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CIRCULAR H110 of 2020: Guidance for Emergency Centres in the Western Cape during the COVID-19 Response update

Purpose

The aim of this document is to provide guidance on the principles and practice of delivering Emergency Care to all patients during the COVID-19 pandemic.

There are special considerations for the screening, evaluation, and care of COVID-19 infected patients who enter and move through the healthcare system. The aim of the co-ordinated healthcare response is to ensure the best care for all patients, to ensure staff safety, and to maintain essential health service continuity throughout the phases of the disaster response.

Scope

This document provides guidance on care in the Emergency Centre (EC) including Primary Health Care EC's.

It is not intended to provide guidance regarding care in EMS, non-EC based care in Primary Health Care centres or In-Patient Hospital services.

This circular is an update to Circular H81 of 2020.

Yours sincerely

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Western Cape Government
Health

Guidance for Emergency Centres in the Western Cape during the COVID-19 Response

Endorsed by the

EMSSA

Emergency Medicine Society of South Africa (NPC)

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Dr E de Vries, Dr R Dickerson, Dr K Evans, Dr U Lalla, Dr E Louw, Dr R Raine, Dr N Schrueder, Dr A Parker, Associate Professor R van Zyl-Smit

This Guidance is informed by and draws on the policies as laid out by:

- National Institute of Communicable Disease
- Critical Care Society of South Africa
- Association of Palliative Care Practitioners of South Africa
- World Health Organization
- Western Cape Government Health Emergency Medical Services
- Western Cape Government Health Forensic Pathology Services
- Western Cape Government Health Paediatric COVID Workgroup

Version 1.0: 12 May 2020
Version 1.1: 12 June 2020
Date of next review: 12 July 2020

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Principles of COVID-19 Care

- To provide a co-ordinated, standardised approach to suspected and confirmed COVID-19 patients presenting to healthcare facilities in the Western Cape
- To maintain the functioning of the health system for all patients
- To protect healthcare staff in facilities and healthcare workers in the community
- To provide equitable access to care for all patients in the Western Cape
- To protect the community

Case Definition

Figure 1. COVID-19 Case Definition

A suspected COVID-19 case includes any person presenting with **an acute** (≤14 days) **respiratory tract infection** or other clinical illness compatible with COVID-19, or an asymptomatic person who is a close contact to a confirmed case*.

In the context of COVID-19, the key respiratory syndrome consists of ANY of:

- Cough
- Sore throat
- Shortness of breath
- Anosmia or dysgeusia

... with or without other symptoms (which may include fever, weakness, myalgia, or diarrhoea).

NICD Notifiable Medical Conditions (NMC) Case Definition 18 May 2020

Provincial COVID-19 Hotline

The Western Cape Provincial COVID-19 Call Centre is staffed by clinicians with volunteers providing scripted advice on COVID-19 risk assessment, screening and testing criteria and general health related queries from the community and healthcare workers. The Call Centre offers a reference point for queries relating to social services, safety and security and provincial disaster management. Callers receive a reference number and information texted to them after the call.

Out of Hospital Care and Transfer of COVID-19 patients by EMS

Refer to the Western Cape Government Guidelines for Emergency/Primary COVID-19 Cases.

Western Cape Health EMS has included telephonic case definition screening for all calls. EMS crews on scene repeat the screening process. Crews can access direct clinical and referral advice on suspected and confirmed COVID-19 patients through the EMS medical commander or the Provincial call centre.

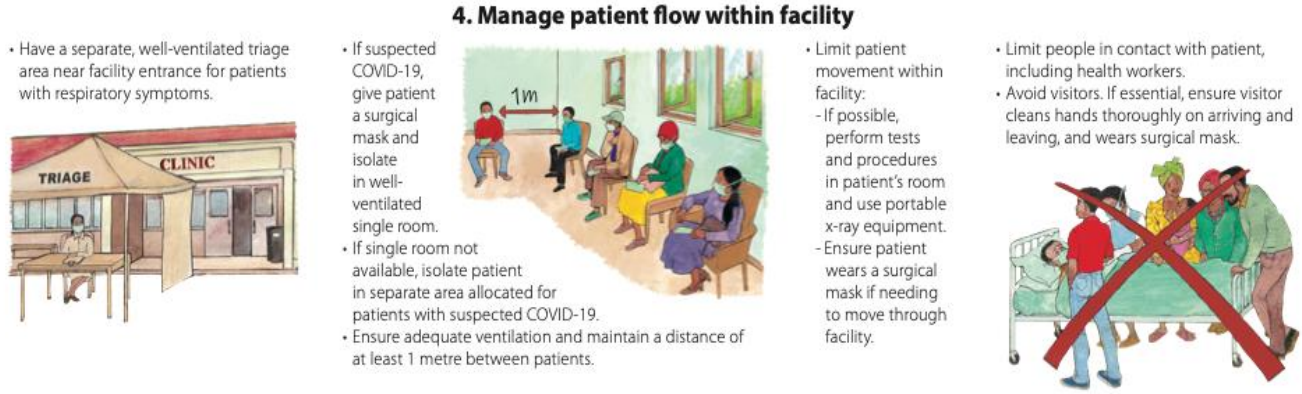
COVID-19 in the Emergency Centre

Emergency Centre Safety

Refer to the Western Cape Government Health PPE Policy. Circular H35 of 2020: Use during the Coronavirus Disease 2019 (COVID-19).

The key driver in the EC is the safety of staff and patients.

Figure 2. EC Patient Flow

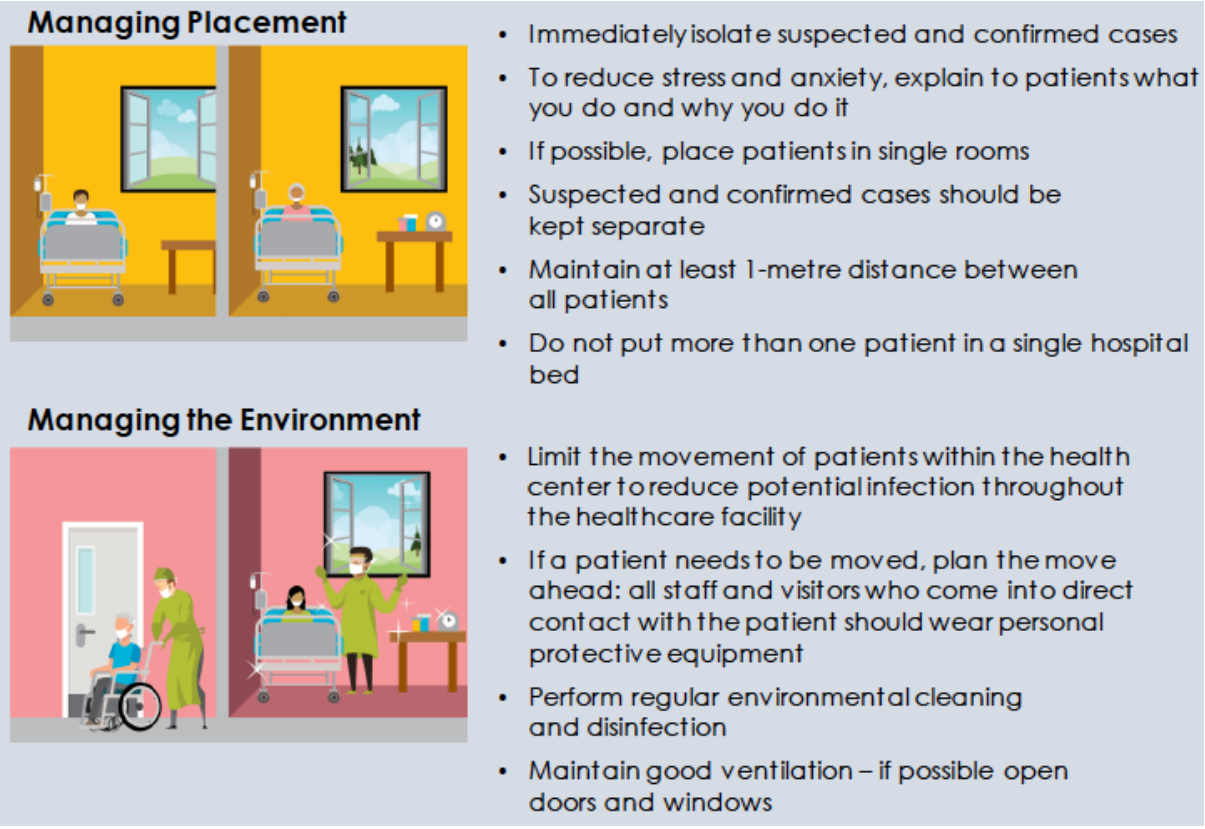


Western Cape/PACK 02 April 2020

A physical distance of 2.5 m between patients occupying a bed or chair is ideal to prevent cross-contamination (measured from the centre of the bed/chair to the centre of the adjacent bed/chair). This may not be feasible in crowded ECs.

For suspected/known TB patients, follow the usual safety precautions (including the use of N95 respirators when in close contact).

Figure 3. EC Unit Organisation



WHO March 2020

Healthcare Worker Safety and IPC

Refer to the Western Cape Government Health PPE Policy. Circular H35 of 2020: Use during the Coronavirus Disease 2019 (COVID-19).

Wear appropriate levels of PPE according to your current task, in line with WCGH guidelines.

Table 1. Western Cape Government Health PPE Policy

SERVICES AT PHC FACILITIES, OUTPATIENTS, EMERGENCY UNITS AND TEMPORARAY FACILITIES

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
Triage at Clinics, CHC, OPD. Emergency Units and temporary facilities entrances	**Clinical staff**	**Triage: Preliminary screening of patients (via questions on symptoms** and contact with COVID-19 cases) as they enter unit.	Maintain spatial distance of at least 1 metre **Surgical mask**
	Patients and escorts who screen positive	While **waiting for testing**	**Move patient to isolation room** Provide **Surgical mask**
	Patients and escorts who screen negative but have respiratory symptoms	While waiting for **consultation**	Maintain spatial distance of at least 1 metre. Provide **Surgical mask**
	Patients and escorts who screen negative but *without* respiratory symptoms	While waiting for **consultation**	**No PPE required**
Administrative areas	**All staff** including reception, clerical and clinical staff	Administrative tasks that **do not involve contact with COVID-19 patients**	**No PPE required**
Clinic, CHC, OPD, Emergency Unit and Temporary facility Consultation rooms	**Clinical staff**	Physical examination of **suspected COVID-19 patients**	**Surgical Mask** Eye protection (goggles or visor) Apron Non-sterile Gloves
	Clinical staff	**Aerosol-generating procedures** performed on suspected COVID-19 patients (such as **nasopharyngeal and oropharyngeal swabbing** for **testing** for coronavirus infections) **Note that N95 respirators** are only worn when performing aerosol-generating procedures	**N95 Respirator** Apron or gown Non-sterile Gloves Eye protection (goggles or visor)
	Clinical staff	Physical examination of patients **without** respiratory symptoms.	**No PPE required**
	Cleaners	Cleaning the **vacated** room and areas used by a COVID-19 patient	**Surgical mask** Apron Eye protection (goggles or visor) Long rubber utility cleaning gloves (ideally up to elbow) that can be washed Closed work shoes
	Body of deceased	**Death of COVID-19 patient**	Wrap body with sheets as per usual
Entrance to COVID-19 Area	**Security personnel.**	Any	**Surgical mask**

Face shields or visors provide a clear plastic barrier that covers the face. The shield should extend below the chin anteriorly, to the ears laterally, and there should be no exposed gap between the forehead and the shield's headpiece. Face shields can substantially reduce exposure to large infectious aerosol particles, but wearers can still inhale floating smaller particles.

A **surgical mask** may be used continuously for up to 8 hours. Discard early if wet, dirty or damaged or touched by unwashed hands.

A **N95 respirator** may be reused for up to a week where rational PPE use is practiced. Avoid touching the outside of the respirator. If touched, wash/disinfect hands immediately and change gloves.

If re-using a respirator:

- Between uses, store in a clearly labelled clean paper bag
- Avoid touching the inside of the respirator
- Wear gloves when donning
- Discard early if wet, dirty or damaged

Ensure meticulous hand hygiene practices.

Figure 4. Hand Hygiene

WHO March 2020

EC Visiting Policy

No visiting is allowed in the EC. Arrangements must be made for a safe space away from the clinical areas for face to face communication with loved ones if required.

COVID-19 EC Screening

Principles

The aim of the EC screening of undifferentiated patients is to identify, as early as possible, cases of COVID-19 infection. These possible cases will be diverted towards a special high risk COVID-19 stream in order to preserve normal EC function.

Thus, a highly sensitive screening process is required to ensure that we identify as many potential cases as possible. We understand that true separation is not possible and thus we should still maintain reasonable safe practices in low risk areas. Given the paucity of evidence on presentation and risk of COVID-19 in our setting, the COVID-19 EC screening will require high clinical gestalt i.e. a senior clinical nurse or doctor should be involved in the process to medically screen patients where the presentation is not clear cut.

This screening tool will be updated as the case definition and the knowledge of clinical presentation develops. At present the risk of COVID-19 pre-symptomatic or asymptomatic infection in the general population is estimated between 5-80% in international studies (https://www.cebm.net/covid-19/covid-19-what-proportion-are-asymptomatic/)

COVID-19 infection therefore has to be considered for all patients who present to hospital, irrespective of their presentation and hospitals should screen all patients who enter the facility.

Figure 5. EC Screening for Adults

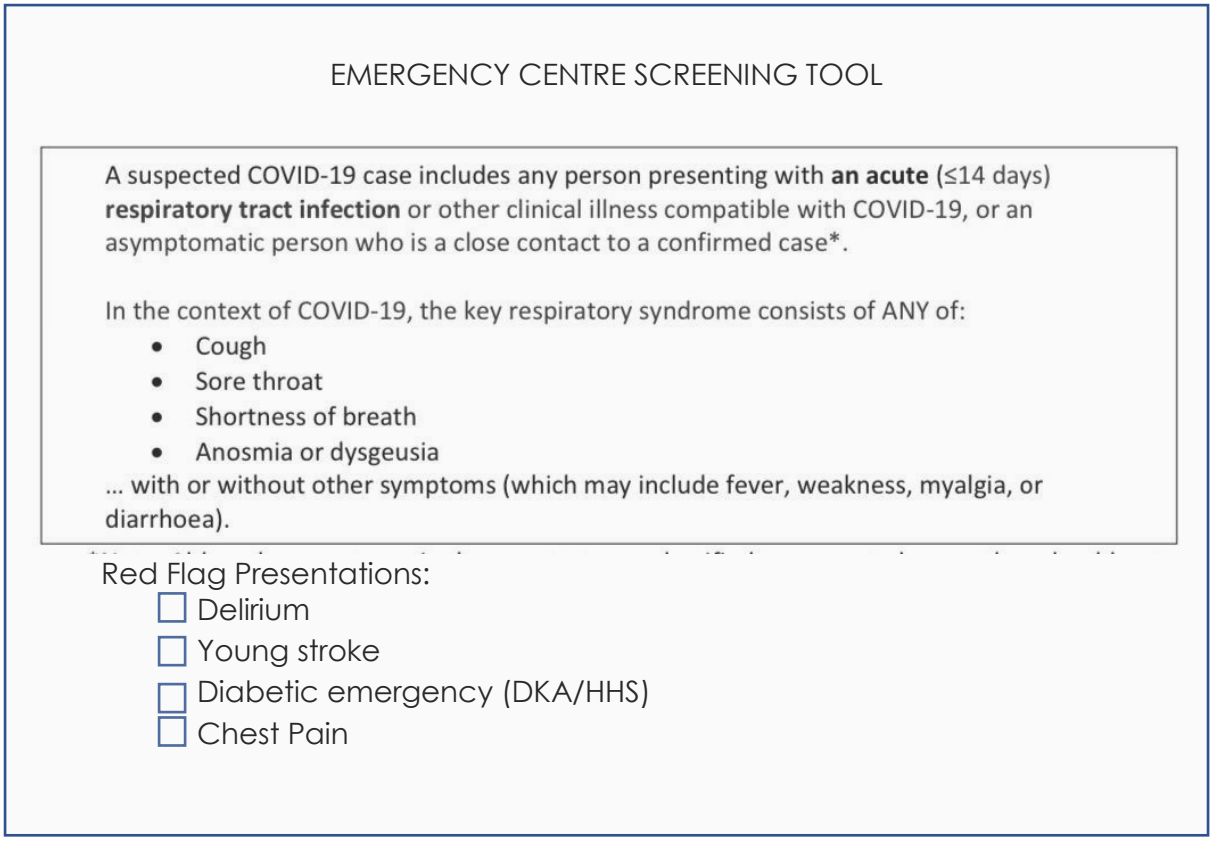
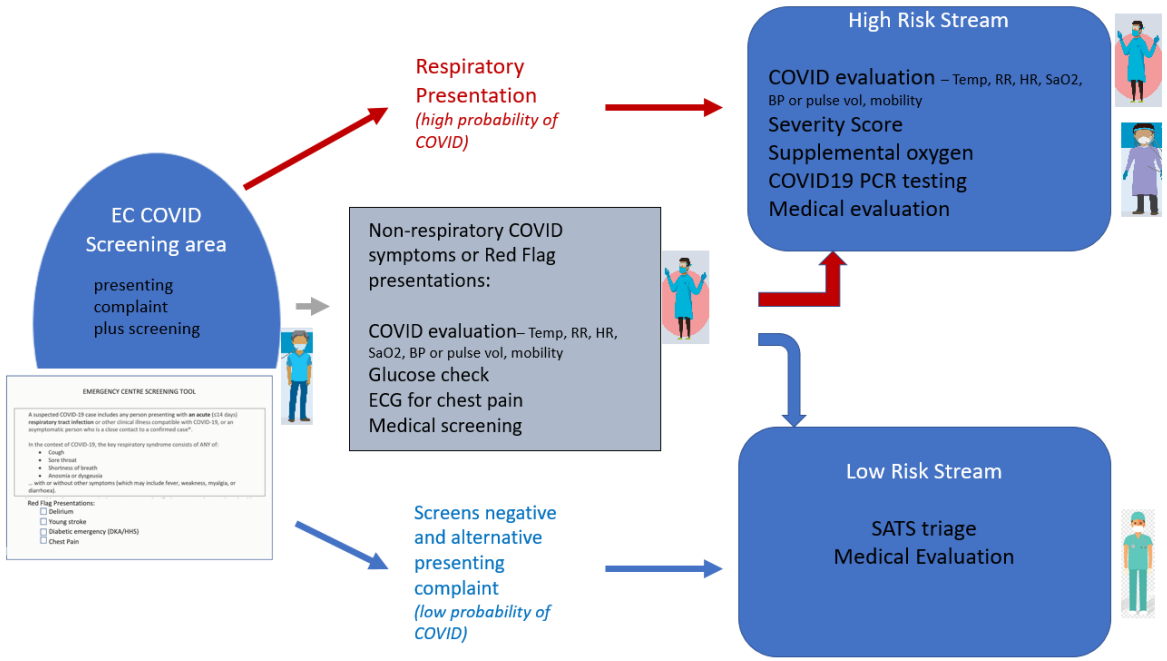


Figure 6. EC Flow for Adults



Creating High Risk and Low Risk streams of patient flow with **physical separation of streams**, while maintaining appropriate IPC practices and PPE for staff, is an integral concept of managing input into Emergency Centres. Streaming allows for rapid and focused evaluation of patients and supports safe patient throughput.

At the peak of the pandemic as patient numbers increase, the physical separation of high risk and low risk COVID-19 streams may not be feasible for safety or logistical reasons, such as insufficient space, insufficient staff to run multiple streams, or limited access to oxygen points. Single stream ECs are not the ideal, and require careful consideration of the risks and benefits. When running single stream EC's, the priority is to maintain appropriate IPC practices across the entire area. Cohorting of patients with different levels of risk (PUIs, known positive, and low risk) with physical separation of the groups may be a useful safety strategy. Safety of staff and patient is paramount.

Clinical Evaluation of Suspected or Confirmed COVID-19 Patients

All potential COVID-19 patients must be managed with adherence to IPC principles of contact and droplet precautions:

- Health Care Workers (HCW) must wear a surgical mask and plastic apron and keep 1.5 m distance while interviewing the patient
- A symptomatic patient must promptly receive hand hygiene and don a surgical mask
- The personal details must be captured without the patient completing any forms in person
- The close quarters clinical evaluation must be kept to a minimum prior to the decision for admission
- Health Technology equipment must be cleaned and sanitised before and after use on a patient
- Observations include Respiratory Rate, SaO2 and Pulse (measured with a finger oxygen saturation probe), Temperature and Mobility
- Perform a proxy assessment of Blood Pressure by palpating radial pulse for volume and character; and noting skin perfusion as saturation probe is applied
- If concerned about poor perfusion or in known hypertensive patients, Blood Pressure measurement may be done. The cuff should be cleaned and sanitised after use.

Task Sharing is critical to clinical care. In order to minimise contact with a potentially infected patient and rationally use PPE, staff in full PPE should assist with as many patient related tasks as is safely possible.

Clinical Presentation of COVID-19

Figure 7. WHO Severity Classification COVID-19

Mild	Uncomplicated upper respiratory tract infection
Moderate	Pneumonia with no need for supplemental oxygen (O_2 sats >93% on air)
Severe	Fever or suspected respiratory infection, plus one of the following: respiratory rate > 30 bpm; severe respiratory distress; O_2 sats ≤93% on air
Critical	Acute respiratory failure and/or shock

Clinical Procedures in COVID-19 Patients

When considering the emergency clinical procedures in patients with suspected or confirmed COVID-19, a risk-benefit analysis must be done. If a decision is made to proceed, adequate precautions must be taken to avoid contamination of staff.

Consider the risks of procedures such as oral and pharyngeal examination and manipulation, in children and adults. Avoid unnecessary tonsillar examination. If deemed necessary, always wear PPE including Face Shield.

For aerosol generating procedures, Staff should wear appropriate PPE and be in a well-ventilated area, negative pressure room or outside.

Aerosol-generating procedures include**:** collecting respiratory specimens (naso-or oropharyngeal swabs), chest physiotherapy, nebulised therapy, sputum induction, endotracheal intubation, high flow nasal cannula oxygenation, and non-invasive ventilation.

COVID-19 Testing

Persons under investigation (PUI) for COVID-19 require testing for SARS-CoV-2 by RT-PCR (reverse transcriptase PCR). Test results for COVID-19 should be interpreted in the context of the patient's presentation, likelihood of an alternative diagnosis and course of disease. Test characteristics are also highly influenced by the sampling strategy and technique. Test sensitivity depends of the swab site with Nasal swabs detecting around 2/3 of cases (63%) and pharyngeal swabs only around 1/3 of cases (32%). The positive rate of faecal testing is 29%. *(Wenling Wang, Yanli Xu et al JAMA 2020 March 11)*

Training and Preparedness

Training of all staff in procedures and practices related to the management of COVID-19 and the flow in ECs is critical. Required training includes the donning and doffing

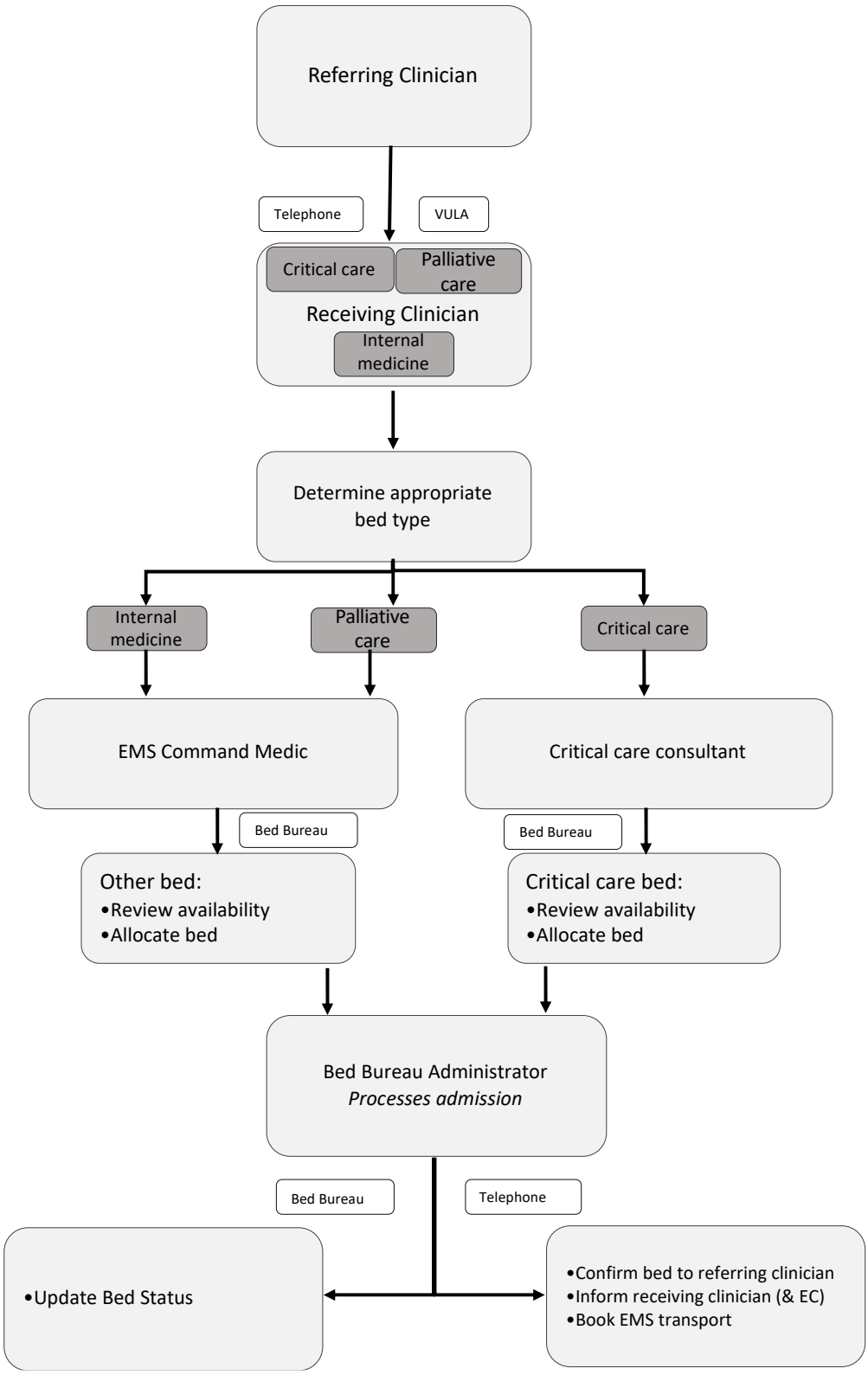
of PPE, and clinical care of the COVID-19 patient including safe resuscitation and safe intubation. Simulation training is a useful tool in this regard.

Clear signage and area demarcation for patients and staff are useful in ensuring safe flow and maintenance of identified high risk spaces in the EC.

Centralised Bed Management

During the COVID-19 surge period, the demand for beds will likely be overwhelming. When facilities in the Metro have reached capacity, this will trigger the central co-ordination of COVID-19 Critical Care, Acute Care, Intermediate Care, and Palliative Care beds. A central clinician group will use the bed bureau system to allocate appropriate beds across the platform and facilitate rapid transport.

Figure 8. Centralised Bed Management



COVID-19 Case Management

Clinical Categories associated with Adults with COVID-19

Table 2. COVID-19 Clinical Categories

	MILD	MODERATE	SEVERE	CRITICAL
WHO description	Uncomplicated upper respiratory tract infection. No pneumonia	Pneumonia with no need for supplemental oxygen	Severe pneumonia	Acute respiratory distress syndrome; Sepsis or septic shock
NICD criteria	RR < 25 bpm Normal mental status Normal mobility status SpO2 ≥ 95 % while breathing ambient air *(optional)* Temperature 36-39°C *(optional)* Pulse rate < 120 bpm *(optional)*	RR < 25 bpm Normal mental status SpO2 ≥ 95 % while breathing room air Temperature 36-39°C Pulse rate < 120 bpm	RR>30 bpm Severe respiratory distress SpO2< 90% on room air or < 93% on 40% facemask Temperature >38°C Pulse rate >120 bpm	Acute respiratory failure and/or shock With Life threatening organ dysfunction including altered mental status, hypoxia, poor perfusion Or lab evidence of coagulopathy, thrombocytopaenia, acidosis, high lactate or hyperbilirubinaemia
Management	if able to self-isolate -> Home with isolation advice If unable to self-isolate refer to CDC team for isolation accommodation Can give symptomatic treatment e.g. antipyretics Do not give antibiotics	If clinically stable and able to self-isolate -> Home with isolation advice and home respiratory care advice If clinically stable and unable to self-isolate refer to CDC team for isolation accommodation and follow up Can give symptomatic treatment e.g. antipyretics Can give oral antibiotics if suspicion of bacterial co-infection	Graduated oxygen delivery to maintain SaO2 ≥ 90 % in adults and ≥ 92% in pregnant patients and children *(see graduated oxygen delivery)* Consider patient positioning: high supported sitting or awake proning Evaluate for bacterial co-infection (CXR, bloods) If suspected can give empiric IV antibiotics as per local protocol after blood culture Admit to PUI (person under	Acute resuscitation with supplemental oxygen therapy Urgent referral to Critical Care if patient meets criteria *(see critical care triage)* Where available consider HFNC oxygenation If candidate for mechanical ventilation, intubation to be performed safely, by most experienced provider. Lung protective mechanical ventilation- aim for lower tidal volumes (4-6ml/kg predicted body weight) and

			investigation) ward; or COVID ward if known positive Do ECG for evaluation of cardio-vascular risk Conservative fluid management	lower inspiratory pressures (plateau pressure <30cmH2O) Goal SpO2 not higher than 96%
Considerations	High risk of deterioration: Age >65 years Severe cardiac or pulmonary comorbidities or other debilitating comorbidities e.g. cancer	High risk of deterioration: Age >65 years Severe cardiac or pulmonary comorbidities or other debilitating comorbidities e.g. cancer	There is no current evidence to support specific drug therapy including antivirals or antimalarials There is no empiric evidence as yet for routine steroids or anti-coagulants	Evaluate co-morbidities: Diabetes, obesity, hypertension, Cardiovascular disease, chronic lung disease including TB; and HIV *(see critical care triage)*

Diagnostic Imaging for COVID-19

Table 3. Diagnostic Imaging

CXR	• May avoid if lung exam is benign and in absence of tachypnoea and hypoxia. • Recommend with hypoxia, tachypnoea, or potential alternative diagnosis. • CXR may show a bilateral ground glass appearance. Important to exclude PCP in immunocompromised patients. • Due to infection control consider utilisation of portable CXR to avoid contamination and nosocomial transmission. • Equipment requires decontamination per use.
POCUS	• Ultrasound may show features in keeping with a diffuse bilateral interstitial pneumonia. Unilateral B-lines are non-specific. Bilateral B-lines are higher indicator for COVID-19. • Useful for intubated patients if concern for pneumothorax or for cardiac assessment with increased incidence of cardiomyopathy. • Useful in the evaluation of PE and VTE • Unclear benefit for all PUIs. • Due to infection control consider the feasibility of a dedicated ultrasound machine to evaluate suspected or confirmed COVID-19 patients. Equipment requires decontamination per use.
CT	• Only if clinically indicated, to look for alternative conditions. Most infiltrates in COVID-19 patients will be viral pneumonia and CT scan is not clinically useful • Equipment requires decontamination per use.

Principles of Respiratory Care in the Emergency Centre

- Avoid nebulisation because of the potential risk of aerosolisation of virus particles.
- Use of pressurised metered-dose inhalers (pMDIs) and spacer devices to administer B2-agonists
- Avoid High Flow oxygen administration in adult patients unless in appropriately contained and ventilated space and where staff have access to adequate PPE
- Discuss with Senior Specialist regarding need for intubation in conjunction with Western Cape Critical Care triage policy
- Controlled protected intubation by most senior clinician, ideally with video laryngoscopy
- Avoid BVM ventilation where possible
- Avoid open suctioning of airways in intubated and non-intubated patients

Figure 9. Graduated Oxygen Delivery

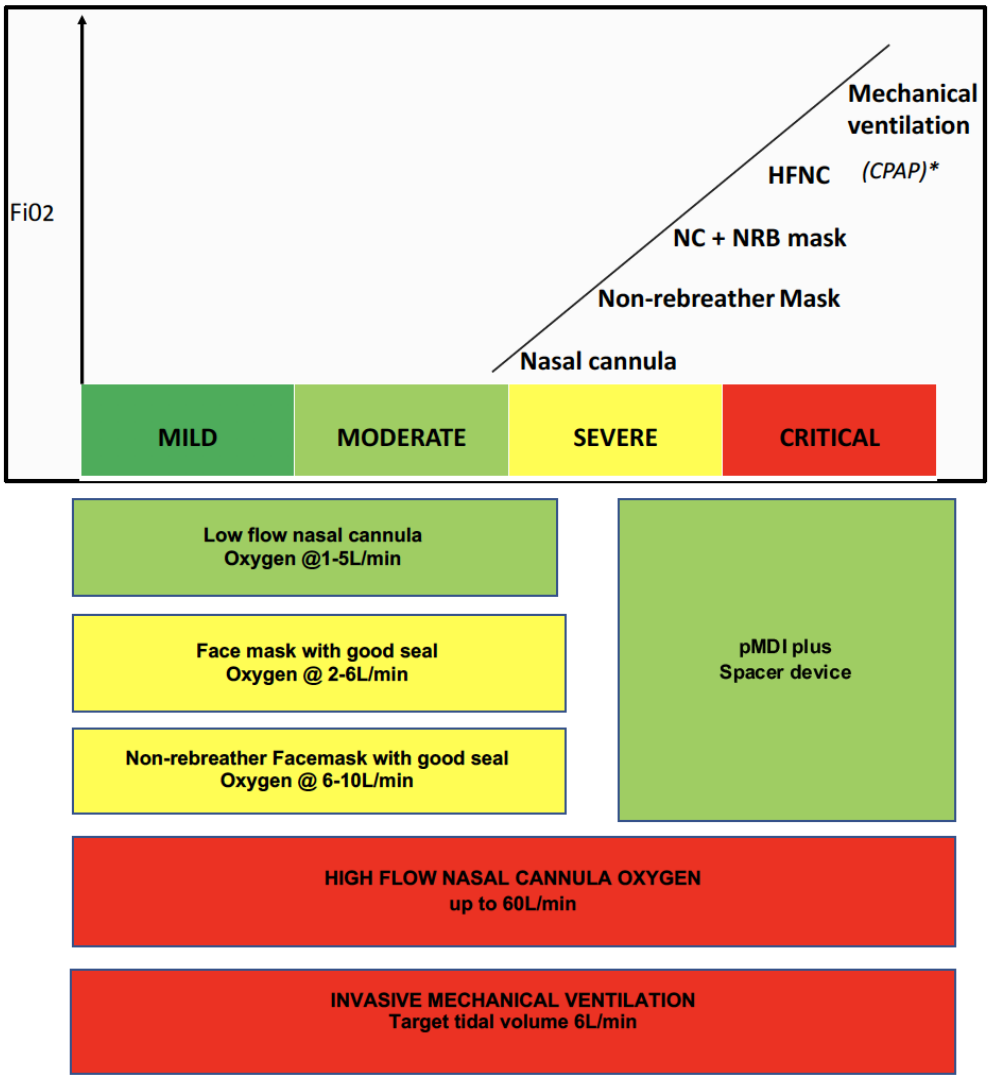


Figure 10. Use of a Pressurised Metered- Dose Inhaler

Use of a pMDI and spacer:

- Usual drug and dose: salbutamol 800 mcg (8 puffs) using pMDI administered via spacer.
- Shake the MDI and attach it to the spacer. The patient should place the mouthpiece of the spacer inside their mouth and seal tightly with their lips.
- Give one puff at time (co-ordinated with breath if possible).
- Allow patient to breathe 4 breaths through the spacer between puffs, if coordination is difficult.
- If no relief, repeat every 20–30 minutes in the first hour.
- Thereafter, repeat every 2–4 hours as needed in the EC.
- In patients with COPD exacerbations, 2 – 4 puffs of the short-acting anticholinergic ipratropium bromide pMDI can be used additionally 6hrly (if available).

Infection prevention and control:

When using a silicone spacer, the spacer **must** be cleaned after each patient use by either:

- Soaking in Biocide for 30 minutes, then rinsing with water and air drying or washing with soap and water, wiping down with 70% alcohol and air drying.
- Plastic spacers are to be given to a single patient and should be labelled as such for the duration of care. The outside of the spacer should be wiped down after each use.

Oxygen Delivery Devices

High Flow Nasal Cannula (HFNC) is a means of delivering humidified oxygen at a rate of up to 60L/Min. The risk of airborne transmission is lower with well fitted newer High Flow Nasal Oxygen (HFNO) systems and when optimal airborne PPE and IPC protocols are observed. Isolation cubicles with adequate ventilation are required but negative pressure rooms are preferable.

Recent local experience suggests that HFNO may be a useful intervention in patients who require significant oxygen support and may delay or avoid the need for intubation.

The efficacy of HFNO is thought to be related to:

- Physiological dead space washout of waste gasses including carbon dioxide
- Decreased respiratory rate
- Positive end-expiratory pressure
- Increased tidal volume
- Increased end-expiratory volume

Requirements for HFNO systems in a clinical setting:

- Isolation area with adequate ventilation (12 air changes/hour for new buildings or 6 air changes/hour for old buildings; can use natural ventilation exhausting to outside or HEPA filter for recirculated air)

- Staff wearing adequate PPE for aerosol generating procedures
- A HFNC that can provide heated (37°C) and humidified (up to 100%) oxygen at up to 60L/min. Standardised systems exist such as the Optiflow and the Vapotherm. The Hamilton ventilator can also be reconfigured to provide HFNO if fitted with the correct tubing and cannulas.
- Adequate oxygen supply and flow in facility

HFNO systems will be available in selected critical care areas across the province.

Non-Invasive ventilation: Routine use of non-invasive ventilation in COVID-19 cases is not recommended. NIV may be useful in selected cases for specific indications such as concomitant COPD or Pulmonary Oedema. Specialist advice should be sought before starting NIV in suspected or confirmed COVID-19 positive patients. Isolation rooms, adequate ventilation and staff in airborne PPE are required to institute NIV.

Intubation and mechanical ventilation: Intubation may be required for patients for whom HFNO is not available or feasible e.g. altered mental status. Intubation is ideally done after discussion with consultant or critical care physician. Intubation should be considered in the management of patients who fail oxygen therapy and those with altered mental status, haemodynamic instability, hypercapnia or worsening acidosis.

Patient Positioning and Awake Prone Positioning

The traditional supine position has a negative effect on respiratory and cardiac physiology. Through positional changes it is possible to support respiratory efforts in patients with severe or critical COVID-19.

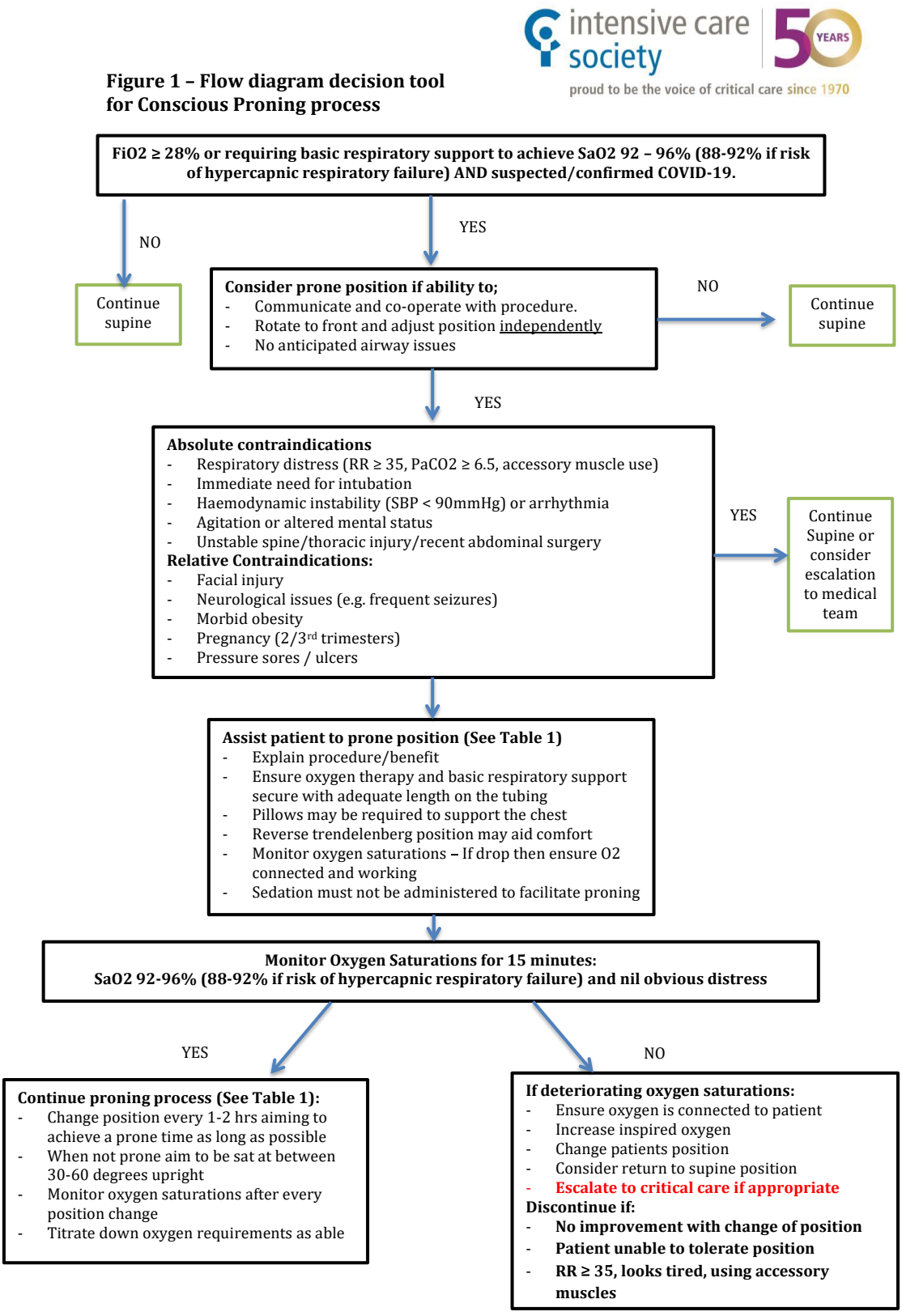
High Supported sitting position – sitting up at 60°-90° to allow for diaphragmatic breathing

Prone positioning is thought to have numerous positive physiological effects including:
- Improved V/Q matching and reducing hypoxaemia
- Reduced shunting
- Recruitment of posterior lung segments

Timed position changes may help to recruit alveoli and improve saturation. In patients who are awake, are able to communicate and have no physical limitations to position changes, every 2 hours request the patient to change position. It may be necessary to support the patient with adjustments to the bed and blankets to prevent pressure discomfort.

1. Left lateral recumbent
2. Right lateral recumbent
3. High supported sitting
4. Lying prone

Figure 11. Prone Positioning in the Awake Patient



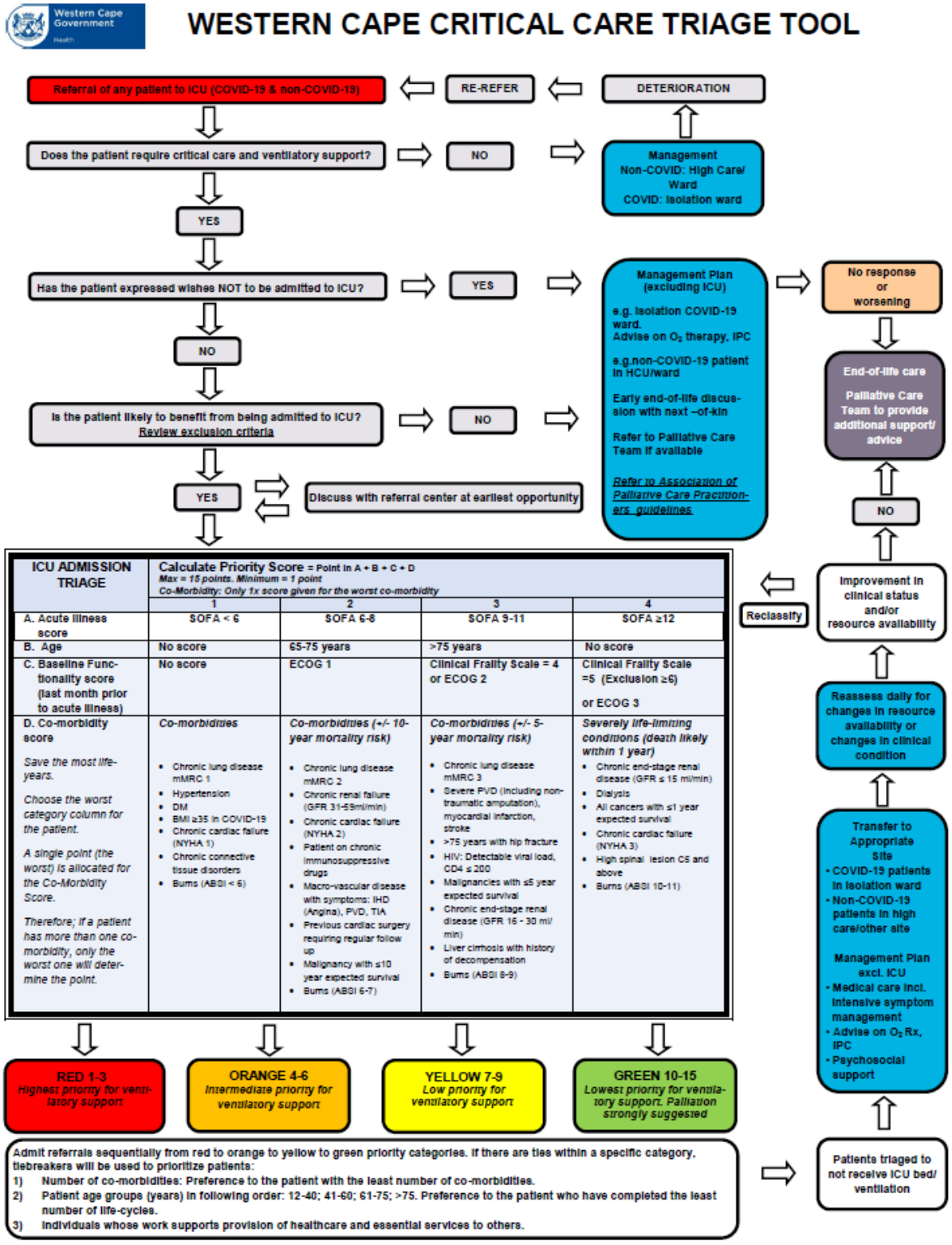
ICS Guidance for Prone Positioning of the Conscious COVID Patient 2020

Critical Care Triage and Intubation Decision making

Patients with suspected or confirmed COVID-19 who present with severe or critical respiratory symptoms require evaluation for suitability for HFNC oxygenation or mechanical ventilation in a critical care unit. Ideally all severe/critical COVID-19 patients should be evaluated using the critical care triage tool as they enter the health system and at regular intervals thereafter. The aim is to identify early those patients that may benefit from critical care interventions and to make clear emergency care plans as well as further acute/palliative care management plans.

The critical care triage tool is available online at https://datacartographer.com/covid/

Figure 12. Critical Care Triage Tool and Guide



WESTERN CAPE CRITICAL CARE TRIAGE TOOL

IN-ICU DECISION TOOL:

Re-assess all patients admitted to ICU at 48 hours and at 120 hours after admission.

Reclassify the PRIORITY CATEGORY using: 1) Baseline SOFA score at admission, 2) SOFA after 48 hours, 3) SOFA after 120 hours.

Principles of re-assessment:

1) Once a patient has been accepted into the ICU (guided by the PRIORITY CALCULATOR FOR ADMISSION above), progression IN-ICU is now monitored by using the initial SOFA score as baseline in relation to the follow-up SOFA scores (delta-SOFA). The SOFA score can STAY THE SAME (not ideal), IMPROVE (desired) or DETERIORATE (worst).
2) After re-assessment (at 48 hours and 120 hours after admission) the patient can only stay in the SAME PRIORITY CATEGORY if the SOFA has IMPROVED.
3) If the SOFA score stays THE SAME in a re-assessment, the patient must move to the next LOWER PRIORITY CATEGORY
4) If the SOFA IMPROVES, the patient can either stay in the SAME PRIORITY CATEGORY, or move into a HIGHER PRIORITY CATEGORY, depending on the amount of SOFA score improvement.

SOFA < 6	SOFA 6-8	SOFA 9-11	SOFA 12 and more
Highest priority for continued ICU support	*Intermediate priority for continued ICU support*	*Low priority for continued ICU support*	*Lowest priority for continued ICU support*

Continue with critical care and re-evaluate and reclassify at 48 hours after ICU admission, 120 hours after ICU admission and then every 24 hours thereafter

When the patient moves into a lower priority after reassessment, the highest category patient will get preference. If there is no competition for resources, care will continue as is.

It is highly recommended that a decision-making team or SPECIALIST ICU UNIT help facilitate this process.

End-of-life care

Withdrawal of ventilatory support as per guidelines

Palliative Care Team to provide additional support/advice

Exclusion criteria for admission to ICU

- Patient expressed wish not to be admitted to ICU / advance directive
- Clinical Frailty Scale ≥6 and more
- ECOG score 4 (Eastern Cooperative Oncology Group)
- < 6 months life-expectancy
- Unwitnessed cardiac arrest
- Severe and irreversible neurological injury (GCS<6: motor score <4)
- Irreversible age-specific hypotension unresponsive to fluid resuscitation and vasopressor therapy
- Severe baseline cognitive impairment (inability to perform ADL)
- Chronic respiratory disease with poor functional capacity – mMRC 4
- Cardiovascular disease - NYHA 4 or known poor ejection fraction on maximal medical therapy
- HIV/AIDS with an AIDS defining illness
- CD4 ≤100 and/or VL ≥10 000 c/ml
- Severe burns with high predicted mortality (ABSI ≥ 12)
- Liver cirrhosis - Child Pugh ≥7 or MELD ≥20
- Advanced untreatable neuromuscular disease
- Chronic kidney failure in patient not eligible for dialysis
- End stage organ failure and not a candidate for transplantation

Sequential (Sepsis Related) Organ Failure Assessment

Score	0	1	2	3	4
Respiratory					
PaO_2/FIO_2, mmHg	Normal	<400 (53.3)	<300 (<40)	<200 (26.7) with respiratory support	<100 (13.3) with respiratory support
Coagulation					
Platelets x10/mm³	Normal	<150	<100	<50	<20
Liver					
Bilirubin, µmol/l (mg/dL)	Normal	20-32 (1.2-1.9)	33-101 (2.0-5.9)	102-204 (6.0-11.9)	>204 (12.0)
Cardiovascular					
Hypotension (mcg/kg/min)	Normal	MAP<70 mmHg	Any dose Dobutamine	Adrenaline <0.1 or Noradrenaline <0.1	Adrenaline >0.1 or Noradrenaline >0.1
Central Nervous System					
Glasgow Coma Score	Normal	13-14	10-12	6-9	<6
Renal					
Creatinine, µmol/l (mg/dL) or Urine output	Normal	110-170 (1.2-1.9)	171-299 (2.0-3.4)	300-440 (3.5-4.9) or <500 mL/day	>440 (5.0) or <200 mL/day

WESTERN CAPE CRITICAL CARE TRIAGE TOOL

Clinical Scores to be used for assessment

Clinical Frailty Scale

1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 Well – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.

3 Managing Well – People whose **medical problems are well controlled,** but are **not regularly active** beyond routine walking.

4 Vulnerable – While **not dependent** on others for daily help, often **symptoms limit activities.** A common complaint is being "slowed up", and/or being tired during the day.

5 Mildly Frail – These people often have **more evident slowing,** and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 Moderately Frail – People need help with **all outside activities** and with **keeping house.** Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.

7 Severely Frail – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 Terminally Ill - Approaching the end of life. This category applies to people with **a life expectancy <6 months,** who are **not otherwise evidently frail.**

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia,** recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

mMRC Breathlessness Scale

This score should be used for patients diagnosed with COPD

Grade	Grade Description of Breathlessness
0	I only get breathless with strenuous exercise
1	I get short of breath when hurrying on level ground or walking up a slight hill
2	On level ground, I walk slower than people of the same age because of breathlessness, or have to stop for breath when walking at my own pace
3	I stop for breath after walking about 100 yards or after a few minutes on level ground
4	I am too breathless to leave the house or I am breathless when dressing

New York Heart Association (NYHA)

This score should be used for patients diagnosed with heart failure

Class	Patient symptoms
I	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea (shortness of breath).
II	Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea (shortness of breath).
III	Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea
IV	Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases

ECOG Performance Status

This score should be used for patients diagnosed with a malignancy

Class	Patient symptoms
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities; up and about more than 50% of waking hours
3	Capable of only limited selfcare; confined to bed or chair more than 50% of waking hours
4	Completely disabled; cannot carry on any selfcare; totally confined to bed or chair

Acknowledgements:

- Critical Care Society of South Africa: Allocation of Scarce Critical Care Resources During the COVID-19 Public Health Emergency in South Africa. - April 2020
- Ventilator allocation guidelines. Albany: New York State Task Force on Life and the Law, New York State Department of Health, November 2015
- Halpern S, White D. Allocation of Scarce Critical Care Resources During a Public Health Emergency. Univ Pittsburgh, Pennsylvania. 23 March 2020
- COVID-19 rapid guideline: critical care. NICE guideline. 20 March 2020. www.nice.org.uk/guidance/ng159
- Canadian study on Health and Ageing, Revised 2008
- K. Rockwood et al. A Global clinical measure of fitness and frailty in elderly people. CMAJ 2005; 173:489-495
- Adapted from Vincent JL, de Mendonça A, Cantraine F, et al. Use of the SOFA score to assess the incidence of organ dysfunction/failure in intensive care units: results of a multicenter, prospective study. Working group on 'sepsis-related problems' of the European Society of Intensive Care Medicine. Crit Care Med. 1998;26(11):1793–1800
- Adapted from Oken MM, Creech RH, Tormey DC, et al. Toxicity and response criteria of the Eastern Cooperative Oncology Group. Am. J. Clin. Oncol. 1982; 5 (6): 649–55
- Mahler DA, Wells CK. Evaluation of clinical methods for rating dyspnea. Chest. 1988;93(3):580-6

Intubation Procedure Protocol

Intubation

- **Most experienced operator** available to perform intubation to minimise risk of exposure
- **Full PPE** to be worn during the intubation process
- Use Video-laryngoscopy with bougie to intubate if available
- Ensure all equipment set up and working prior to entering isolation area

Preparation

- Isolation/environmental containment barriers preferable
- Limit number of operators in the room
    - Ideally two healthcare providers – one doctor, one sister
    - If possible, runner outside for additional equipment
- Minimise equipment exposed to patient
- Prepare drugs/fluid bolus/adrenaline boluses
- Check equipment, in particular suction and HEPA filter

Procedure

- Preoxygenation
    - Preoxygenate 3-5 min 100% high flow O2 via well-fitting non-rebreather mask
    - BVM ventilation only if necessary
- Rapid sequence intubation
- **Do not start ventilator until cuff inflated; closed suction and HEPA filter attached; and circuit complex connected**
- Equipment must be cleaned prior to doffing PPE and exiting the room
- Remove PPE under supervision
- Equipment used to be sent for further cleaning and sanitising

Clinical Care of Suspected or Confirmed COVID-19 Cases in Children

Refer to Western Cape Paediatric Workgroup Management of Children with COVID-19

The clinical manifestations of COVID-19 in children are similar to that in adults.

Clinical pattern

- Asymptomatic.
- General features: fever (42 – 50%), poor feeding, fatigue, headache.
- Respiratory: pharyngitis (45%), cough (38 – 48%), rhinitis (8%), shortness of breath.
- Gastrointestinal: diarrhoea (9%), vomiting (6%).

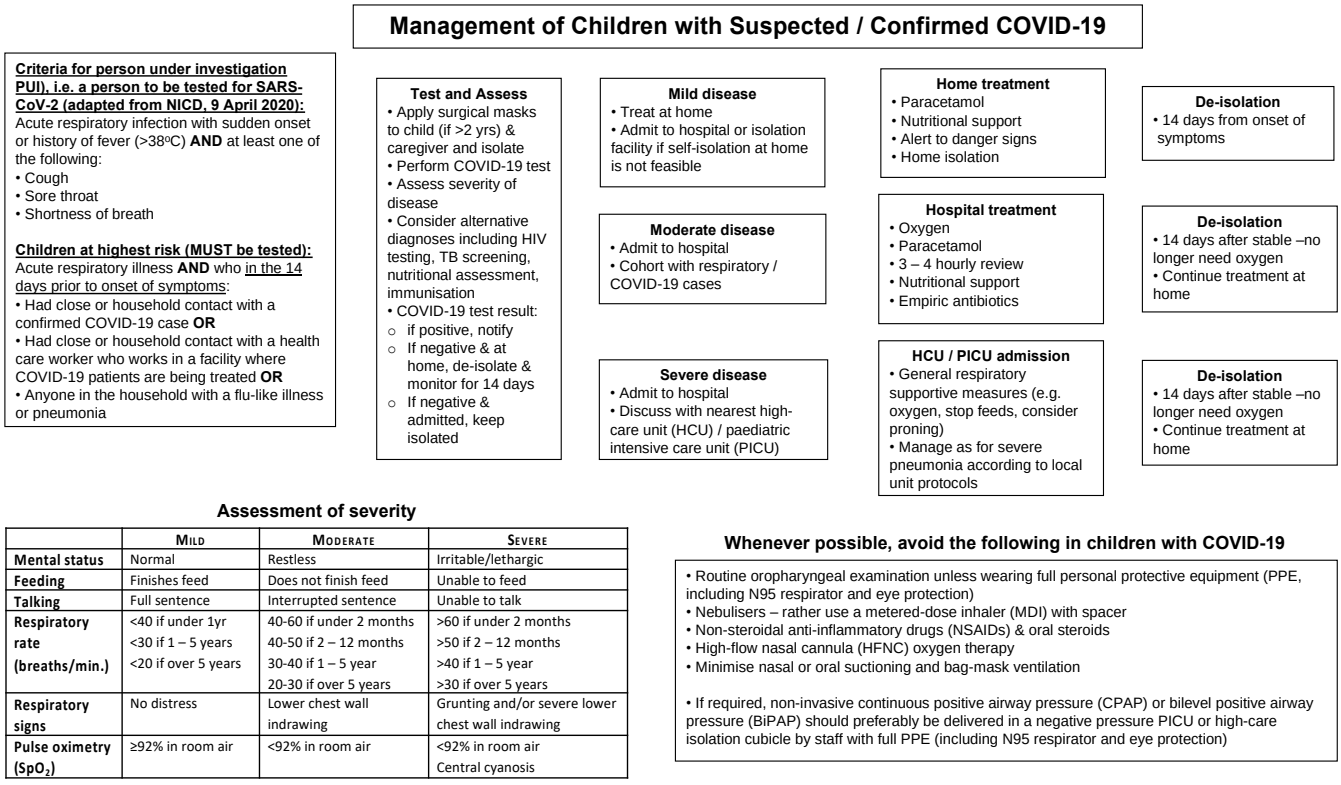
Special investigations

Special investigations and imaging should not be done if there is no specific indication, particularly in mild disease. In moderate and severe disease, investigations to identify or exclude alternative causes of respiratory illness may be needed and include, but are not limited to, respiratory viral PCR panel, blood culture, HIV testing, GeneXpert and culture for TB.

Table 4. Special Investigations

Full blood count	White cell count	normal or reduced with reduced neutrophil & lymphocyte counts
	Platelet count	reduced
Inflammatory biomarkers	CRP	normal / low except in severe disease
	PCT	normal / low
Liver enzymes	LDH	may be abnormal in severe disease
Clotting	D-dimers	increased in severe disease
Imaging	Chest X-ray	bilateral patchy nodular / speckled ground-glass opacities

Figure 13. Clinical care for suspected or confirmed COVID-19 cases in children



Assessment of severity

	Mild	Moderate	Severe
Mental status	Normal	Restless	Irritable/lethargic
Feeding	Finishes feed	Does not finish feed	Unable to feed
Talking	Full sentence	Interrupted sentence	Unable to talk
Respiratory rate (breaths/min.)	<40 if under 1yr <30 if 1 – 5 years <20 if over 5 years	40-60 if under 2 months 40-50 if 2 – 12 months 30-40 if 1 – 5 year 20-30 if over 5 years	>60 if under 2 months >50 if 2 – 12 months >40 if 1 – 5 year >30 if over 5 years
Respiratory signs	No distress	Lower chest wall indrawing	Grunting and/or severe lower chest wall indrawing
Pulse oximetry (SpO_2)	≥92% in room air	<92% in room air	<92% in room air Central cyanosis

Whenever possible, avoid the following in children with COVID-19

• Routine oropharyngeal examination unless wearing full personal protective equipment (PPE, including N95 respirator and eye protection)
• Nebulisers – rather use a metered-dose inhaler (MDI) with spacer
• Non-steroidal anti-inflammatory drugs (NSAIDs) & oral steroids
• High-flow nasal cannula (HFNC) oxygen therapy
• Minimise nasal or oral suctioning and bag-mask ventilation

• If required, non-invasive continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) should preferably be delivered in a negative pressure PICU or high-care isolation cubicle by staff with full PPE (including N95 respirator and eye protection)

Western Cape COVID19 Paediatric Workgroup 28 April 2020

Considerations for Resuscitation in the EC

Key Principles of Resuscitation in the known COVID-19 positive patient:

Ensure safety of the healthcare team:

- First responders and members of the code team should assess the patient and provide care **only after donning the strict isolation PPE (gloves, gown, N95 respirator, face shield).**
- The donning of PPE may delay CPR, but staff safety is paramount
- Communicate the status of the patient as COVID-19 positive to new providers
- **Limit the number of staff members** in the room at all times.

Consider the appropriateness of resuscitation:

- Make and document **emergency care treatment plans** (including the appropriateness of CPR) early in the course of managing severe and critical COVID-19 patients and review these regularly
- **Consult senior staff early** to discuss appropriateness of resuscitation
- Address goals of care
- CPR for unwitnessed cardiac arrest is not recommended
- Avoid prolonged resuscitation

Prioritise oxygenation and ventilation:

- Avoid bag-valve mask ventilation and rather consider a tightfitting non-rebreather mask supplying oxygen without humidification @15L/min
- A surgical facemask should also be placed **on the patient prior to chest compressions and intubation** to limit transmission during compressions.
- **During cardiac arrest, chest compressions should be paused during intubation procedure**.
- Intubation is to be performed by the most experienced clinician taking appropriate precautions *(see intubation protocol)*
- If intubation is delayed, consider a supraglottic device.
  Only restart compressions once the ETT is in place with cuff inflated and is connected with HEPA filter in place to a bag or ventilator.

Where the COVID-19 status of the patient is not known, manage the resuscitation as if the patient is COVID-19 positive.

Management of Patients who Refuse Testing

If a patient is strongly suspected of COVID-19 – based either on symptoms or contact history – and is refusing testing, the clinician must decide whether the testing of this patient is critical to their care or important to the wider community (e.g. patients from institutions such as nursing homes or prisons)

- Consult duty ID specialists with regard to need for testing
- Explain to patient the need for testing: where able, communicate this need in the patient's home language
- If patient still refuses, escalate the issue to the Medical Superintendent.
- The Medical Superintendent will escalate to the Head of Health who will engage legal services for a Magistrate's order.
- Only on receipt of the order may the patient be compelled to test
- Patient restraint and confinement may only be done by SAPS after the order is issued.
- Stable patients under order may be detained by SAPS and testing done while in custody.

Palliative Care in the EC

Refer to COVID-19 Providing Palliative Care – The Critical Care Forum, Western Cape

Candidates to be considered for Palliative care (i.e. Patients *not* for intubation/ICU admission)

- Acute irreversible multi-organ failure and anticipated poor prognosis
- Chronic terminal and irreversible illness facing imminent death
- Brain death in terms of legally defined criteria

- Following a cardiac arrest **AND**:
  - does not re-establish a normal respiratory pattern or achieved a full level consciousness without sedation OR
  - has fixed dilated pupils not due to medication OR
  - has a cause that is not immediately reversible OR
  - has irreversible brain injury.
- End-stage renal disease (eGFR < 15 ml/min/1.73 m^2) with or without chronic dialysis support
- Chronic liver disease
- End-stage congestive heart failure
- Chronic debilitating pulmonary disease
- Malignancies that are incurable/resistant to treatment
- Clinical frailty score (CFS) of 5-9 (see attached).
- Age > 70 years
- HIV patients **AND**:
  - AIDS-defining illness
  - Viral load > 10 000 copies/mL despite antiretroviral therapy

Table 5. Palliative care approach

COVID-19 Pathways of Care		**Palliative Care Approach**
Critical Care Admission	Hospital based	Palliative care integrated with life-sustaining treatment Symptom control Psychosocial support to patient and family
Acute Care Admission	Hospital based	Symptom control Psychosocial support to patient and family
Intermediate Care Admission	Hospital based	Symptom control Psychosocial support to patient and family
Palliative Care Admission	Hospital based or Home based	Urgent palliative care required Transition into established end of life pathway to care

Safe Discharge of Confirmed COVID-19 Patients

If a patient is discharged home for self-isolation, clear discharge advice should be given with regards to home isolation. If mild or moderate symptoms patients should be given clear advice on when to return to hospital. Patients with moderate symptoms may be given information on breathing and positioning exercises.

Patients who are asymptomatic or have mild symptoms, who are COVID-19 positive should be advised that they will not be retested but will be discharged from isolation 14 days after testing (asymptomatic) or 14 days after resolution of symptoms.

If a patient is identified who may require quarantine or isolation accommodation by the clinician post-discharge, this should be referred to the facility manager for authorisation.

Management of the Decedent

Refer to the FPS management of the decedent policy. Circular H 41 of 2020: COVID-19: Management of decedents in the Western Cape

Where patients demise in the EC, the clinician should communicate with the family early. Where possible, the assistance of the in-patient palliative care team may be sought for family counselling. As family are unable to see the decedent, managing this social and cultural stress is important.

Management of decedents that died in a WCG healthcare facility as a result of suspected or confirmed COVID-19 where an undertaker serves as the designated mortuary:

- Healthcare facility staff to ensure that the human remains are appropriately double bagged and sanitized to ensure safe transportation in line with that of a Biological safety Hazard level 3.
    - Ideally, the first bag should be clear and transparent should there be a need for family viewing
- The healthcare facility shall contact the relevant Environmental Health Practitioner (EHP) in the municipal district to ensure that the handling of the human remains is strictly monitored by the EHP throughout the process.
- The relevant contracted undertaker who serves as the undertaker for the removal of decedents from the healthcare facility shall remove the human remains to the undertaker's premises.
- The human remains must be transported in a manner that is compliant with the provisions of the Regulations Relating to the Management of Human Remains.
- Human remains can only be transferred from one designated facility to another designated facility or from such to a cemetery or crematorium.