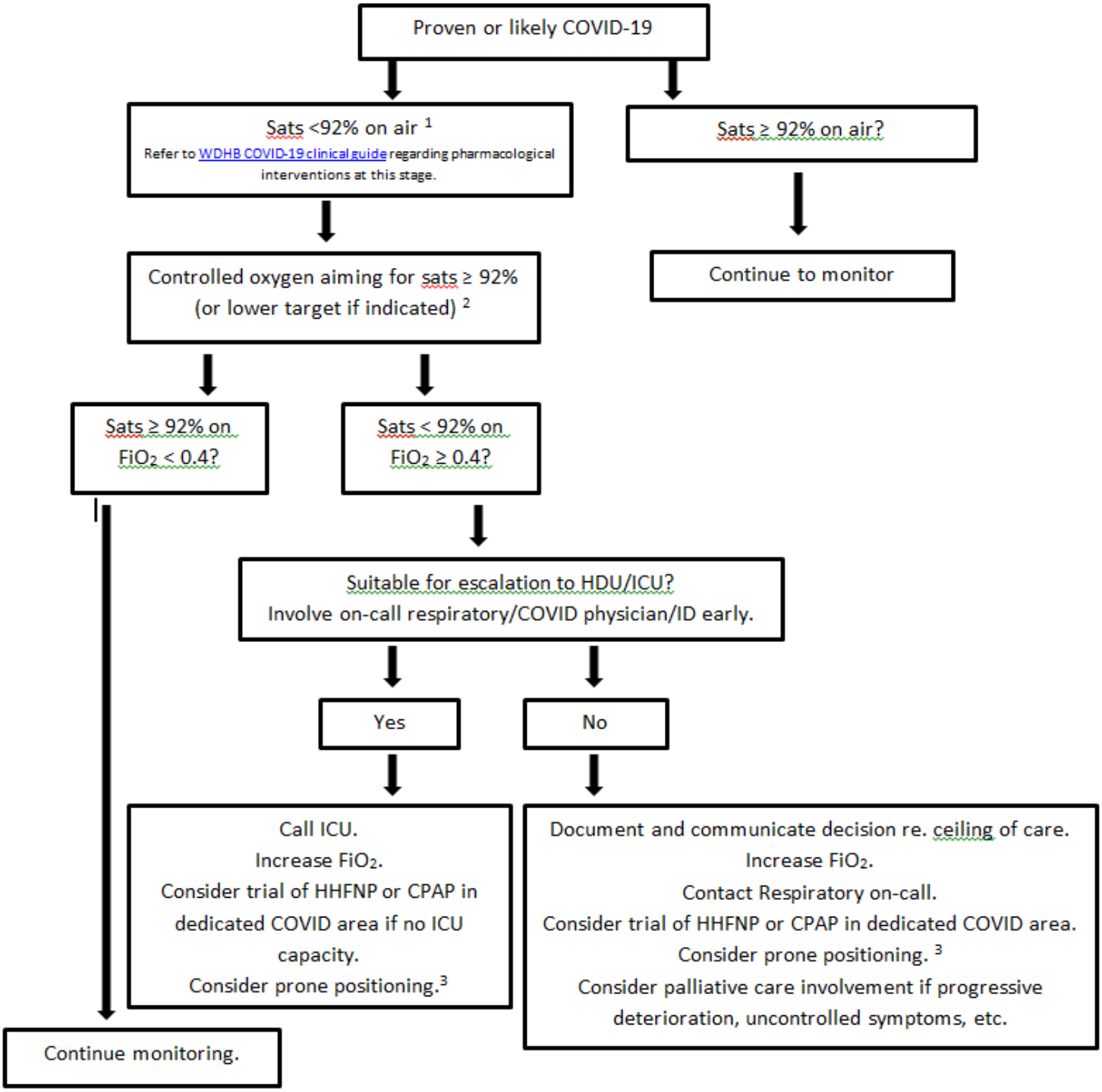
	Mild	Moderate	Severe	Critical
Symptoms and signs of COVID	•	•	•	•
Symptoms or signs of pneumonia		•	•	
RR≥30/min, oxygen saturation <92% on room air, or PaO2/FiO2 ≤ 300			•	
Respiratory failure, shock, impairment of consciousness, or multiple organ dysfunction/failure				•



* Randomises non-severe hospitalised patients to standard prophylactic vs intermediate dose vs therapeutic dose anticoagulation); contact Dr Hasan Bhally, Infectious Diseases Physician

COVID-19 Waitematā DHB Clinical Guide

9. Appendix 2: COVID-19 Respiratory Guide (V4)



Please note – this guide may not be suitable for patients with COVID-19 and decompensated type 2 respiratory failure due to COPD/chronic lung disease/OHS/restrictive lung disease were bi-level support (NIV/BiPAP) may be more appropriate. Please refer to the WDHB COPD bundle and discuss with on-call respiratory physician on a case-by-case basis.

COVID-19 Waitematā DHB Clinical Guide

Ward-based Humidified High flow Nasal Prongs (HHFNP) and Continuous Positive Airway Pressure (CPAP)

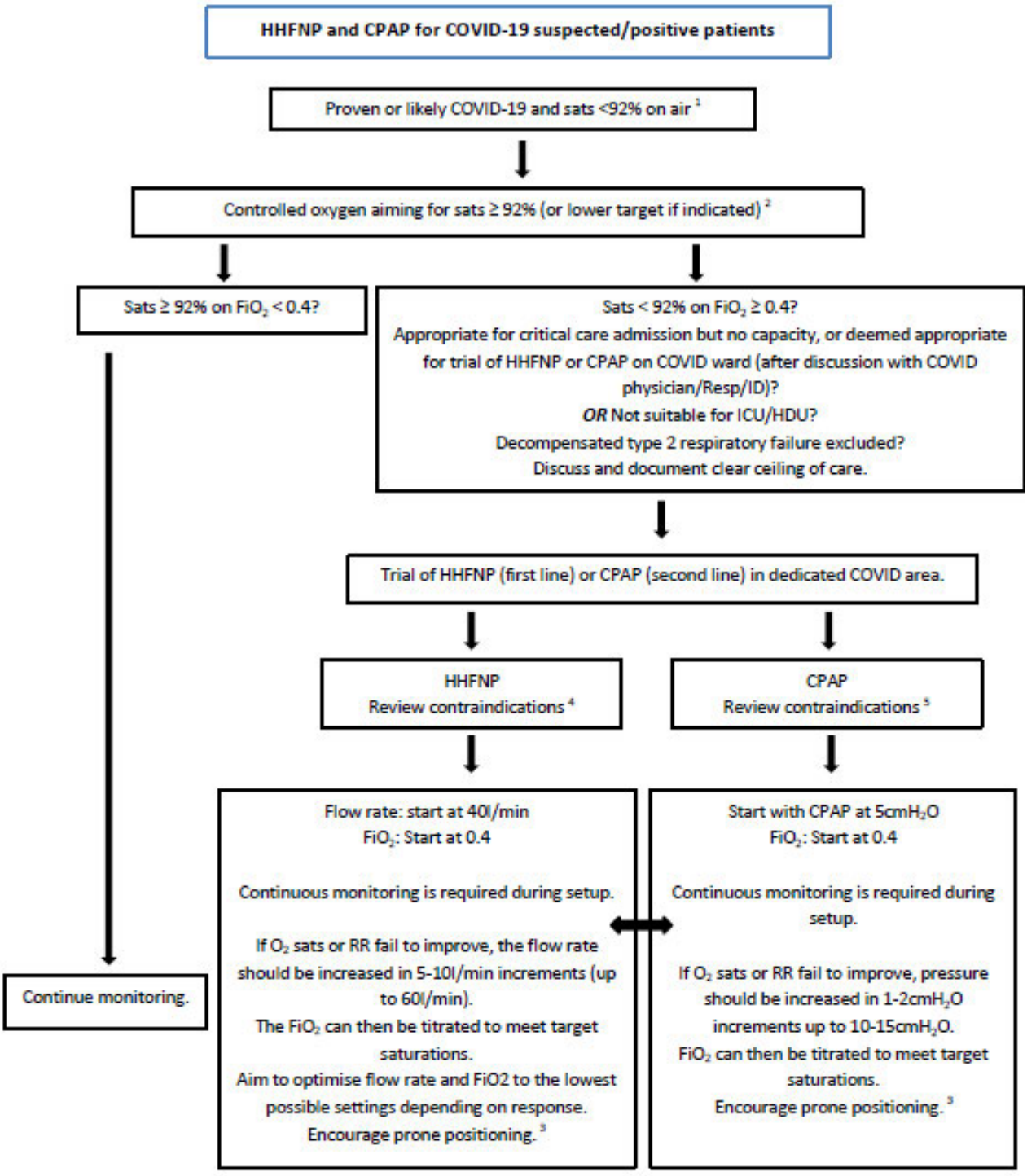
The role of high of HHFNP and CPAP in patients with COVID-19 is unclear. In regions where there is limited or overwhelmed Critical Care capacity, ward-based therapies such as these have been widely adopted. Both of these therapies are aerosol-generating procedures (AGP) and should be delivered in a negative pressure single room with staff in appropriate PPE. For ward-based patients this should be delivered in a dedicated COVID area by staff who are familiar with the use of these supportive treatments.

All patients should have a ceiling of care discussed and documented. **Those patients suitable for escalation to ICU/HDU should be reviewed early by the critical care team**.

If a higher level of respiratory support is needed on the ward, we would generally favour a trial of HHFNP in the first instance. However, some patients may benefit from a trial of CPAP initially (i.e. those with underlying confirmed or probable OSA/OHS), and some patients may be suitable for a trial of ward-based CPAP if HHFNP is not effective. Shared decision making on a case-by-case basis should be employed in these situations.

If ward-based HHFNP or CPAP is deemed appropriate after discussion with respiratory, critical care and/or the on-call COVID physician, the following flowchart can be used.

COVID-19 Waitematā DHB Clinical Guide



Failure to maintain target O_2 sats, increasing RR, worsening dyspnoea, increasing HR, confusion or agitation despite escalating respiratory support signifies potential treatment failure.
In a patient not for escalation above ward-based care this is a grave sign, and should prompt discussion and planning regarding symptom management and palliative care.

COVID-19 Waitematā DHB Clinical Guide

Notes

1. Oxygen saturations form only one part of the severity assessment for COVID-19, and should be interpreted in the context of the overall clinical presentation. Those at risk of type 2 respiratory failure should have target saturations of 88-92%. Over-oxygenation i.e. above 96% should be avoided for all patients. Knowledge of the patient's prior saturations is valuable and will allow an appropriate target to be specified.

2. Initial oxygen delivery for the hypoxic patient should be given by nasal cannula, Hudson or Venturi mask, or reservoir bag (non-rebreather) titrated to appropriate target saturations. Approximate FiO_2 based on flow rate:

Litres per minute (l/min)	Approximate FiO2 (%)
1	24
2	28
3	32
4	36
5	40
6	44
7	48
8	52
9	56
10	60

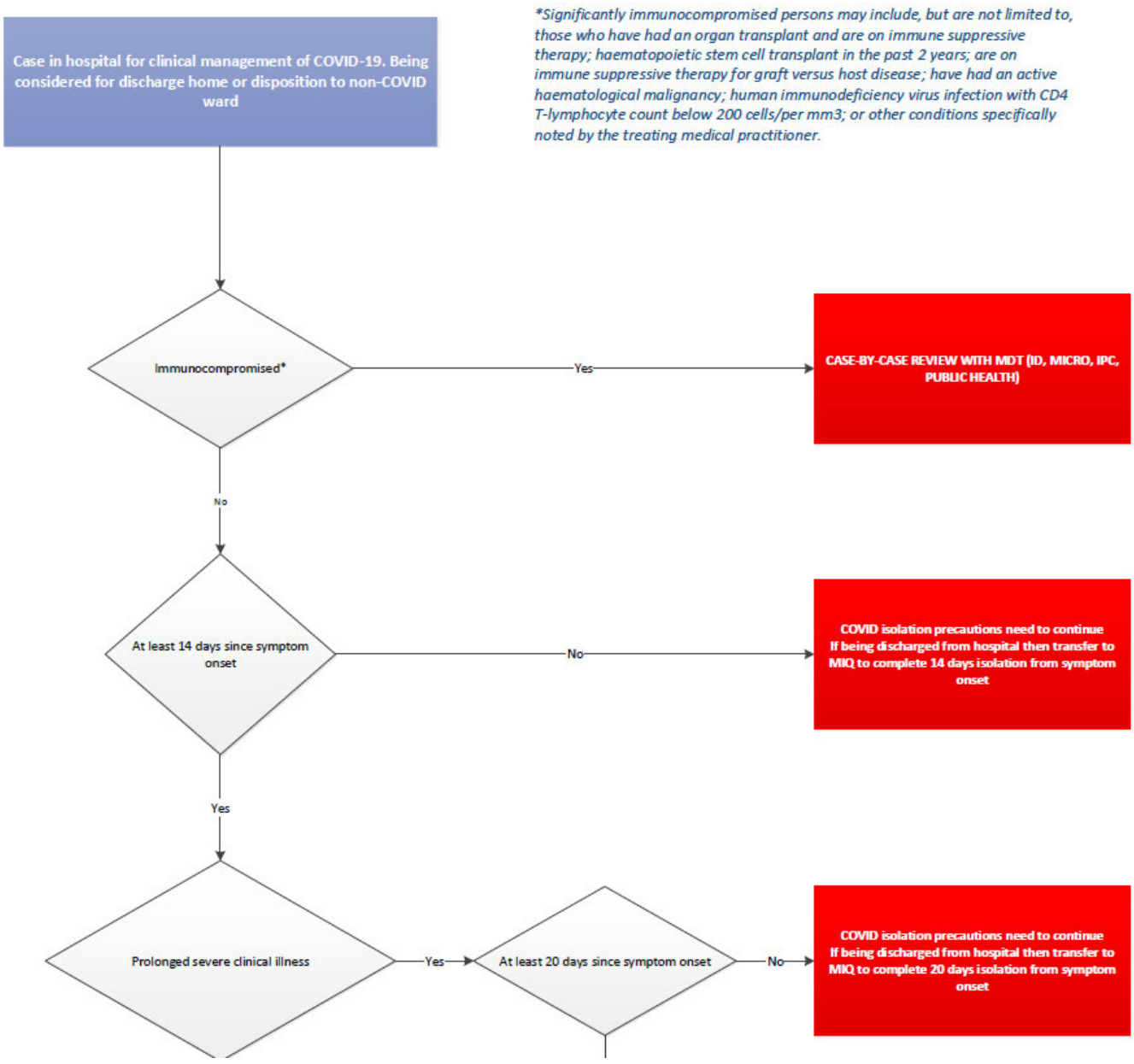
3. The role and benefit of self-pronation in COVID-19 is unclear. However, it is a simple intervention that may improve oxygenation and it can be done alongside conventional oxygen, HHFNP, or CPAP. A minimum of 3-6 hours per 24 hours is recommended. See pages later in these document, or link to the Intensive Care Society (UK) can be found here: https://emcrit.org/wp-content/uploads/2020/04/2020-04-12-Guidance-for-conscious-proning.pdf

4. High flow nasal oxygen contraindications include abnormalities or surgery of the face, nose, or airway that preclude an appropriate-fitting nasal cannula. Recent upper airway surgery is a relative contraindication.

5. Need for emergent intubation is an absolute contraindication to CPAP. Relative contraindications include: acute life-threatening non-respiratory organ failure; facial surgery or trauma; significant airway obstruction (e.g. tumour); inability to protect the airway (e.g GCS<10), clear secretions, or cooperate with therapy; recent upper GI surgery; undrained pneumothorax; active vomiting.

COVID-19 Waitematā DHB Clinical Guide

10. Appendix 3: Release from Isolation (ARPHS)



COVID-19 Waitematā DHB Clinical Guide