

**TO: ALL CHIEF DIRECTORATES / DIRECTORATES / HEADS OF INSTITUTIONS / DISTRICTS / SUB-DISTRICTS IN THE DEPARTMENT OF HEALTH  
EXECUTIVE DIRECTOR: CITY OF CAPE TOWN**

### **CIRCULAR H154 OF 2020: COVID-19 GUIDANCE FOR MANAGING ADULTS IN AN INPATIENT SETTING**

The Western Cape Department of Health is committed to supporting the delivery of standardised, efficient inpatient care during the COVID-19 outbreak. This PACK COVID-19 inpatient package is designed for use by professional health workers – doctors and nurses – working in an inpatient setting. The package aims to draw together the latest Western Cape policies and guidelines to provide a practical and systematic approach to assessing and managing adults with suspected and confirmed COVID-19 in any inpatient setting, including intermediate care facilities. As PACK usually comprises primary health care guidance, it is important to note that this content is different in that it focuses on inpatient care in the context of COVID-19. Content includes guidance on:

- Determining appropriate initial level of care
- Admitting the patient with suspected or confirmed COVID-19
- Monitoring the inpatient with suspected or confirmed COVID-19
- Managing the inpatient with COVID-19 and diabetes
- Managing the inpatient with COVID-19 and other conditions
- How to take a swab for SARs-CoV-2
- Palliative and end-of-life care for patients with COVID-19
- Safe handling of the deceased COVID-19 patient
- Completion of death certificate and death summary for the deceased COVID-19 patient

This package has been developed by the Knowledge Translation Unit using the following source policies and guidelines and drawing on the kind input of specialists and clinical leads within the Western Cape Department of Health.

Source guidelines used include:

- Clinical management of suspected or confirmed COVID-19 disease, Version 4. National Department of Health/National Institute of Communicable Diseases (18 May 2020)
- World Health Organization (WHO) Clinical management of COVID-19 (27 May 2020)
- Standard Treatment Guidelines and Essential Medicines List for South Africa. Hospital Level, Adults. 2015 edition.
- Standard Treatment Guidelines and Essential Medicines List for South Africa. Primary Healthcare Level. 2018 Edition.
- Providing Palliative Care in South Africa During the COVID-19 Pandemic – PALPRAC, The Association of Palliative Care Practitioners of South Africa (2020)

- COVID-19 Disease: Infection Prevention and Control Guidelines, Version 2. National Department of Health (21 May 2020)
- World Health Organization (WHO) Prevention and Control for the safe management of a dead body in the context of COVID-19. WHO interim guidance (24 March 2020)
- World Health Organization (WHO) International guidelines for certification and classification (coding) of COVID-19 as cause of death Based on ICD. International Statistical Classification of Diseases (20 April 2020)

Circulars used include:

- Circular H88/2020: Acute hospital admissions (18 May 2020)
- Circular H110/2020: Guidance for Emergency Centres in the Western Cape during the COVID-19 Response update (12 June 2020)
- Circular H148/2020: Guidance for Emergency Centres in the Western Cape during the COVID-19 Response update (7 July 2020)
- Circular H89/2020: COVID-19 guidance for health workers in primary health care facilities (27 May 2020)
- Circular H79/2020: Clinical guidelines: COVID-19 Providing Palliative Care (14 May 2020)
- Circular H125/2020: Guidance for health workers providing palliative and end-of-life care to COVID-19 patients in an inpatient setting (1 July 2020)
- Circular H41 of 2020: COVID-19: Management of decedents in the Western Cape (30 March 2020)
- Circular H144/2020: Issuing of Death Notifications Forms in Natural Deaths (8 July 2020)

We hope this package will be a support to you as you work on the frontline of the response to the pandemic, to bring care to the many who need it. We thank you for your commitment, courage, and professionalism.

The various authors of the policy circulars referenced in this document could be approached for further information. Ms Anne-Rita Koen [Anne-Rita.Koen@westerncape.gov.za](mailto:Anne-Rita.Koen@westerncape.gov.za) may be approached for support to obtain these circulars.

Yours sincerely



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**DATE: 21 JULY 2020**



Western Cape  
Government

Health



PACK  
Practical Approach to Care Kit

# COVID-19

## Version 1

Updated 16 July 2020 for use in an inpatient setting in Western Cape, SA.

Note that COVID-19 guidance is evolving.

Check [www.knowledgetranslation.co.za/resources](http://www.knowledgetranslation.co.za/resources) for latest versions.

Practical Approach to Care Kit: Coronavirus

Guidance for health workers in an inpatient setting  
Updated 16 July 2020 · Western Cape Edition

# Contents

Determine appropriate initial level of care	3
Admit the patient with suspected or confirmed COVID-19	4
Monitor the patient with suspected or confirmed COVID-19	5
Manage the patient with COVID-19 and diabetes	7
Manage the patient with COVID-19 and other conditions	10
How to take a swab for SARS-CoV-2 (COVID-19)	11
Assess patient's level of frailty	12
Provide palliative care to the patient admitted with COVID-19	13
Provide end-of-life care to the dying COVID-19 patient	16
Safely handle the body of a deceased COVID-19 patient	17
Complete a death notification for the deceased COVID-19 patient	18
Complete a death summary for the deceased COVID-19 patient	20

**Orange-highlighted** medications may be prescribed by a doctor or an authorised prescriber (clinical nurse practitioner or professional nurse) in accordance with his/her scope of practice within a specified field.

**Blue-highlighted** medications may be prescribed by a doctor or clinical nurse practitioner who is an authorised prescriber.

**Green-highlighted** medications may be prescribed by a doctor only.

**Arrows** refer you to another page in the guide:

- The return arrow (↩) guides you to a new page but suggests that you return and continue on the original page.
- The direct arrow (→) guides you to continue on another page.

The response to COVID-19 is rapidly changing as new evidence becomes available and health systems adapt. The KTU welcomes feedback on this guidance as it continues to be updated for future versions. Please send feedback to [www.knowledgetranslation.co.za/contact/feedback](http://www.knowledgetranslation.co.za/contact/feedback)



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# Determine appropriate initial level of care

After assessing patient with suspected or confirmed COVID-19, determine appropriate initial level of care:

Does patient need oxygen (SpO<sub>2</sub> < 95% on room air, respiratory rate ≥ 25)?

Yes

No

Is patient in critical condition?  
(respiratory failure, acute respiratory distress syndrome, shock or organ dysfunction)

Does patient have other clinical indication for admission (e.g. pulse rate > 120, BP < 90/60, confused, agitated or decreased consciousness)?

Yes

No

Yes

No

Is patient responding well to nasal cannula or facemask oxygen?

Assess if patient able to isolate at home:

- Is patient able to isolate in a separate room from others?
- Is patient able to contact or return to health facility urgently if his/her condition worsens?

Discuss urgently with critical care team.

No

Yes

Yes to both

No to either

- Discuss with internal medicine team, family physician or senior clinician.
- Admit patient to PUI or COVID-19 ward, or intermediate care facility ↪ 4.

Discharge patient to isolate at home

- Advise to take **paracetamol** 1g 6 hourly orally as needed. Avoid NSAIDs (like ibuprofen) unless using for other condition/s.
- Check patient understands how to safely isolate and give information leaflet.
- Check patient understands to monitor symptoms at home:
  - Advise to return urgently to health facility if shortness of breath, difficulty breathing, persistent chest pain/pressure, new confusion or worsening drowsiness.
  - Ensure patient and family know how and where to access care should his/her condition deteriorate.
  - Advise to call ambulance if s/he becomes severely ill.
- Refer to community-based services for follow up if available.
- If medical certificate needed for work or school, provide certificate for sick leave for 2 weeks from date that symptoms started.

- Encourage referral for alternate accommodation within a quarantine and isolation facility. If patient agrees, refer as per local process.
- If unsure, contact Provincial hotline on 080 928 4102 (toll-free) or 021 928 4102.

# Admit the patient with suspected or confirmed COVID-19

- Ensure you are wearing appropriate PPE: surgical mask (or N95 respirator if performing aerosol-generating procedure<sup>1</sup>), goggles/visor, apron/gown and non-sterile gloves.
- Keep a distance of 1.5m from patient when not examining patient.
- If oxygen needed, ensure patient is receiving oxygen before continuing with admission protocols. Ensure patient wears surgical mask over nasal cannula to reduce droplet spread.

## Assess the newly admitted COVID-19 patient

Assess	Note
Symptoms	<ul style="list-style-type: none"> <li>• Ask about symptoms, including duration and character. Also consider other possible causes of symptoms.</li> <li>• Specifically ask about symptoms of COVID-19 complications and manage according to facility protocol:                             <ul style="list-style-type: none"> <li>- If pain or swelling in calf, consider deep vein thrombosis.</li> <li>- If pain or pressure in chest, consider pulmonary embolism or acute coronary syndrome.</li> <li>- If bilateral leg swelling and difficulty breathing which worsens on lying down/with effort, consider heart failure.</li> <li>- If new sudden asymmetric weakness or numbness of face/arm/leg, difficulty speaking or visual disturbance, consider stroke or TIA.</li> </ul> </li> </ul>
Differential diagnosis	Consider alternative diagnoses, including bacterial pneumonia, influenza, TB, pneumocystis jirovecii pneumonia (PJP), and other viral or bacterial infections.
Past medical history	<ul style="list-style-type: none"> <li>• Ask specifically about diabetes, HIV, TB, hypertension, asthma, COPD/emphysema, chronic bronchitis, heart/liver/kidney disease and cancer.</li> <li>• Ask about chronic medications. Record names and doses and add these to prescription chart. Ask if patient brought medications to hospital.</li> </ul>
Allergies	Ask about and record any known allergies to medications or food.
Social history	<ul style="list-style-type: none"> <li>• Ask about close contacts and check if they have been advised to quarantine and monitor themselves for symptoms.</li> <li>• Check if patient has children at home and if there is another responsible adult to care for them. If concerns, contact social worker.</li> </ul>
Alcohol/drug use	Ask about alcohol and drug use to determine if withdrawal may occur.
Vital signs	Check respiratory rate, oxygen saturation (SpO <sub>2</sub> ), pulse, BP and temperature.
Examination	<ul style="list-style-type: none"> <li>• Perform a general, respiratory, cardiovascular, abdominal and basic neurological examination.</li> <li>• Limit risk of exposure: avoid unnecessary throat examinations and stand behind patient when auscultating chest.</li> </ul>
Clinical frailty scale	Assess frailty using the clinical frailty scale → 12. Score patient between 1 and 9. This will be used to make advanced care decisions.
Swab	If not already done, take a single upper respiratory tract swab (preferably nasopharyngeal) and send for SARS-CoV-2 PCR test.
Sputum	If chest x-ray or clinical picture suggestive of TB, send sputum for Xpert MTB/RIF. Avoid inducing sputum.
Blood tests	<ul style="list-style-type: none"> <li>• If SpO<sub>2</sub> &lt; 95%, check arterial blood gases.</li> <li>• Send blood for full blood count, differential count, urea, creatinine, electrolytes, glucose and D-dimer.                             <ul style="list-style-type: none"> <li>- If diabetes: also request HbA<sub>1c</sub> if no result in last 3 months.</li> <li>- If HIV positive: also request viral load and CD4 if no recent results.</li> <li>- If HIV status unknown or no test in past 6 months: also do HIV test.</li> </ul> </li> </ul>
Urine	If HIV positive and CD4 < 100, do urine lipoarabinomannan (LAM) test.
Imaging	Arrange for chest x-ray (portable if available).
ECG	If chest pain, do ECG.

## Advise and treat the COVID-19 patient →6.

<sup>1</sup>Aerosol-generating procedures include: collecting respiratory specimens (naso- or oropharyngeal swabs), chest physiotherapy, nebulisers, sputum induction, endotracheal intubation. Avoid nebulisers and sputum induction if suspected/confirmed COVID-19.

# Monitor the patient with suspected or confirmed COVID-19

- Ensure you are wearing appropriate PPE: surgical mask (or N95 respirator if performing aerosol-generating procedure<sup>1</sup>), goggles/visor, apron/gown and non-sterile gloves.
- Keep a distance of 1.5m from patient when not examining patient. Ensure patient wears surgical mask over nasal cannula to reduce droplet spread.

## Assess the admitted COVID-19 patient

Assess	Note
Symptoms	<ul style="list-style-type: none"> <li>• Ask about symptoms and if these have improved or worsened.</li> <li>• Ask if any new symptoms, specifically those of COVID-19 complications and manage according to facility protocol:                             <ul style="list-style-type: none"> <li>- If pain or swelling in calf, consider deep vein thrombosis.</li> <li>- If pain or pressure in chest, consider pulmonary embolism or acute coronary syndrome.</li> <li>- If bilateral leg swelling and difficulty breathing which worsens on lying down/with effort, consider heart failure.</li> <li>- If new sudden asymmetric weakness or numbness of face/arm/leg, difficulty speaking or visual disturbance, consider stroke or TIA.</li> </ul> </li> </ul>
Differential diagnosis	If awaiting swab result or if SARS-CoV-2 result negative, also consider alternative diagnoses and investigate accordingly.
Chronic conditions	Ensure patient is receiving appropriate care and medications for all his/her chronic conditions while in hospital.
Mental well-being	Ask patient how s/he is feeling, and if any concerns or questions related to his/her condition. Arrange for emotional support, counselling or social worker if needed.
Vital signs	Check respiratory rate, oxygen saturation (SpO <sub>2</sub> ), pulse, BP and temperature.
Examination	Avoid repeat examinations. Only re-examine patient if new or worsening symptoms needing examination.
Swab	Check SARS-CoV-2 result of upper respiratory tract swab taken on admission: <ul style="list-style-type: none"> <li>• If initial PCR positive for SARS-CoV-2, continue management in COVID-19 ward.</li> <li>• If initial PCR negative for SARS-CoV-2 and alternative diagnosis likely, move patient to non-COVID-19 ward.</li> <li>• If initial PCR negative for SARS-CoV-2 but high clinical suspicion of COVID-19, keep patient in PUI ward and repeat swab immediately:                             <ul style="list-style-type: none"> <li>- If repeat swab negative and alternative diagnosis likely, move patient to non-COVID-19 ward.</li> <li>- If repeat swab negative but high clinical suspicion of COVID-19 remains, consider CT scan and discuss with specialist.</li> </ul> </li> </ul>
Sputum	<ul style="list-style-type: none"> <li>• If sputum sent for Xpert MTB/RIF, follow-up results.</li> <li>• If Xpert MTB/RIF positive or trace:                             <ul style="list-style-type: none"> <li>- If patient not treated for TB in past 2 years, diagnose TB. Check sensitivity to rifampicin and start TB treatment same day.</li> <li>- If patient treated for TB in past 2 years, check sensitivity to rifampicin and smear result, and discuss with specialist.</li> </ul> </li> </ul>
Blood tests	Follow-up blood results and manage accordingly.
Urine	<ul style="list-style-type: none"> <li>• If HIV positive and CD4 &lt; 100, check urine lipoarabinomannan (LAM) test has been done.</li> <li>• If LAM positive, diagnose TB and start TB treatment same day.</li> </ul>
Imaging	<ul style="list-style-type: none"> <li>• Review chest x-ray.</li> <li>• If alternative diagnosis suspected, consider CT scan, ultrasound or other imaging as appropriate. Discuss first with specialist.</li> </ul>
ECG	If ECG done, review for abnormalities. If unsure, discuss with specialist.

## Advise and treat the COVID-19 patient →6.

<sup>1</sup>Aerosol-generating procedures include: collecting respiratory specimens (naso- or oropharyngeal swabs), chest physiotherapy, nebulisers, sputum induction, endotracheal intubation. Avoid nebulisers and sputum induction if suspected/confirmed COVID-19.

### Advise the admitted COVID-19 patient

- Ensure patient understands his/her diagnosis and why s/he has been admitted to hospital. Advise patient of any risks, benefits, and potential outcomes of treatment.
- Ask if patient has any concerns or questions related to his/her condition.
- Discuss advance directives regarding mechanical ventilation with patient, should his/her condition deteriorate. Document outcome of discussion.
- Discuss ways in which patient can remain in contact with family members, and help facilitate this process.
- Ensure family is kept updated with patient's condition especially if any changes, and that correct contact details for family are documented.
- Ensure that all close contacts have been identified and advised to quarantine and monitor themselves for symptoms for 14 days from date of last contact with patient.

### Treat the admitted COVID-19 patient

- Ensure a multidisciplinary approach and include physiotherapist, dietitian and social worker if needed.
- **Give oxygen if SpO<sub>2</sub> < 95% or respiratory rate ≥ 25:**
  - Start with nasal cannula at 1-5L/min. Ensure patient wears surgical mask over cannula to reduce droplet spread.
  - If SpO<sub>2</sub> < 90%, change to simple face mask at 6-10L/min.
  - If SpO<sub>2</sub> still < 90%, change to face mask with reservoir bag at 10-15L/min.
  - If SpO<sub>2</sub> still < 90%, discuss need for high flow nasal cannula (HFNC) or mechanical ventilation with specialist.
- **Give IV fluids cautiously if needed:**
  - If dehydrated, give **sodium chloride 0.9%** 1L IV 12-24 hourly or as needed to gradually rehydrate patient.
  - If BP < 90/60, give **sodium chloride 0.9%** 500mL IV over 30 minutes, repeat until systolic BP ≥ 90. Stop if breathing worsens.
- **Give corticosteroids:**
  - Give **dexamethasone** 6mg IV daily or **prednisone** 40mg orally daily for 10 days.
- **Give anticoagulation:**
  - If receiving oxygen via nasal cannula or simple face mask, give **enoxaparin**<sup>1</sup> 40mg subcutaneously daily.
  - If receiving oxygen via face mask with reservoir bag or HFNC, D-dimer > 1.5, pulmonary embolism or DVT, give **enoxaparin**<sup>1</sup> 1mg/kg subcutaneously 12 hourly and consider giving **lansoprazole** 30mg daily.
- **Consider placing patient in prone position:**
  - Only do this if patient able to communicate, cooperate, turn over unassisted and has no expected airway problems. If available, request physiotherapy assistance with proning.
  - Avoid if BP < 90/60, arrhythmia, agitation, altered mental status, unstable spine or recent chest/abdominal injuries or surgery.
  - Monitor SpO<sub>2</sub> for 15 minutes, and discontinue prone position if no improvement in saturation, condition worsens or patient unable to tolerate position.
  - Consider changing patient's position every 2 hours: alternate between prone, high supported sitting, left lateral and right lateral positions.
  - If prone position not possible, consider positioning patient in a high supported sitting position at 60-90 degrees.
- **Manage other symptoms:**
  - If fever or pain, give **paracetamol** 1g orally/IV 6 hourly. If alcohol withdrawal (delirium tremens) ↗ 10. If delirium with distress, agitation or aggressive behaviour ↗ 10.
- **Treat comorbidities:**
  - If diabetes, manage ↗ 7. If other chronic conditions, manage ↗ 10.
- **Consider also treating for other possible diagnoses:**

#### Bacterial pneumonia

- Give **ceftriaxone** 1g IV daily and **azithromycin** 500mg orally daily.
- Stop if SARS-CoV-2 result positive and no suspected bacterial co-infection.
- Switch to oral antibiotics once improving.

#### Viral pneumonia

- If chest x-ray not typical<sup>2</sup> of COVID-19, also give **oseltamivir** 75mg orally 12 hourly.
- Stop if SARS-CoV-2 result positive.

#### Pneumocystis jirovecii pneumonia (PJP)

- Consider treating for PJP if CD4 < 200, not on cotrimoxazole prophylaxis and ground-glass infiltrates on chest x-ray:
  - Give **co-trimoxazole** 6 hourly for 3 weeks: if ≥ 56kg, give 320/1600mg; if 40-56kg, give 240/1200mg; if < 40kg, give 160/800mg.
  - Stop if SARS-CoV-2 result positive.

### Decide when to discharge the COVID-19 patient

- Discharge patient once symptoms improved and SpO<sub>2</sub> remains > 94% on room air for 24 hours. Include physiotherapist in decision if possible.
- After discharge, patient should continue to isolate at home for 14 days from the date that oxygen was stopped.

<sup>1</sup>If any contraindications to clexane, discuss with specialist. Contraindications include known allergy to it, active bleeding, known bleeding disorder, recent major trauma, surgery or head injury, previous haemorrhagic stroke, active peptic ulcer disease, severe uncontrolled hypertension. <sup>2</sup>A chest x-ray typical of COVID-19 shows bilateral ground-glass infiltrates with prominent peripheral distribution.



# Manage the patient with COVID-19 and diabetes

## Give urgent attention to the patient with COVID-19 and diabetes and any of:

- If glucose > 11.1mmol/L, ketones in urine (or fingerprick ketones > 3mmol/L) and blood pH < 7.30, manage as **diabetic ketoacidosis (DKA)**.
- If glucose < 4mmol/L, manage as **hypoglycaemia**.

### Management of diabetic ketoacidosis (DKA)

- Follow your facility DKA protocol if available. If no protocol available, the approach below may be used as guidance:
- **Step 1:** Give IV fluids:
  - Immediately give **sodium chloride 0.9%** 1L IV rapidly. Then give **sodium chloride 0.9%** 1L IV over 1 hour, then 1L IV over 2 hours.
  - Then give 1L IV 4-6 hourly depending on patient's hydration status and urine output.
  - Adjust type of fluid according to sodium result: if sodium low, give **sodium chloride 0.9%**. If sodium normal or high, give **sodium chloride 0.45%**.
  - Once glucose < 12mmol/L, change sodium chloride to **rehydration solution**.
- **Step 2:** Take urgent bloods: venous blood gas, fingerprick blood glucose, serum/fingerprick ketones, white cell count and differential, sodium, potassium, creatinine.
- **Step 3:** Give potassium if needed:
  - If potassium < 3.3mmol/L: give **potassium chloride** 20mmol/L IV hourly. Do not give insulin until potassium ≥ 3.3mmol/L.
  - If potassium 3.3-5.2mmol/L: add **potassium chloride** 20mmol/L to every 1L of IV fluid given.
- **Step 4:** Give insulin (only once potassium ≥ 3.3mmol/L):

#### Mild DKA (patient alert, pH > 7.24, HCO<sub>3</sub> > 15mmol/L)

- Give initial bolus of **short-acting<sup>1</sup> insulin** 0.2 units/kg subcutaneously.
- Check glucose every 2 hours and give **short-acting<sup>1</sup> insulin** subcutaneously according to result:
  - If < 5mmol/L: do not give insulin.
  - If 5-12mmol/L: give 6 units.
  - If > 12mmol/L: give 12 units.

#### Moderate to severe DKA (patient drowsy/comatose, pH ≤ 7.24, HCO<sub>3</sub> ≤ 15)

- Give initial bolus of **short-acting<sup>1</sup> insulin** 0.1 units/kg IV.
- Then give IV **insulin infusion**: add 50 units of **short-acting<sup>1</sup> insulin** to 200mL of **sodium chloride 0.9%**. Check glucose every hour and adjust rate according to result:
  - If < 5mmol/L: stop infusion.
  - If 5-12mmol/L: give infusion at 12mL/hour.
  - If > 12mmol/L: give infusion at 24mL/hour.
- Once ketones negative and patient eating, start subcutaneous insulin ↗ 8. Continue IV insulin infusion for 1-2 hours, then stop.

- **Step 5:** Check pH:
  - If pH < 6.9: add **sodium bicarbonate** 100mmol and **potassium chloride** 20mmol/L to 400mL of **sterile water**. Give infusion over 2 hours. Repeat until pH ≥ 7.0.
- **Monitor** regularly:
  - Check fingerprick glucose every 1-2 hours. Check sodium, potassium, blood ketones and pH every 2 hours. Manage as above.
- **Discuss** with or **refer** to appropriate facility.

### Management of hypoglycaemia

#### Patient alert and co-operative and able to eat

- If glucose ≤ 3mmol/L, give **dextrose 50%** 20mL IV or **glucose** 50mL orally (mix 5 teaspoons glucose powder in 50mL water).
- If glucose 3.1-3.9mmol/L, give a snack or give **glucose** 50mL orally (mix 3 teaspoons glucose powder in 50mL water).
- Check glucose every 30 minutes and repeat treatment until glucose ≥ 4 mmol/L.
- Once glucose ≥ 4mmol/L, give a snack and recheck glucose after 1 hour.
- Identify cause and educate patient on meals and doses.

#### Patient confused or unconsciousness or unable to eat

- Give **dextrose 50%** 50mL IV. If unable to achieve IV access, give **glucagon** 1mg IM.
- If known alcohol user, give **thiamine** 100mg IM/IV before dextrose.
- Recheck glucose after 5-10 minutes: if < 3mmol/L or no improvement in level of consciousness, repeat treatment.
- Once improved, continue **dextrose 10%** 1L IV 6 hourly.
- Identify cause and educate patient on meals and doses.

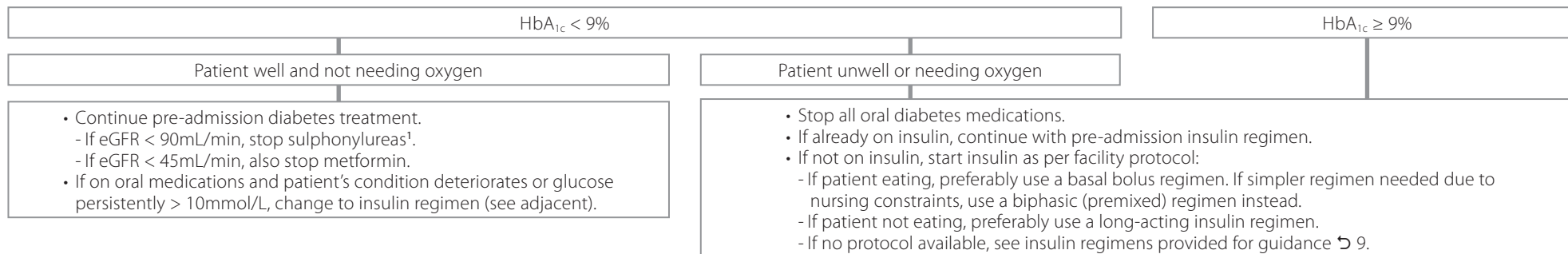
Manage the patient with COVID-19 and diabetes not needing urgent attention →8.

<sup>1</sup>Examples of short-acting insulin include Actrapid and Humulin R.

### Manage the patient with COVID-19 and diabetes not needing urgent attention

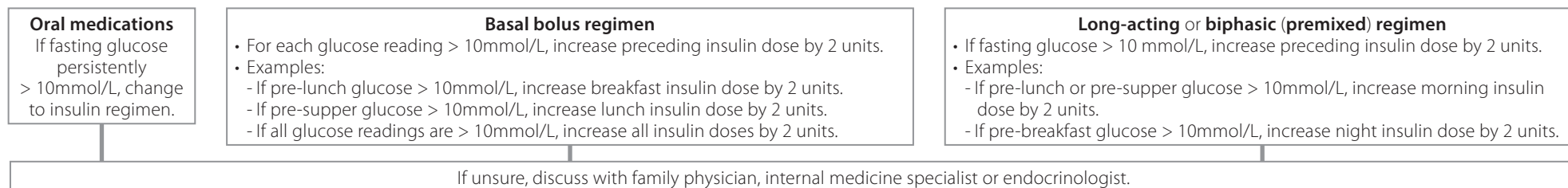
#### On admission

- Check HbA<sub>1c</sub> if no result available within past 3 months.
- Follow your facility diabetes protocol if available. If no protocol available, the approach below may be used as guidance.
- Also use clinical judgement when selecting patient's regimen, considering patient's clinical condition, and nursing staff resources and capabilities.



#### During admission

- Monitor fasting fingerprick glucose:
  - Ideally, check 4 times a day (before each meal and at 22h00). If nursing constraints or patient on oral medication only, check at least twice a day (before breakfast and supper).
  - If glucose < 4mmol/L, manage **hypoglycaemia** ↪ 7.
- Review glucose readings daily and adjust insulin doses as needed:
  - Aim for glucose of 5-10mmol/L.
  - If glucose > 10mmol/L during past 24 hours, manage according to facility protocol. If no protocol available, increase insulin according to regimen:



- Educate patients:
  - Involve dietitian early for education on diet and medication/insulin.
  - Encourage patient to self-monitor glucose and self-administer insulin if possible.
  - Regularly educate patient on monitoring of glucose, injection technique and diet.

<sup>1</sup>Sulphonylureas include glimepiride, glibenclamide, gliclazide.

### At discharge

- Discharge patient on simplest regimen possible:
  - If  $HbA_{1c} < 9\%$ , discharge patient on pre-admission diabetes treatment. If newly diagnosed, discharge on metformin and a sulphonylurea.
  - If  $HbA_{1c} \geq 9\%$  or patient admitted with DKA, discharge patient on insulin. If on basal bolus regimen, consider changing to biphasic (premixed) regimen before discharge.
- Ensure patient has received dietary advice and has been referred to dietitian if available.
- If patient newly started on insulin:
  - Ensure s/he is given a glucometer and strips, and is comfortable to self-monitor glucose and administer insulin.
  - Educate on insulin storage, injection technique and sites, doses and how to adjust these if needed.
  - Advise how to recognise and manage hypoglycaemia, and what to do if unwell (sick day rules).
- If available, provide patient with contact number to phone in case of any problems after discharge.
- Arrange follow-up appointment within 1 month of discharge, and provide discharge summary to ensure continuity of care. Refer to community-based services for follow up if available.

### Basal bolus insulin regimen

- **Step 1:** calculate total daily dose (TDD) of insulin:  $TDD = 0.3 \text{ units/kg}$
- **Step 2:** calculate dose of basal **long-acting<sup>1</sup> insulin:**
  - Dose = half (50%) of TDD
  - Give this as a single injection at 22h00.
- **Step 3:** calculate dose of **short-acting<sup>2</sup> insulin:**
  - Dose = half (50%) of TDD, further divided into 3 equal doses.
  - Give one dose before each meal.
- **Step 4:** check glucose before each meal and correct dose of **short-acting<sup>2</sup> insulin** if needed (see table).

Example for patient weighing 70kg:

- Total daily dose =  $0.3 \times 70 = 21$  units
- Dose of basal long-acting insulin =  $21 \div 2 = 10.5$  units given at 22h00.
- Dose of short-acting insulin =  $21 \div 2 \div 3 = 3.5$  units given before each meal.
- If pre-meal glucose is 9.7, corrected dose =  $3.5 + 2 = 5.5$  units.

### Meal-time insulin correction doses

Glucose (mmol/L)	Insulin dose
$\leq 4.0$	Manage hypoglycaemia ↻ 7.
4.1 – 4.9	Decrease dose by 4 units.
5.0 – 8.5	Give prescribed dose.
8.6 – 12.0	Increase dose by 2 units.
$\geq 12.1$	Increase dose by 4 units.

### Biphasic (premixed) insulin regimen

- **Step 1:** calculate total daily dose (TDD) of **biphasic<sup>3</sup> insulin:**  $TDD = 0.3 \text{ units/kg}$
- **Step 2:** calculate morning dose: dose =  $2/3$  of TDD, given 30 minutes before breakfast.
- **Step 3:** calculate evening dose: dose =  $1/3$  of TDD, given 30 minutes before supper.

Example for patient weighing 70kg:

- Total daily dose =  $0.3 \times 70 = 21$  units
- Morning dose =  $21 \div 3 \times 2 = 14$  units
- Evening dose =  $21 \div 3 = 7$  units

### Long-acting insulin regimen

- **Step 1:** calculate total daily dose (TDD) of **long-acting<sup>1</sup> insulin:**  $TDD = 0.3 \text{ units/kg}$
- **Step 2:** divide the TDD into 2 equal doses, given at 08h00 and 22h00.
- **Step 3:** check glucose before each meal: if  $\geq 8.5 \text{ mmol/L}$ , also give **rapid-acting<sup>4</sup> insulin** correction dose before meal using the appropriate table below:

#### Correction doses for patient previously on insulin

Glucose (mmol/L)	TDD < 25 units	TDD 25-50 units	TDD > 50 units
8.5 – 10.0	1 unit	2 units	3 units
10.1 – 12.0	2 units	4 units	6 units
12.1 – 14.0	3 units	6 units	9 units
14.1 – 16.0	4 units	8 units	12 units
$\geq 16.1$	5 units	10 units	15 units

#### Correction doses for patient not previously on insulin

Glucose (mmol/L)	< 50kg	50-75kg	> 75kg
8.5 – 10.0	1 unit	2 units	3 units
10.1 – 12.0	2 units	4 units	6 units
12.1 – 14.0	3 units	6 units	9 units
14.1 – 16.0	4 units	8 units	12 units
$\geq 16.1$	5 units	10 units	15 units

<sup>1</sup>Examples of long-acting insulin include Protaphane and Humulin N. <sup>2</sup>Examples of short-acting insulin include Actrapid and Humulin R. <sup>3</sup>Examples of biphasic insulin include Actraphane and Humulin 30/70. <sup>4</sup>Examples of rapid-acting insulin include Humalog.

# Manage the patient with COVID-19 and other conditions

- If patient known with chronic condition/s, ensure patient receives his/her medications while in hospital and adjust these if needed.
- If unsure of doses, use the dosing guide below. If chronic condition or medication not listed below, check SAMF or discuss.

## Hypertension

- **Hydrochlorothiazide** 12.5-25mg daily
- **Enalapril** 10-20mg daily
- **Amlodipine** 5-10mg daily
- **Spirolactone** 25mg daily
- **Atenolol** 50mg daily

## Diabetes

- **Metformin** 500mg daily - 850mg 8 hourly with meals
- **Glimepiride** 1-4mg daily with breakfast
- **Glibenclamide** 2.5-15mg daily 30 minutes before breakfast (if  $\geq 7.5$ mg needed, divide the total daily dose into 2, with larger dose in morning).

## Ischaemic heart disease

- **Isosorbide dinitrate** 5mg sublingual as needed
- **Aspirin** 150mg daily
- **Atenolol** 50-100mg daily
- **Isosorbide dinitrate** 20-40mg at 8am and 2pm

## Heart failure

- **Hydrochlorothiazide** 25-50mg daily
- **Furosemide** 40-250mg daily
- **Enalapril** 2.5-10mg 12 hourly
- **Losartan** 50-100mg daily
- **Carvedilol** 3.125-25mg 12 hourly
- **Spirolactone** 25-50mg daily

## Alcohol withdrawal (delirium tremens)

- Give **diazepam** 10mg slow IV. If needed, repeat dose every 5-10 minutes until patient sedated (up to 60mg).
- To maintain mild sedation, give **diazepam** 5-20mg orally. Repeat dose regularly as needed.
- Give **thiamine** 300mg IM/orally daily for 14 days.

## HIV

- If eGFR < 60, check if doses need adjusting.
- **Tenofovir** 300mg daily
- **Abacavir** 600mg daily
- **Lamivudine** 300mg daily
- **Emtricitabine** 200mg daily
- **Dolutegravir** 50mg daily
- **Efavirenz** 600mg daily
- **Lopinavir/ritonavir** 400/100mg 12 hourly
- **Atazanavir/ritonavir** 300/100mg daily

## Drug-sensitive TB

- **Rifampicin/isoniazid/pyrazinamide/ethambutol** (150/75/400/275mg):
  - 30-37kg: 2 tablets daily
  - 38-54kg: 3 tablets daily
  - 55-70kg: 4 tablets daily
  - $\geq 71$ kg: 5 tablets daily
- **Rifampicin/isoniazid** (150/75mg):
  - 30-37kg: 2 tablets daily
  - 38-54kg: 3 tablets daily
- **Rifampicin/isoniazid** (300/150mg):
  - 55-70kg: 2 tablets daily
  - $\geq 71$ kg: 2 tablets daily
- **Pyridoxine** 25mg daily

## Asthma

- Avoid nebulisers, use metered dose inhaler instead.
- **Salbutamol** 200mcg as needed, up to 4 times a day.
- **Budesonide** 200-400mcg 12 hourly
- **Salmeterol/fluticasone** 50/250mcg 12 hourly

## COPD

- Avoid nebulisers, use metered dose inhaler instead.
- **Salbutamol** 200mcg as needed, up to 4 times a day.
- **Formoterol** 12mcg 12 hourly.
- **Salmeterol/fluticasone** 50/250mcg 12 hourly.

## Depression

- **Fluoxetine** 20-40mg daily
- **Citalopram** 20-40mg daily
- **Amitriptyline** 75-150mg daily

## Epilepsy

- **Carbamazepine** 300-600mg 12 hourly
- **Phenytoin** 200-300mg daily
- **Sodium valproate** 500-1000mg 12 hourly
- **Lamotrigine** 50-100mg 12 hourly
- **Levetiracetam** 500mg 12 hourly

## Delirium with distress, agitation or aggressive behaviour

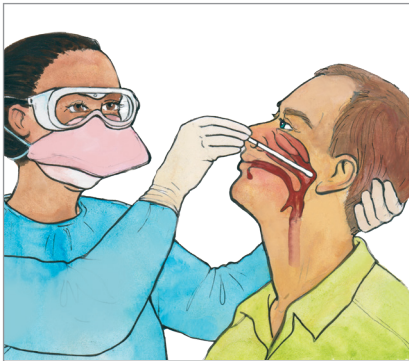
- If alcohol withdrawal, manage as in adjacent box.
- Give **haloperidol** 0.5mg orally/IM or **risperidone** 0.5mg orally 12 hourly. If needed, increase to 6 hourly.
- Avoid giving benzodiazepines.
- If poor response, discuss with specialist.

# How to take a swab for SARS-CoV-2 (COVID-19)

- A patient with suspected COVID-19 needs testing for the virus SARS-CoV-2, which causes the disease COVID-19.
- Take one upper respiratory specimen: a nasopharyngeal or mid-turbinate specimen is preferred. Do oropharyngeal or nasal swab if unable to do nasopharyngeal or mid-turbinate swab.
- Sampling can be done at any time of day.
- Complete NHLS request form to send with specimen. Fill in 'SARS-COV-2 testing (PCR)' under other tests (all disciplines) section. Record correct contact details and alternative number.
- Before starting:
  - Wear appropriate PPE: N95 respirator, goggles/visor, gown/apron and gloves.
  - Explain procedure to patient and that s/he may feel some discomfort for a short time.
  - Open a sterile flocked swab with a plastic shaft.

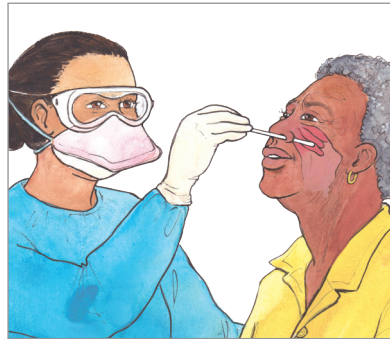
## If taking nasopharyngeal specimen:

- Ask patient to tilt head back.
- Holding swab like a pen, insert swab into nostril and carefully advance swab backwards (not upwards), until you feel resistance at posterior nasopharynx (about 5-6cm). If resistance felt sooner, try other nostril.
- Gently rotate swab 2-3 times and hold in place for 2-3 seconds, then withdraw from nostril.



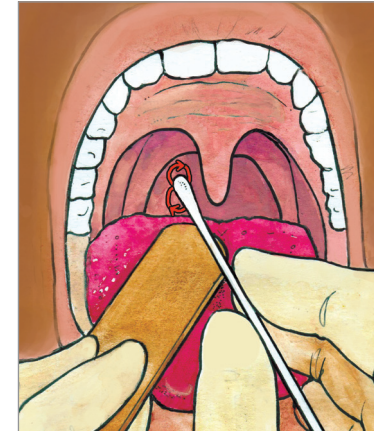
## If taking mid-turbinate specimen:

- Ask the patient to tilt head back.
- Gently insert swab into nostril until you feel resistance at turbinates (about 2 cm).
- Gently rotate swab several times against nasal wall.
- Repeat in other nostril using same swab.



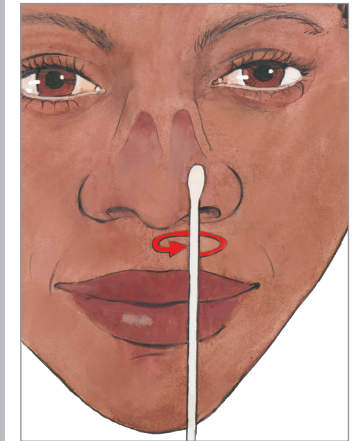
## If taking oropharyngeal specimen:

- Ask patient to tilt head back and open mouth.
- Hold tongue down with tongue depressor.
- Ask patient to say "aahh" to elevate the uvula.
- Swab each tonsil first, then swab posterior pharynx using figure of 8 movement.
- Avoid swabbing the soft palate or the tongue as this can cause a gag reflex.



## If taking nasal specimen:

- Gently insert swab into nostril (about 1 cm).
- Firmly rotate swab against nasal wall and leave it in place for 10-15 seconds.
- Repeat in other nostril using same swab.



- Break off the swab shaft at the break point dent on shaft and place it into universal transport medium (UTM) tube. Tightly close tube and place in plastic bag. Ensure sample is kept between 2-8°C until processed at laboratory.
  - If no UTM available and specimen will reach laboratory within 2 days, send dry swab at room temperature in sterile specimen jar/tube.
  - If no UTM available and specimen will reach laboratory after 2 days, place in normal saline in sterile specimen jar/tube instead.
- Change apron/gown and gloves, cleaning hands thoroughly, between each patient.

# Assess patient's level of frailty

- Assess patient's level of frailty using the Clinical Frailty Scale<sup>1</sup> (CFS) below.
- Score patient between 1 and 9. This will be used to make advanced care decisions.

<b>1</b>	<b>Very Fit</b> Robust, active, energetic and motivated. Commonly exercise regularly. Among fittest for their age.
<b>2</b>	<b>Well</b> No active disease symptoms but are less fit than category 1. Often exercise or are very active occasionally, e.g. seasonally.
<b>3</b>	<b>Managing Well</b> Has medical problem/s that are well controlled. Not regularly active beyond routine walking.
<b>4</b>	<b>Vulnerable</b> Not dependent on others for daily help, but symptoms often limit activities. May complain of some slowing or tiredness during day.
<b>5</b>	<b>Mildly Frail</b> More evident slowing, need help with high order activities of daily living (ADLs) like finances, transportation, heavy housework, medications. Frailty may impair shopping, walking outside alone, meal preparation and housework.
<b>6</b>	<b>Moderately Frail</b> Needs help with all outside activities and with housework. Often have problems with stairs and bathing. Might need some help with dressing.
<b>7</b>	<b>Severely Frail</b> Completely dependent for personal care but are stable and not at high risk of dying within next 6 months.
<b>8</b>	<b>Very Severely Frail</b> Completely dependent, approaching the end of life. Typically, would not recover even from a minor illness.
<b>9</b>	<b>Terminally Ill</b> Approaching end of life. Has a life expectancy of less than 6 months, but is not evidently frail.

<sup>1</sup>Adapted from: Canadian Study of Health & Aging, Clinical Frailty Scale, Geriatric Medicine Research, Dalhousie University, Halifax, Canada. 2007-2009.

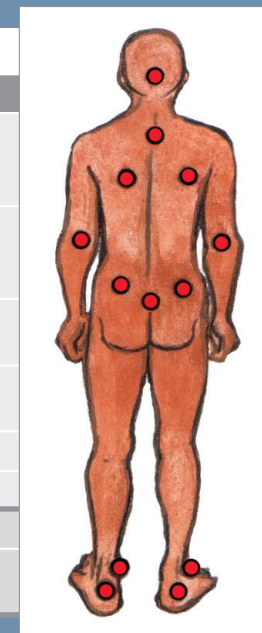


# Provide palliative care to the patient admitted with COVID-19

- A doctor must confirm that a COVID-19 patient needs in-patient palliative care. Ensure correct patient and care decision pathway has been followed.
- When assessing and providing palliative care to a COVID-19 patient, ensure you are wearing appropriate PPE: gown, apron, surgical mask, goggles/visor and gloves.

## Assess the COVID-19 patient needing palliative care

Assess	Note
Symptoms	<ul style="list-style-type: none"> <li>• If fever or shortness of breath, manage ↪ 14. If anxiety/restlessness, nausea/vomiting, constipation, diarrhoea, abdominal cramps or itchiness manage ↪ 15.</li> <li>• If dry mouth or oral candida ↪ PACK Adult.</li> <li>• Manage other symptoms as on relevant symptom pages ↪ PACK Adult.</li> </ul>
Pain	<ul style="list-style-type: none"> <li>• Ask where the pain is and when the pain started. Does pain radiate anywhere?</li> <li>• Ask patient to grade pain on a scale from 0 - 10, with 0 being no pain and 10 being the worst pain: classify pain as <b>mild</b> (1-3), <b>moderate</b> (4-7) or <b>severe</b> (8-10). Manage pain depending on severity ↪ 15.</li> </ul>
Side effects	<ul style="list-style-type: none"> <li>• Ask about and manage side effects from medication ↪ 15.</li> <li>• If on morphine, check that patient is on a laxative to prevent constipation.</li> </ul>
Chronic care	<ul style="list-style-type: none"> <li>• Check that the patient understands why s/he is receiving palliative care.</li> <li>• Assess ongoing need for chronic care in discussion with patient and health care team. Consider which medication/s could be discontinued.</li> </ul>
Psychological well-being	Ask patient and family how they are feeling. Advise as below and arrange emotional support or counselling as available.
Dying	If patient's condition is deteriorating, consider end-of-life care ↪ 16.
Oxygen saturation	If oxygen saturation $\leq$ 90% or shortness of breath, provide oxygen ↪ 14.
Pressure ulcers	<ul style="list-style-type: none"> <li>• If patient is bedridden, check common areas daily for damaged skin (change of colour) and pressure ulcers (see picture).</li> <li>• If pressure ulcer, manage ↪ PACK Adult.</li> </ul>



## Advise the COVID-19 patient needing palliative care and his/her family

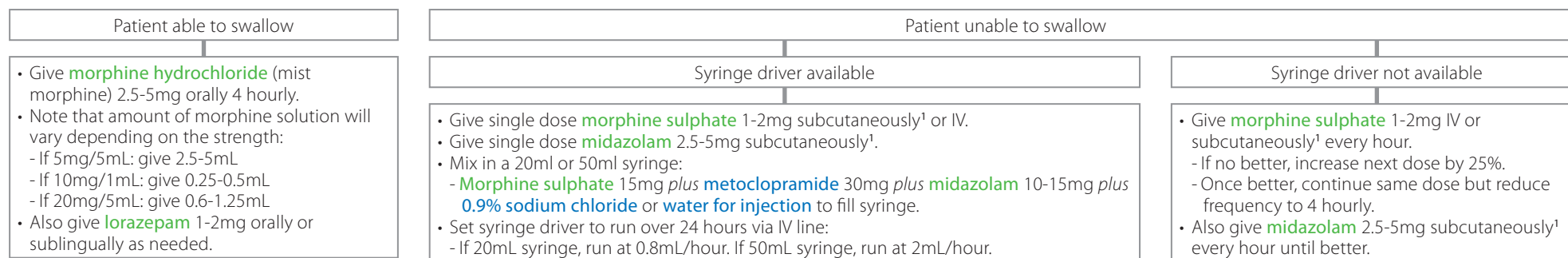
- Start by checking the patient/family understanding of the situation and ask what they have been told before. This can help move the conversation forward.
- Explain the condition and prognosis to the patient and his/her family. Be compassionate, but also honest and direct. Explaining what is happening relieves fear and anxiety.
- Check that family understands why the patient is receiving palliative care. If patient is not eligible for critical care, address any concerns and questions the family may have about this. If needed, refer family to hospital's clinical ethics committee to help resolve any uncertainties around choice of care.
- Ask how the family is coping and what support they need. If needed, refer family to social worker, counsellor, spiritual counsellor as available at your facility.
- Discuss advance-care plans and preferences with family. Document decisions.
- Ensure family understand that they will need to quarantine for 14 days from the last time they had contact with the patient. Provide information on how to do this and give information leaflet.
- Ensure that patient keeps connected with family via phone or other electronic device, and discuss ways to do this.
- Keep the patient's family updated about the patient's status and care.

### Care for the COVID-19 patient needing palliative care

- Provide mouth care:
  - Ensure teeth and tongue are brushed regularly using toothpaste or dilute bicarbonate of soda.
  - If patient is able, advise him/her to rinse mouth with ½ teaspoon of salt in 1 cup of water after eating and at night.
- If bedridden:
  - Prevent pressure ulcers: wash and dry skin daily. Ensure linen is clean and dry. Move patient every 1-2 hours if unable to shift own weight. Lift the patient, avoid dragging.
  - Prevent contractures: at least twice a day, gently bend and straighten joints as far as they go. Avoid causing pain. Gently massage muscles.

### Treat the COVID-19 patient needing palliative care

- If **fever**:
  - Give **paracetamol** 1g orally/IV 6 hourly as needed. If unable to swallow, give via IV instead. Avoid subcutaneous paracetamol.
- If **oxygen saturation < 90%**:
  - Give oxygen:
    - Start with nasal cannula at 1-5L/min. Ensure patient wears surgical mask over cannula to reduce droplet spread.
    - If saturation still < 90%, change to simple face mask at 6-10L/min.
    - If saturation still < 90%, change to face mask with reservoir bag (non-rebreather) at 10-15L/min. Ensure mask fits properly to reduce droplet spread.
    - If saturation still < 90%, consider nasal cannula *plus* face mask with reservoir bag (non-rebreather), both at 10-15L/min.
  - Consider placing patient in prone position:
    - Only do this if patient able to communicate, cooperate, turn over unassisted and has no expected airway problems.
    - Avoid if respiratory rate ≥ 35, accessory muscle use, BP < 90/60, arrhythmia, agitation, altered mental status, spine problems or recent chest/abdominal injuries or surgery.
    - Consider changing patient's position every 2 hours: alternate between prone, high supported sitting, left lateral and right lateral positions.
- If **shortness of breath**:
  - Place patient in high supported sitting position by raising head of bed to 60-90°. If in prone or lateral position, return patient to supine position before raising bed.
  - Give oxygen as above and aim for oxygen saturation ≥ 94%.
  - Ensure other symptoms (like fever and pain) are well controlled.
  - Explain to patient how to do breathing exercises if s/he is able:
    - Advise to relax his/her shoulders, place hand on abdomen, and breathe from abdomen up in to chest, while feeling this with hand. Then lean forward, purse lips and slowly breathe out.
    - Repeat several times until breathing slows.
  - If shortness of breath no better with above, give morphine as below. Choose route and dose depending on whether patient can swallow or not:



Continue to treat the COVID-19 patient needing palliative care →15.

<sup>1</sup>Give subcutaneous bolus dose via an indwelling butterfly/cannula. Flush with 0.9% sodium chloride after each bolus.



**Continue to treat the COVID-19 patient needing palliative care**

• Manage other symptoms and side effects:

**Anxiety/restlessness**

- Consider polypharmacy: check medication/s and discontinue all non-essential medication.
- Manage causes of discomfort such as constipation, pain, full bladder, thirst. Ensure patient is in a comfortable position.
- Give **lorazepam** 1-2mg orally or sublingually 2 hourly as needed until settled. Then give **lorazepam** 1-2mg orally or sublingually 6-12 hourly as needed.
- If unable to swallow:
  - If syringe driver available: give single dose **haloperidol** 2-5mg subcutaneously. Then give 5mg over 24 hours via continuous subcutaneous infusion.
  - If no syringe driver available: give **midazolam** 5mg subcutaneously<sup>1</sup> every hour as needed.

**Nausea**

- Encourage frequent small sips of fluids like water, tea, juice or ginger drinks.
- Give **metoclopramide** 10mg orally/ IV/ subcutaneously 8 hourly as needed. If vomiting or unable to swallow, use IV or subcutaneous<sup>1</sup> route.

**Constipation**

- Give **sennosides A and B** 13.5mg at night and/or **lactulose** 10-20mL orally daily.
- If needed, increase **sennosides A and B** to 27mg at night and/or increase **lactulose** to 12 hourly.

**Diarrhoea**

Give **loperamide** 4mg initially, then 2mg after each loose stool up to 6 hourly.

**Abdominal cramps**

Give **hyoscine butylbromide** 10mg 6 hourly as needed for up to 3 days.

**Generalised itchiness**

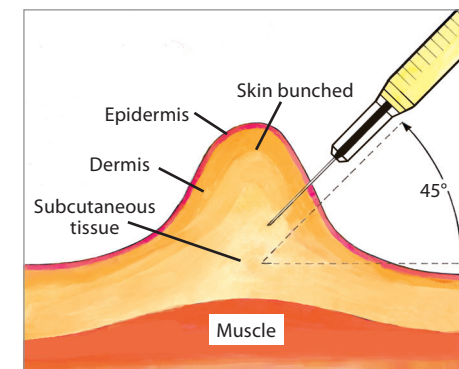
Give **chlorphenamine** 4mg 6-8 hourly as needed.

- If **pain**:
  - Manage causes of discomfort such as constipation, nausea, full bladder, thirst. Ensure patient is in a comfortable position
  - Start pain medication based on severity of pain: aim to have patient pain free at rest and able to sleep:
  - If **mild** (1-3) pain, start at step 1. If **moderate** (4-7) or **severe** (8-10) pain start at step 2. If unsure, start at lower step and increase pain medication if needed
  - If pain controlled, continue same dose. If pain persists or worsens, increase dose to maximum. If still no better, move to next step.

Step	Pain medication	Start dose	Maximum dose	Note
<b>Step 1</b> Give:	<b>Paracetamol</b>	1g 6 hourly	4g daily	If starting, give <b>paracetamol</b> 1g and reassess pain after 4 hours. If no better or already on paracetamol for fever, add step 2.
<b>Step 2</b> Add to step 1:	<b>Tramadol</b>	50mg 6 hourly	400mg daily	Also give <b>lactulose</b> 10-20 mL orally once daily as needed for constipation. If needed increase to 12 hourly.
<b>Step 3</b> Stop tramadol, continue paracetamol and add:	<b>Morphine hydrochloride</b> (mist morphine)	<ul style="list-style-type: none"> <li>• 5-10mg 4 hourly</li> <li>• If ≥ 65 years: start 2.5-5mg</li> </ul>	<ul style="list-style-type: none"> <li>• No maximum-titrate against pain.</li> <li>• If respiratory rate &lt; 12, skip 1 dose, then halve usual doses.</li> </ul>	<ul style="list-style-type: none"> <li>• Also give <b>lactulose</b> 10-20mL daily to prevent constipation. Avoid if diarrhoea.</li> <li>• If constipation, nausea or generalised itchiness, manage as above.</li> </ul>

**How to secure subcutaneous access**

- Ensure you have all necessary equipment: alcohol swabs, micropore, 23G butterfly needle or 24G (yellow) jelco, short infusion set, 3mL syringe and normal saline for flushing line.
- Safely put on appropriate PPE and explain procedure to patient.
- Identify appropriate site for placement of cannula:
  - This could be below clavicle, lower abdominal wall, anterior thigh or outer aspect of upper arm.
  - Ensure site is easily accessible, and away from skin lesions, oedema, large vessels, joints, bones.
- Clean skin with an alcohol swab for 15 seconds and allow skin to air dry.
- Using either a butterfly needle or a 24G (yellow) jelco, remove protective shield from needle.
- Using thumb and index finger, bunch the skin around the insertion site to create a roll of tissue of about 2.5 cm.
- If using butterfly needle: insert the entire needle at 45 degree angle. Then secure needle to skin with micropore.
- If using jelco: insert the entire needle bevel side up, at 45 degree angle. Remove needle and attach a short line to jelco. Then secure cannula to skin with micropore.
- Attach a 3ml syringe and flush the tubing with normal saline.
- Cover the insertion site, the butterfly needle/jelco and start of tubing with transparent dressing.



<sup>1</sup>Give subcutaneous bolus dose via an indwelling butterfly/cannula. Flush with 0.9% sodium chloride after each bolus.

# Provide end-of-life care to the dying COVID-19 patient

- The patient may be dying if s/he is deteriorating. They may be less responsive, become cold, sleep a lot, have irregular breathing, and will lose interest in eating. A doctor should confirm this.
- Ensure that the family of the patient understand that the patient is dying. Communicate the decision to provide end-of-life care to the health care team.

## Assess the dying COVID-19 patient's needs regularly

Assess	Note
Symptoms	Assess for pain, noisy breathing, fluid overload, anxiety/restlessness, urinary retention and treat as below.
Current care	<ul style="list-style-type: none"> <li>• Assess current medication and procedures and stop any that are non-essential (like BP measurements, vitamins).</li> <li>• If unable to swallow, switch medication route from oral to subcutaneous route.</li> </ul>
Intake	If patient is able to swallow, ensure patient receives sips of water and food as wanted for comfort.
Psychological well-being	<ul style="list-style-type: none"> <li>• Ensure patient and family understand what is happening.</li> <li>• Ask how family are coping and what support and/or spiritual care is needed.</li> </ul>
Mouth	Ensure patient's mouth is moist and clean. Consider using glycerine to keep lips/mouth moist.
Personal hygiene	Check skin care, clean eyes and change clothing according to patient's needs.

## Advise the dying COVID-19 patient and his/her family

- Start by checking the patient/family understanding of the situation and ask what they have been told before. This will help move the conversation forward.
- Check the emergency contact details for the family, and ensure that family knows how to contact the hospital ward.
- Ensure patient and family receive full explanation and express understanding of current plan of care. Identify and document any concerns.
- Discuss patient's wishes, feelings, faith, beliefs and values. Discuss patient's needs now, at death and after death. Listen and respond to patient and family's worries/fears.
- If the preference is for patient to die at home, ensure that the family are able to manage the patient and also practise infection control measures at home. Ensure family knows that everyone in the household will need to quarantine for 14 days after last contact with patient and give information leaflet.

## Treat the dying COVID-19 patient

- Ensure the patient's symptoms are managed using the appropriate route:
  - If already on **morphine** continue and increase dose by 25%.
  - If not already on morphine, give **morphine** 14.
- Also provide additional breakthrough dosages as needed: if patient can swallow give extra dose orally every hour. If unable to swallow, give extra dose subcutaneously<sup>1</sup>/IV every 30 minutes.
- If fever, give **paracetamol** 1g orally/IV 6 hourly as needed. If unable to swallow, give via IV instead. Avoid subcutaneous paracetamol.
- If noisy breathing, excessive secretions likely: give **hyoscine butylbromide** 20 mg subcutaneously<sup>1</sup>/IV 6-12 hourly as needed.
- If fluid overload, give **furosemide** 20mg subcutaneously<sup>1</sup>/IV 2 hourly as needed. Reassess regularly.
- If anxiety/restlessness, manage 15.
- If urinary retention, insert urethral catheter.

## Manage the COVID-19 patient after death

- Diagnose death if no carotid (neck) pulse for 2 minutes and no heart sounds for 2 minutes and no breath sounds or chest movement for 2 minutes and pupils are fixed, dilated and do not respond to light.
- Ensure family receive emotional support following the patient's death and refer to counsellor as available.

<sup>1</sup>Give subcutaneous bolus dose via an indwelling butterfly/cannula. Flush with 0.9% sodium chloride after each bolus.

# Safely handle the body of a deceased COVID-19 patient

## Safely remove the body of a DOA (dead on arrival) patient from your health care facility

- Check if the deceased patient has had a clinical history consistent with COVID-19: if yes, and s/he did not have a COVID-19 test, ensure a postmortem swab is taken for SARS-CoV-2 testing.
- Safely manage the deceased patient's body as below.

## Follow these steps to safely remove the body of a deceased COVID-19 patient from your ward/casualty

- There is no need to contact Forensic Pathology (FPS) services for a natural death from COVID-19. For an unnatural death in a COVID-19 positive patient, FPS will need to be consulted.
- Ensure the undertaker/mortuary worker/FPS is aware that the deceased patient is a suspected or confirmed COVID-19 case.
- Have ready:
  - Disinfectant: at least 70% alcohol or 0.1% bleach (sodium hypochlorite) solution.
  - Red medical hazard waste bin in close proximity for safe disposal of PPE.

- 1 Perform hand hygiene and safely put on PPE: gown, waterproof apron, surgical mask, goggles/visor and non-sterile gloves.
- 2 Remove IV lines or other disposable medical equipment and dispose in red medical waste bin.
- 3 Wrap the body in a shroud and send to mortuary or holding area. Ensure that the trolley is wiped down with alcohol or bleach solution prior to leaving the ward/casualty.
- 4 Remove linen from bed, place into linen bag and mark as infectious. Ensure this is transferred to the laundry as soon as possible.
- 5 Clean the patient's bed and anything else the patient was in contact with using detergent and water. Then disinfect using alcohol or bleach solution.
- 6 Safely remove PPE and place disposable items in red medical hazard waste bin.
- 7 Perform thorough hand hygiene.

## Safely remove the body from your health care facility

- Ensure the undertaker/mortuary worker/FPS is aware that the deceased patient is a suspected or confirmed COVID-19 case.
- When a deceased patient's body leaves the mortuary/facility premises, it should be contained within a single body bag (preferably with a transparent window for viewing).

# Complete a death notification for the deceased COVID-19 patient

- A doctor must examine the patient's body and verify his/her death.
- For natural deaths, the same doctor must then complete:
  - Death notification (form DHA-1663 A and B): section A (particulars of the deceased), section B (certificate by attending medical practitioner/professional comments), and section G (medical certificate of cause of death)
  - Death summary report for all COVID-19 related deaths in the Western Cape.
- It is important to record and report deaths due to COVID-19 in a uniform way. Use the following explanations to complete relevant sections correctly:

**A. PARTICULARS OF THE DECEASED**  
 Instructions: Section A to be filled out by **Authorised Medical Practitioner / Professional Nurse**, who is responsible for examining the body to determine the cause of death. The **Informant** must verify, and where necessary, complete in full the personal particulars and other information of the deceased below.

1. Was this a death or a still birth?  1.1 Death  1.2 Still birth

2. Identification of the deceased (tick one box):

2.1 The deceased was identified with an ID document / passport (if foreigner) produced by the family

2.2 Still born child

2.3 The features of the deceased do not seem to match the features on the ID document or passport of deceased

2.4 ID document or passport of the deceased was not presented. The deceased was identified through word of mouth

2.5 The deceased was already buried prior to the completion of this form

2.6 The deceased was unidentifiable:  2.6.1 Burnt  2.6.2 Decomposed  2.6.3 Other (specify) \_\_\_\_\_

2.6.4 DNA samples retrieved for identification purposes  2.6.5 Dental records taken for identification purposes

3. Date of Death / still birth

Y	Y	Y	Y	M	M	D	D
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4.1 Place of Death/still birth (City/Town/Village)

4.2 Province of Death/still birth

5. Place of Registration of Death / still birth

6. If death occurred within 24 hours after birth, number of hours alive \_\_\_\_\_ 7. Home telephone no. \_\_\_\_\_

8. Identity No. (Passport No. if foreigner) \_\_\_\_\_ 9. Age at last birthday if DOB is unknown \_\_\_\_\_

10. Date of Birth if there is no ID number

Y	Y	Y	Y	M	M	D	D
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11. Gender  11.1 Male  11.2 Female  11.3 Indeterminable

12. Surname \_\_\_\_\_

13. Previous / Maiden Surname \_\_\_\_\_

14. Forenames \_\_\_\_\_

15. Usual Residential Address: Street \_\_\_\_\_  
 Town \_\_\_\_\_  
 Province \_\_\_\_\_ Postal code \_\_\_\_\_

16. Citizenship \_\_\_\_\_

16.1 Place of Birth (City / Town / Village) or Country of Birth, if abroad \_\_\_\_\_

16.2 Province of Birth \_\_\_\_\_

17. Marital Status of the deceased  17.1 Single  17.2 Married  17.3 Widowed  17.4 Divorced

18. Education level of deceased. (Specify only the highest class completed)

None	Gr-R	Gr 1	Gr 2	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8 Form 1	Gr 9 Form 2	Gr 10 Form 3 NTC 1
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(mark with a )

19. Usual occupation of deceased (type of work done during most of working life)

20. Type of business / industry: (mark with a )

1. Agriculture, hunting, forestry and fishing	2. Mining and quarrying	3. Manufacturing	4. Electricity, gas and water supply	5. Construction	6. Wholesale and retail trade; repair of motor vehicles, motor cycles and personal and household goods; hotels and restaurants	7. Transport, storage and communication	8. Financial intermediation, insurance, real estate and business services
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21. Was the deceased a regular\*\* smoker five years ago? (mark with a )  21.1 Yes  21.2 No  21.3 Do not know  21.4 Not applicable (minor)

\* Where the deceased lived on most days. \*\*Smoking tobacco on most days.

**Complete the particulars of the deceased, including:**

- Identification of the deceased
- Place of death
- Personal details of the patient

**Doctor to complete his/her professional details, including:**

- Personal details
- Facility details

**B. CERTIFICATE BY ATTENDING MEDICAL PRACTITIONER / PROFESSIONAL NURSE**  
 Instructions: Section B to be filled out by the **same Medical Practitioner / Professional Nurse** who completed Section A.

22.1 I, the undersigned, hereby certify that the deceased named in Section A, to the best of my knowledge and belief, died solely and exclusively due to **Natural Causes**

22.2 I, the undersigned, am not in a position to certify that the deceased died exclusively due to **Natural Causes**

**Particulars of the Medical Practitioner / Professional Nurse who filled out the form:** 23. HPCSA Registration No. \_\_\_\_\_

24. Surname \_\_\_\_\_

25. Forenames \_\_\_\_\_

26. Name of Health Facility / Practice \_\_\_\_\_ 27. Facility / Practice No. \_\_\_\_\_

28. Business Address: Street \_\_\_\_\_  
 Town \_\_\_\_\_ Province \_\_\_\_\_

Telephone No. (Office) \_\_\_\_\_ Postal Code \_\_\_\_\_

Office stamp of health facility or practice

I, the undersigned, hereby certify that I examined the body of the deceased named in section A and declare that the deceased, to the best of my knowledge and belief, died solely and exclusively due to natural or unnatural causes as indicated on paragraph 22 and in case this is not true, I shall be guilty of an offence and on conviction liable to a fine or to imprisonment for a period not exceeding five years or to both such fine and such imprisonment (Section 31(1)(b) of the Act 51 of 1992.)

Place signed \_\_\_\_\_  
 Date signed 

Y	Y	Y	Y	M	M	D	D
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 Signature \_\_\_\_\_

**Continue to complete the section for Medical certificate of cause of death**

- Use "COVID-19" as official terminology. As there are many types of coronaviruses, avoid the term "coronavirus" to reduce classification/coding uncertainty and correctly monitor deaths.
- Record "COVID-19" on the medical certificate of cause of death for all deceased patients if:
  - COVID-19 caused death (SARS-CoV-2 test positive) or
  - COVID-19 is assumed to have caused death (SARS-CoV-2 not identified but clinical picture compatible with COVID-19) or
  - COVID-19 contributed to death, along with other causes.

**Complete cause of death Part 1:**

- Specify the chain of events leading to death in Part 1. For example, in cases when COVID-19 causes pneumonia and fatal respiratory distress, both pneumonia and respiratory distress should be included, along with COVID-19, in Part 1.
- **Immediate cause:**
  - This is the final disease, injury or complication directly causing the death. It is not the mechanism of death or terminal event (e.g. heart failure, cardiac arrest, respiratory arrest).
  - For example, complete this section with "Acute Respiratory Distress Syndrome" and/or "Pneumonia".
- **Underlying cause:**
  - This is the disease that started the sequence of events leading directly to death.
  - Complete this section with:
    - "Confirmed COVID-19" if SARS-CoV-2 test positive.
    - "Suspected COVID-19" if clinical picture compatible with COVID-19 but SARS-CoV-2 not identified.
    - "Probable COVID-19" if clinical picture compatible with COVID-19 but SARS-CoV-2 test result pending or inconclusive.

**Complete particulars of deceased:**

- Personal details
- Demographic details

**Complete details of contact person at facility**

**G. MEDICAL CERTIFICATE OF CAUSE OF DEATH**  
 Instructions: Section G is to be filled out by Medical Practitioner /Professional Nurse / Forensic Pathologist, who has determined the cause of death

**PARTICULARS OF DECEASED**

67. Identity No. (Passport No. if foreigner)

68. Gender  68.1 Male  68.2 Female  68.3 Indeterminable

69. Surname

70. Forenames

71. Population Group  71.1 African  71.2 White  71.3 Indian/Asian  71.4 Coloured  71.5 Other (specify) \_\_\_\_\_

72. Place of Death  72.1 Hospital/inpatient  72.2 ER/Outpatient  72.3 DOA  72.4 Nursing Home  72.5 At Home  72.6 Other (specify) \_\_\_\_\_

73. Name of Health Facility/Practice

74. Facility Contact Telephone No. incl. Area Code

75. Patient File No.

76. Contact Person at Facility: Surname   
 Forenames   
 Role/Rank

**G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH**  
 Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

**77. CAUSES OF DEATH**

Part 1	Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line	Approximate interval between onset and death (Days / Months / Years)	For office use only
Part 1	IMMEDIATE CAUSE (final disease or condition resulting in death) a) _____ Due to (or as a consequence of) _____	_____	ICD-10 <input type="text"/>
	Sequentially list conditions, if any, leading to immediate cause. b) _____ Due to (or as a consequence of) _____	_____	
	Enter UNDERLYING CAUSE last (Disease or injury that initiated events resulting in death) c) _____ Due to (or as a consequence of) _____	_____	
	d) _____	_____	
Part 2	Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 _____		

78. If a female, was she pregnant at the time of death or up to 42 days prior to death? (  )  82.1 Yes  82.2 No

79. Method used to ascertain the cause of death (tick all that apply):


79.1 Autopsy  79.2 Post mortem examination  79.3 Opinion of attending medical practitioner  79.4 Opinion of attending medical practitioner on duty

79.5 Opinion of registered professional nurse  79.6 Interview of family member  79.7 Other (specify) \_\_\_\_\_

**Complete particulars of deceased Part 2:**

- Complete co-morbidities that may have contributed to the death, but not part of the direct cause. Include length of time that patient has had each co-morbidity e.g. "Coronary artery disease (5 years), Type 2 diabetes (14 years), Chronic obstructive pulmonary disease (8 years)"

# Complete a death summary for the deceased COVID-19 patient


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**DEATH SUMMARY REPORT FOR ALL COVID 19 RELATED CASES  
IN THE WESETERN CAPE**

**PARTICULARS OF PATIENT**

Age: \_\_\_\_\_ Gender:  M  F  
 Folder Number: \_\_\_\_\_ Address: \_\_\_\_\_  
 Name of patient: \_\_\_\_\_  
 Date of Birth: \_\_\_\_/\_\_\_\_/\_\_\_\_  
DD / MM / YYYY

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Date of Summary: ____/____/____ <small>DD / MM / YYYY</small>  Facility Name: _____  Date of onset of symptoms: ____/____/____ <small>DD / MM / YYYY</small>  Date of admission to facility: ____/____/____ <small>DD / MM / YYYY</small>  Medical diagnosis: _____  Known Covid patient: <input type="checkbox"/> Y <input type="checkbox"/> N  Date of sample collection: ____/____/____ <small>DD / MM / YYYY</small>  Results: <input type="checkbox"/> P <input type="checkbox"/> N  Date of positive result: ____/____/____ <small>DD / MM / YYYY</small>	<p><b>PRESENTING SYMPTOMS</b></p> <input type="checkbox"/> Fever <input type="checkbox"/> Shortness of breath <input type="checkbox"/> Cough <input type="checkbox"/> Sore throat <input type="checkbox"/> Body aches <input type="checkbox"/> Other ( <i>list</i> ) _____ _____ _____ _____	<p><b>COMORBIDITIES</b></p> <input type="checkbox"/> None <input type="checkbox"/> Hypertension <input type="checkbox"/> Asthma <input type="checkbox"/> HIV <input type="checkbox"/> TB <input type="checkbox"/> Other ( <i>list</i> ) _____ _____ _____ _____
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Place of Death: \_\_\_\_\_ Date of death: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_\_  
DD / MM / YYYY

<p><b>TYPE OF WARD</b></p> Ward: <input type="checkbox"/> ICU <input type="checkbox"/> High Care <input type="checkbox"/> Covid ward  <p><b>LEVEL OF CARE</b></p> <input type="checkbox"/> Ventilation <input type="checkbox"/> Room air <input type="checkbox"/> Nasal cannula/ High air flow	<p><b>CLINICAL TREATMENT</b></p> _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
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**CLINICAL HISTORY**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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Person Completing report: \_\_\_\_\_ Contact Number: \_\_\_\_\_

**Complete the particulars of the deceased, including:**

- Folder number
- Personal details

**Complete details of presenting complaints and co-morbidities, including:**

- Date of onset of symptoms
- Date of admission
- Diagnosis
- Presenting symptoms
- Chronic conditions

**Complete details of COVID-testing, including:**

- Whether or not patient is known with COVID-19
- Date of sample collection
- Result of swab

**Complete details of clinical management, including:**

- Ward
- Level of care
- Clinical history
- Clinical treatment

**Complete your name and contact number**