

adult primary care

COVID-19

Guidance for managing adults in an inpatient setting

Version 1

Published December 2020 for use in all inpatient settings in South Africa.

This guidance is aligned to the NDoH/NICD Clinical management of suspected or confirmed Covid-19 disease, Version 5 (Aug 2020) and the Standard Treatment Guidelines and Essential Medicines List for South Africa, Hospital level, Adults, 2019 edition.

Note that COVID-19 guidance is evolving.

Check www.nicd.ac.za and www.knowledgehub.org.za and www.health.gov.za for latest guidance.

December 2020



health

Department:
Health
REPUBLIC OF SOUTH AFRICA



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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

Disclaimer: The content of this document has been developed specifically for health care professionals practising in primary health care, South Africa, and which content, at the date of first publication, is reasonably believed to represent best practice in the relevant fields of healthcare. This information is provided on an "as is" basis without any warranties regarding accuracy, relevance, usefulness or fitness for purpose. To the fullest extent permitted by law, University of Cape Town Lung Institute Proprietary Limited and all its affiliates (including The Lung Institute Trust) cannot be held liable or responsible for any aspect of healthcare administered with the aid of this information or any other use of this information, including any use which is not in accordance with any guidelines or (mis-)use outside, South Africa. Health Care Professionals are strongly advised to consult a variety of sources and use their own professional judgment when treating patients using this information. It is the responsibility of users to ensure that the information contained in this document is appropriate to the care required for each of their patients within their respective geographical regions. The information contained in this document should not be considered a substitute for such professional judgment.

GLOSSARY

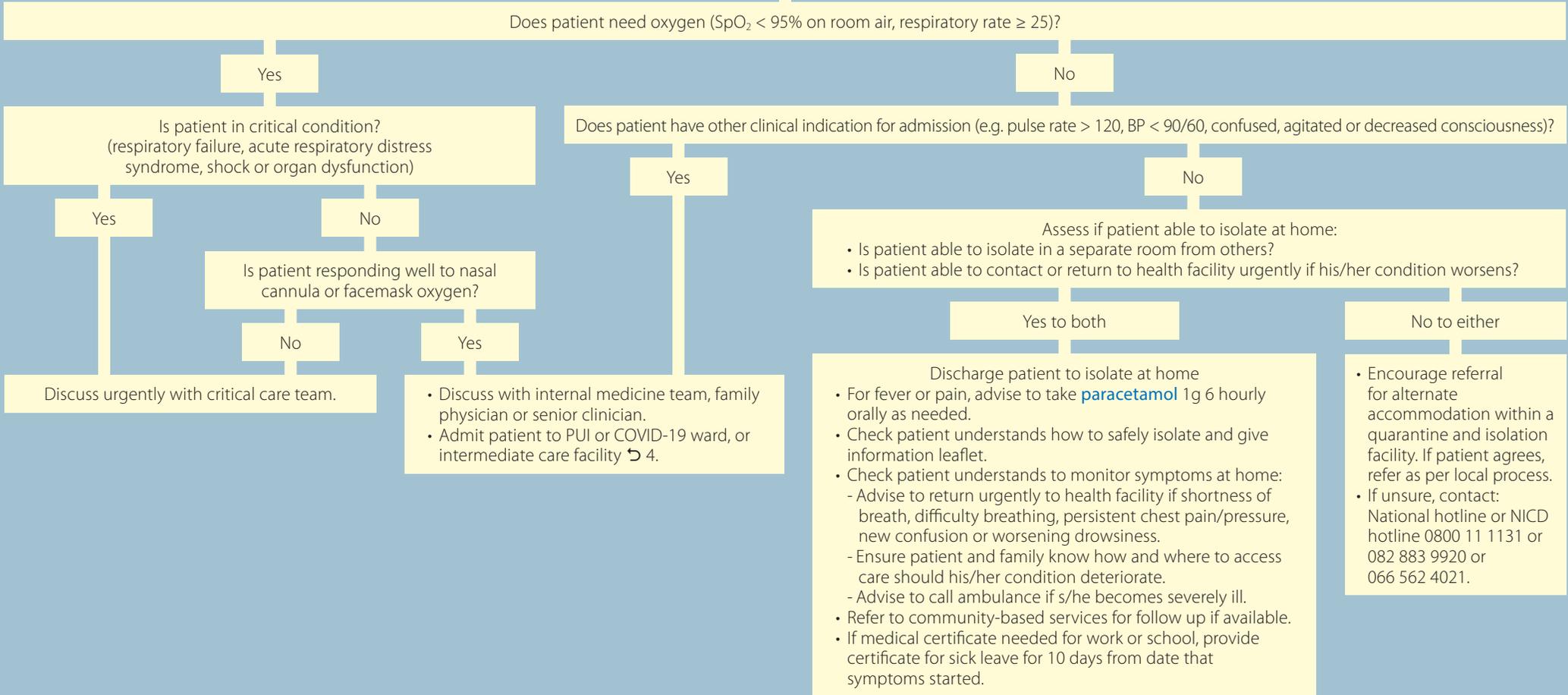
Close contact	A close contact is when a person has had face-to-face contact (within 1 metre) of a COVID-19 person, or has been in a closed environment (like room or vehicle) with a COVID-19 person for at least 15 minutes. Examples of close contacts include those in the same household/ workplace or health workers who have managed a COVID-19 patient without using appropriate personal protective equipment (PPE).
Isolation	Isolation is when a person with confirmed COVID-19 is separated from others.
PPE	Personal Protective Equipment
Quarantine	Quarantine is when a person is separated from others because s/he: is waiting for COVID-19 test results OR has been in close contact with someone with COVID-19. S/he may have been infected and could spread it to others without knowing.

The role of the Knowledge Translation Unit (KTU) of the University of Cape Town is acknowledged for developing these materials in collaboration with the South African National Department of Health. We thank the Western Cape Provincial Department of Health for the input of their clinicians, policy makers and end-users in refining the materials.



DETERMINE APPROPRIATE INITIAL LEVEL OF CARE

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



ADMIT THE PATIENT WITH SUSPECTED OR CONFIRMED COVID-19

- Ensure you are wearing appropriate PPE: surgical mask (or N95 respirator if performing aerosol-generating procedure¹), goggles/visor, apron/gown and non-sterile gloves.
- Keep a distance of 1-2m 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"> • Ask about symptoms, including duration and character. Also consider other possible causes of symptoms. • Specifically ask about symptoms of COVID-19 complications and manage according to facility protocol: <ul style="list-style-type: none"> - If pain or swelling in calf, consider deep vein thrombosis. - If pain or pressure in chest, consider pulmonary embolism or acute coronary syndrome. - If bilateral leg swelling and difficulty breathing which worsens on lying down/with effort, consider heart failure. - If new sudden asymmetric weakness or numbness of face/arm/leg, difficulty speaking or visual disturbance, consider stroke or TIA.
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"> • Ask specifically about diabetes, HIV, TB, hypertension, asthma, COPD/emphysema, chronic bronchitis, heart/liver/kidney disease and cancer. • Ask about chronic medications. Record names and doses and add these to prescription chart. Ask if patient brought medications to hospital.
Allergies	Ask about and record any known allergies to medications or food.
Social history	<ul style="list-style-type: none"> • Ask about close contacts and check if they have been advised to quarantine and monitor themselves for symptoms. • Check if patient has children at home and if there is another responsible adult to care for them. If concerns, contact social worker.
Alcohol/drug use	Ask about alcohol and drug use to determine if withdrawal may occur.
Vital signs	Check respiratory rate, oxygen saturation (SpO ₂), pulse, BP and temperature.
Examination	<ul style="list-style-type: none"> • Perform a general, respiratory, cardiovascular, abdominal and basic neurological examination. • Limit risk of exposure: avoid unnecessary throat examinations and stand behind patient when auscultating chest.
Clinical frailty scale	Assess frailty using the clinical frailty scale ² 10. 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/clinical picture suggestive of TB or HIV positive with cough, send sputum for Xpert MTB/RIF. Avoid inducing sputum.
Blood tests	<ul style="list-style-type: none"> • If SpO₂ < 95%, check arterial blood gases. • Send blood for full blood count, differential count, urea, creatinine, electrolytes, glucose and D-dimer. <ul style="list-style-type: none"> - If diabetes: also request HbA_{1c} if no result in last 3 months. - If HIV positive: also request viral load and CD4 if no recent results. - If HIV status unknown or no test in past 6 months: also do HIV test.
Urine	If HIV positive and CD4 < 100mm ³ , 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.

¹Aerosol-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 procedure¹), goggles/visor, apron/gown and non-sterile gloves.
- Keep a distance of 1-2m 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"> • Ask about symptoms and if these have improved or worsened. • Ask if any new symptoms, specifically those of COVID-19 complications and manage according to facility protocol: <ul style="list-style-type: none"> - If pain or swelling in calf, consider deep vein thrombosis. - If pain or pressure in chest, consider pulmonary embolism or acute coronary syndrome. - If bilateral leg swelling and difficulty breathing which worsens on lying down/with effort, consider heart failure. - If new sudden asymmetric weakness or numbness of face/arm/leg, difficulty speaking or visual disturbance, consider stroke or TIA.
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 ₂), 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"> • If initial PCR positive for SARS-CoV-2, continue management in COVID-19 ward. • If initial PCR negative for SARS-CoV-2 and alternative diagnosis likely, move patient to non-COVID-19 ward. • 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"> - If repeat swab negative and alternative diagnosis likely, move patient to non-COVID-19 ward. - If repeat swab negative but high clinical suspicion of COVID-19 remains, consider CT scan and discuss with specialist.
Sputum	<ul style="list-style-type: none"> • If sputum sent for Xpert MTB/RIF, follow-up results. • If Xpert MTB/RIF positive or trace: <ul style="list-style-type: none"> - If patient not treated for TB in past 2 years, diagnose TB. Check sensitivity to rifampicin and start TB treatment same day. - If patient treated for TB in past 2 years, check sensitivity to rifampicin and smear result, and discuss with specialist.
Blood tests	<ul style="list-style-type: none"> • Follow-up blood results from both hospital and PHC clinic, and manage accordingly. • If patient on corticosteroids, check glucose daily and monitor electrolytes.
Urine	<ul style="list-style-type: none"> • If HIV positive and CD4 < 100 mm³, check urine lipoarabinomannan (LAM) test has been done. • If LAM positive, diagnose TB and start TB treatment same day.
Imaging	<ul style="list-style-type: none"> • Review chest x-ray. • If alternative diagnosis suspected, consider CT scan, ultrasound or other imaging as appropriate. Discuss first with specialist.
ECG	If ECG done, review for abnormalities. If unsure, discuss with specialist.

Advise and treat the COVID-19 patient →6.

¹Aerosol-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 is admitted to hospital. Advise patient of any risks, benefits, and potential outcomes of treatment. Ask if any questions or concerns.
- 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 10 days from date of last contact with patient.

Treat the admitted COVID-19 patient

- **Give oxygen if SpO₂ < 95% or respiratory rate ≥ 25 breaths per minute:**
 - Start with nasal cannula at 1-5L/min. Ensure patient wears surgical mask over cannula to reduce droplet spread.
 - If SpO₂ < 90%, change to simple face mask at 6-10L/min.
 - If SpO₂ still < 90%, change to face mask with reservoir bag at 10-15L/min.
 - If SpO₂ 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:** if patient receiving oxygen, give **dexamethasone** 6mg IV daily or **betamethasone** 6mg orally/IV daily or **prednisone** 40mg orally daily for 10 days.
- **Give anticoagulation:**
 - Give **enoxaparin**¹ 40mg subcutaneously daily.
 - If patient needs ≥ 60% oxygen concentration (e.g. face mask with reservoir bag or HFNC) or requires mechanical ventilation, D-dimer > 1.5mg/L, pulmonary embolism or DVT, give **enoxaparin**¹ 1mg/kg subcutaneously 12 hourly or 1.5mg/kg subcutaneously daily. If patient morbidly obese or eGFR < 30, discuss dose with specialist.
- **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 respiratory rate ≥ 35 breaths per minute, accessory muscle use, BP < 90/60, arrhythmia, agitation, altered mental status, unstable spine or recent chest/abdominal injuries or surgery.
 - Monitor SpO₂ 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 1-2 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 fever or pain:** give **paracetamol** 1g orally 6 hourly.
- **Treat comorbidities:** if diabetes ↗ 7. If other chronic conditions, monitor and ensure patient receives his/her chronic medication/s.
- **Consider also treating for other possible diagnoses:**

Ensure a multidisciplinary approach and include physiotherapist, dietitian and social worker if needed.

Bacterial community-acquired² pneumonia

No signs of severe³ pneumonia

- If younger than 65 years and no co-morbidity⁴:
 - Give **ampicillin**⁵ 1g IV 6 hourly. Once improved⁶, switch to **amoxicillin**⁵ 1g orally 8 hourly.
- If older than 65 years or has co-morbidity⁴:
 - Give **ceftriaxone**⁵ 2g IV daily. Once improved⁶, switch to **amoxicillin/clavulanic acid**⁵ 875/125mg orally 12 hourly.

Severe³ pneumonia

- Give **ceftriaxone**⁷ 2g IV daily. Once improved⁶, switch to **amoxicillin/clavulanic acid**⁷ 875/125mg orally 12 hourly.
- Also give **azithromycin** 500mg slow IV daily for 3 days.

- Take blood culture before starting antibiotics, if possible. Adjust antibiotics according to culture result.
- Give antibiotics for a total of 5-7 days, depending on clinical response. Stop if SARS-CoV-2 result positive and no suspected bacterial co-infection.

Pneumocystis jirovecii pneumonia (PJP)

- If CD4 < 200 cells/mm³, not on cotrimoxazole prophylaxis and ground-glass infiltrates on chest x-ray, consider also treating for PJP.
- Give **co-trimoxazole** 6 hourly for 3 weeks:
 - If < 60kg: give 240/1200mg orally.
 - If ≥ 60kg: give 320/1600mg orally.
 - If vomiting, use IV route instead.
- Stop if SARS-CoV-2 result positive.

Decide when to discharge the COVID-19 patient

- Discharge patient once symptoms improved and SpO₂ remains ≥ 95% on room air for 24 hours. Include physiotherapist in decision if possible.
- After discharge, patient should continue to isolate at home for 10 days from the date that oxygen was stopped or clinical stability achieved.

¹If any contraindications to enoxaparin, 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. ²If suspected hospital-acquired pneumonia, consult Adult Hospital EML 2019 edition. ³Patient has severe pneumonia if s/he has cyanosis, confusion, hypotension or respiratory rate >30 breaths/min. ⁴For example COPD, HIV, cardiac failure, diabetes. ⁵If severe penicillin allergy, give instead **moxifloxacin** 400mg orally daily. ⁶Patient improved once respiratory rate < 25 breaths/min and temperature < 37.8°C. ⁷If severe penicillin allergy, give instead **moxifloxacin** 400mg IV daily. Once improved, switch to **moxifloxacin** 400mg orally daily.

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)

- **Step 1:** Give IV fluids:
 - Immediately give **sodium chloride 0.9%** 15-20mL/kg IV over 1 hour.
 - Then give **sodium chloride 0.9%** 5-15mL/kg/hour depending on patient's hydration status and urine output. Avoid giving more than 50mL/kg during first 4 hours.
 - Adjust type of fluid according to corrected¹ sodium result: if corrected sodium ≤ 140mmol/L, give **sodium chloride 0.9%**. If corrected sodium > 140mmol/L, give **sodium chloride 0.45%**.
 - Once glucose < 15mmol/L, change sodium chloride to **dextrose 5%**.
- **Step 2:** Take urgent bloods: venous blood gas, glucose, ketones, white cell count and differential, sodium, potassium, creatinine.
- **Step 3:** Give potassium if needed:
 - If potassium < 3.5mmol/L: add **potassium chloride** 40mmol to every 1L of IV fluid given (maximum of 40mmol/hour). Do not give insulin until potassium ≥ 3.5mmol/L.
 - If potassium 3.5-5.5mmol/L: add **potassium chloride** 20mmol to every 1L of IV fluid given (maximum of 40mmol/hour).
 - If potassium result not available: add **potassium chloride** 20mmol to 1L of IV fluid as soon as patient has adequate urine output.
- **Step 4:** Give insulin (only once potassium ≥ 3.5mmol/L):
 - Give insulin by continuous IV infusion. If IV infusion not possible, give as hourly IM bolus injections:

Continuous intravenous (IV) infusion

- Add 50 units of **short-acting² insulin** to 200mL of **sodium chloride 0.9%**.
- Start infusion at 0.4mL/kg/hour.
- Check glucose hourly and adjust rate according to result:
 - If glucose drops by < 3mmol/L: double the infusion rate.
 - If glucose drops by ≥ 3mmol/L: continue same infusion rate.
 - Once glucose < 14mmol/L: decrease infusion rate to 4-8mL/hour and adjust according to hourly glucose results.

Intramuscular (IM) bolus injections

- Dilute 100 units of **short-acting² insulin** with **sodium chloride 0.9%** to fill a 10mL syringe (10units/mL).
 - Give initial loading dose of 0.05mL/kg: give half the dose IV and the other half IM.
 - Then give 0.01mL/kg IM hourly. If needed, adjust dose according to hourly glucose results.

- **Give anticoagulation:** give **enoxaparin** ↷ 6.
- **Monitor** regularly:
 - Check glucose, potassium and urine output hourly. Check sodium, ketones and pH every 2 hours. Manage as above.
 - Once ketones negative *and* pH ≥ 7.30 *and* patient eating, start subcutaneous insulin ↷ 8. Continue insulin infusion for 1-2 hours, then stop.

Management of hypoglycaemia

- Give **dextrose 50%** 50mL IV rapidly and recheck glucose after 5-10 minutes. If still < 4mmol/L or no improvement in level of consciousness, repeat treatment.
- Continue **dextrose 10%** 1L IV 6 hourly.
- Once glucose ≥ 4mmol/L and patient awake:
 - Give a snack if possible and check glucose hourly for several hours.
 - Identify cause and educate patient on meals and doses.
- If patient still unconscious after 30 minutes and glucose ≥ 4mmol/L, look for other causes of decreased consciousness.

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

¹Corrected sodium = glucose ÷ 3 + sodium. Example: if glucose is 18mmol/L and sodium is 140mmol/L, the corrected sodium = 18 ÷ 3 + 140 = 146mmol/L. ²Examples of short-acting insulin include Actrapid® and Humulin R®.

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

On admission

- Stop all oral diabetes medications. Continue or start **insulin**, preferably using a basal bolus regimen as below.
- Use clinical judgement when selecting patient's regimen, considering patient's clinical condition, and nursing staff resources and capabilities. If a basal bolus regimen is not suitable or if unsure, discuss alternative regimens with an experienced doctor or specialist.
- Check HbA1c if no result available within past 3 months.

Basal bolus insulin regimen

- **Step 1:** calculate total daily dose (TDD) of insulin: $TDD = 0.4 \text{ units/kg}$
- **Step 2:** calculate dose of **basal intermediate** to **long-acting¹ insulin**:
 - Dose = $TDD \div 2$
 - Give this as a single injection before bedtime (not after 22h00).
- **Step 3:** calculate dose of **bolus short-acting² insulin**:
 - Dose = $TDD \div 2 \div 3$
 - Give one dose before each meal.
- **Step 4:** check glucose before each meal and correct bolus dose of **short-acting² insulin** if needed. Discuss correction doses with experienced doctor or specialist as required.

Example for patient weighing 70kg:

- Total daily dose = $0.4 \times 70 = 28$ units
- Dose of basal insulin = $28 \div 2 = 14$ units given at 22h00.
- Dose of bolus insulin = $28 \div 2 \div 3 = 4.6$ units given before each meal.
- Adjust bolus dose according to pre-meal glucose and correction doses as required (step 4).

During admission

- Check fingerprick glucose four times a day (before each meal and at bedtime).
 - If glucose < 4mmol/L, manage **hypoglycaemia** \triangleright 7.
- Review glucose readings daily:
 - Aim for fasting glucose of 4-7mmol/L or post prandial glucose of 5-10mmol/L.
 - Check glucose readings from previous 24 hours, and adjust insulin doses accordingly:
 - Adjust basal long-acting insulin according to fasting glucose levels. Adjust bolus short-acting insulin according to pre and post-meal glucose.
 - If unsure, discuss with an experienced doctor or specialist.
- Educate patients:
 - Encourage patient to self-monitor glucose and self-administer insulin if possible. Regularly educate patient on monitoring of glucose, injection technique and diet.
 - Involve dietitian early for education on diet and medication/insulin.

At discharge

- Discharge patient on simplest regimen possible:
 - If HbA1c \leq 8%, discharge on pre-admission diabetes treatment. If newly diagnosed, discharge on oral medication.
 - If HbA1c > 8%, check adherence and consider stepping up pre-admission treatment. If unsure, discuss with experienced doctor or specialist.
 - If on basal bolus regimen, consider changing to biphasic (premixed) regimen before discharge.
- Explain importance of adherence and eating regular meals. Ensure patient has received dietary advice and knows how to recognise and manage hypoglycaemia.
- If patient on/starting insulin:
 - Ensure s/he is given a glucometer and strips, and is comfortable to self-monitor glucose and administer insulin.
 - Educate on insulin storage (fridge or cool dark place), injection technique and sites (abdomen, thighs, arms), doses and how to adjust these, and sharps disposal at clinic.
 - Advise that if unwell and vomiting/not eating as usual, to increase fluid intake, check glucose 3 times a day if possible and adjust insulin dose if necessary (avoid stopping insulin).
- Arrange follow-up appointment within 1 month of discharge, and provide discharge summary to ensure continuity of care. Refer for community care worker support if available.

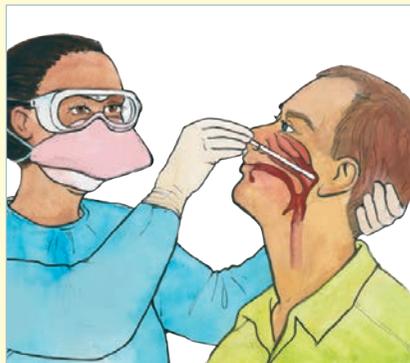
¹Examples of intermediate to long-acting insulin include Protaphane® and Humulin N®. ²Examples of short-acting insulin include Actrapid® and Humulin R®.

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: respirator, goggles/visor, gown/apron and gloves. Ensure PPE put on correctly ↪ 15.
 - 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.

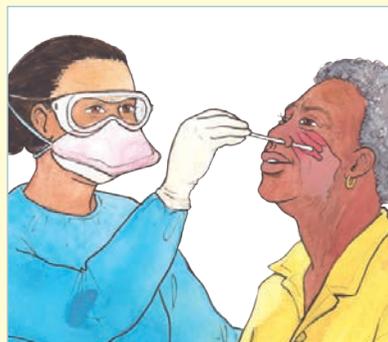
If taking nasopharyngeal specimen:

- 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.



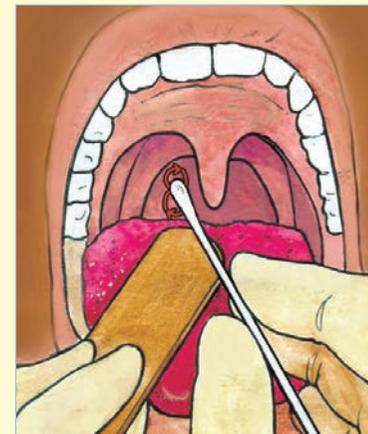
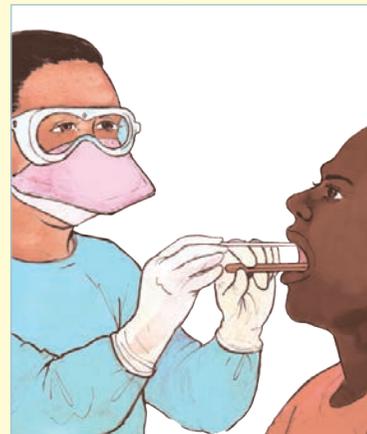
If taking mid-turbinate specimen:

- 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.



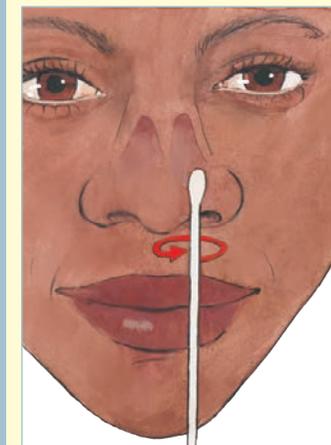
If taking oropharyngeal specimen:

- 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 ↪ 11. Once finished taking specimens, remove PPE correctly ↪ 7.

ASSESS PATIENT'S LEVEL OF FRAILITY

- Assess patient's level of frailty using the Clinical Frailty Scale¹ (CFS) below.
- Score patient between 1 and 9. This will be used to make advanced care decisions.

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

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

SAFE PRACTICES FOR HEALTH WORKERS

- Keep yourself, your colleagues, your patients and your family safe from COVID-19 by practising safely using these steps:
- This section applies to all clinical staff (such as nursing assistants, nurses, doctors, occupational therapists, physiotherapists, dentists, oral hygienists, radiographers).

1. Monitor yourself for COVID-19 symptoms

- If unwell, stay home and inform your supervisor. If anyone at home with suspected or confirmed COVID-19, inform your supervisor.
- Complete a COVID-19 symptom screen at beginning and end of each shift.

5 moments for hand hygiene:

1. Before touching a patient
2. Before doing a procedure
3. After exposure to body fluids
4. After touching a patient
5. After touching patient surroundings

2. Practise good hand hygiene

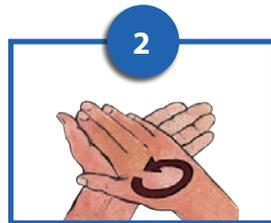
- All staff and patients entering and exiting the facility should clean hands with alcohol-based hand rub provided at entrance/exit.
- Keep nails short and clean. Avoid artificial nails as they do not allow for adequate cleaning/disinfection.
- Wash visibly soiled hands with soap and water (see below), otherwise use alcohol-based hand rub (ABHR) ↪ 12.

40-60
seconds

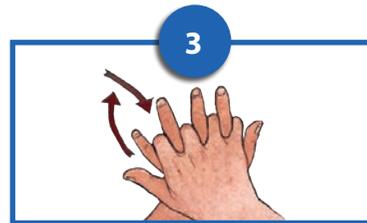
How to wash hands:



1
Wet hands in clean water and apply soap to palm.



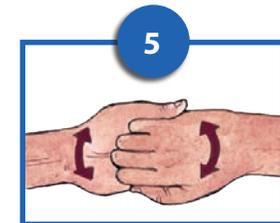
2
Rub palms together.



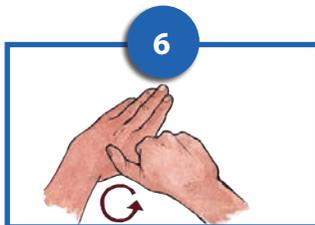
3
Place one hand over back of other, rub between fingers. Swap hands.



4
Rub fingers between each other.



5
Grip fingers and rub together.



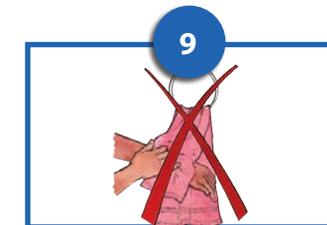
6
Rub each thumb with opposite palm. Swap hands.



7
Rub tips of nails against palm. Swap hands.



8
Rinse hands with water.

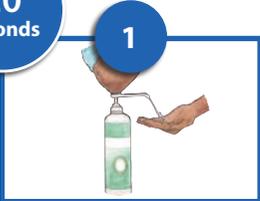
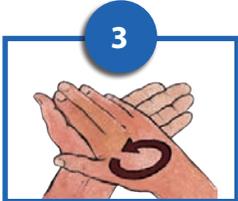
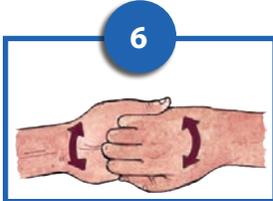


- Avoid shared towels.
- Dry using paper towel.
- Use paper towel to turn off tap.

Once dry, your hands are safe.

20 seconds

How to hand rub:

- 
 - Apply palmful of ABHR to cupped hand.
 - Use elbow to dispense where able.
- 
 - Rub tips of nails against palm.
 - Swap hands.
- 
 - Rub palms together.
- 
 - Place one hand over back of other, rub between fingers.
 - Swap hands.
- 
 - Rub fingers between each other.
- 
 - Grip fingers and rub together.
- 
 - Rub each thumb with opposite.

Once dry, your hands are safe.

3. Practise good respiratory hygiene

- Wear a surgical mask, N95 respirator or cloth mask according to your task and location in facility.
- Provide a surgical mask to patients with respiratory symptoms or suspected/confirmed COVID-19.
- If available, provide a cloth mask to patients without respiratory symptoms if they don't have their own.



- Cover mouth and nose with a tissue or elbow (not hands) when coughing or sneezing. If using a tissue, discard immediately and wash hands.



- Perform hand hygiene if contact with respiratory secretions.



- Avoid touching your face, eyes, nose and mouth with unwashed hands.



Who should wear a cloth mask?

- All staff working in non-clinical areas (like administration, finance, canteen).
- All patients without respiratory symptoms or suspected/confirmed COVID-19.
- All staff not needing a surgical mask or N95 respirator.
- All staff in tea rooms and canteens.

DO



- Wash hands before use.
- Ensure mask covers mouth and nose.
- Replace mask if wet. Put it in a container until you can wash it.



- Only touch straps to remove it.
- Wash hands immediately after removing it.



- Wash masks with soap and warm water.
- If possible, iron once dry to disinfect mask.
- Have at least 2 masks so that you have a clean one ready.

DON'T

- Touch your face or fiddle with mask.



- Leave used masks lying around.



- Ever use someone else's mask. If you don't have a mask, use a scarf or bandana.



- Let the mask slip or pull it down so that your nose or mouth is exposed.



4. Maintain physical distancing

- Avoid shaking hands, hugging, kissing, high fives. Greet instead with a smile, nod or wave.



- Keep a distance of at least 1-2 metres from colleagues and patients whenever possible.



- Avoid sharing work surfaces, desks and equipment with other staff if possible.

Administrative staff:

- Work from home if possible.
- Ensure desks are at least 1-2 metres apart.
- Use perspex screens between clerks and patients if possible.
- Avoid unnecessary meetings. If needed, ensure staff maintain physical distancing during meeting.



5. Practise good environmental infection control

Clean and disinfect patient areas regularly:

- First clean with detergent (soap) and water, and wipe with rinsed cloth. Then wipe with disinfectant like sodium hypochlorite 0.1% (use 0.5% if blood or body fluids) or 70% alcohol and allow to air dry.
- Frequency of cleaning will depend on area in facility:
 - High risk areas (triage, testing areas, isolations wards and COVID-19 areas): at least three times a day. Disinfect chairs and testing booths between each patient.
 - Low-risk areas: at least twice a day.
 - High-touch surfaces (tables, desks, phones, keyboards, mouse, door handles, light switches, taps): disinfect before starting work and the last thing before leaving your work station.
 - The "patient zone" (bed rails, bedside cabinet, trolley, equipment): disinfect between each patient. If visibly dirty, clean first.



- Avoid touching surfaces unless necessary.
- Use feet or hips to open doors instead of using door handles.



- Ensure adequate ventilation by keeping windows and doors open where possible.



- If possible, use disposable or dedicated equipment (like stethoscopes, blood pressure cuffs, thermometers, saturation monitors).
- If sharing equipment between patients, disinfect between each use.
- Avoid performing aerosol-generating procedures¹, unless essential. If essential, ensure appropriate PPE is worn.

- Ensure laundry, food utensils and medical waste are managed according to safe standard procedures.
- For examination beds, change linen and/or linen saver between each patient. If patient with suspected or confirmed COVID-19, send linen to laundry marked as infectious.



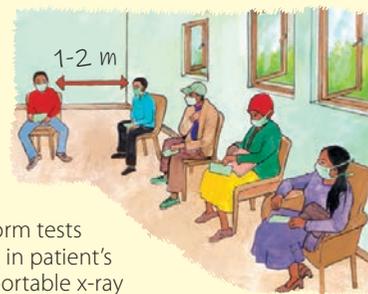
6. Manage patient flow within facility

- Ensure only one entrance and exit to facility available for patients.
- Have a separate, well-ventilated triage area near facility entrance for all patients.



- If suspected COVID-19, isolate patient in separate area allocated for patients with suspected COVID-19.
- If not suspected with COVID-19, send patient to standard waiting area.
- Establish separate routes to each area and indicate these clearly with colour-coded arrows and signs.

- Ensure patients queue and sit at least 1-2 metres apart.



- Limit patient movement within facility:
 - If possible, perform tests and procedures in patient's room and use portable x-ray equipment.
 - Ensure patient wears a surgical mask if needing to move through facility.

- Limit people in contact with patient, including health workers.
- Avoid visitors.



- Only one escort to accompany a patient and only if patient needs assistance.



- If possible, implement an appointment system. Only allow patients to enter facility at appointment time.

- Increase time between patients' follow-up visits and avoid unnecessary visits.

7. Wear appropriate Personal Protective Equipment (PPE)

- Precautions are required by health workers to protect themselves and prevent transmission of COVID-19. This includes the appropriate use of PPE.
- Help ensure a safe supply of PPE by using it appropriately and only when indicated.
- Wear PPE according to your task. Follow your facility protocols but ensure you are wearing the minimum PPE as below:

Low risk areas:
Triaging or screening patients:

Clinical areas:

- Surgical mask

Non-clinical areas:

- Cloth mask



High risk areas:
Managing a patient with suspected or confirmed COVID-19:

- Surgical mask
- Goggles or visor
- Plastic apron
- Non-sterile gloves



Performing **aerosol-generating procedure**¹ in patient with suspected or confirmed COVID-19:

- Respirator
- Goggles or visor
- Fluid-resistant gown or apron
- Non-sterile gloves



Change or clean your PPE when needed:

- Change gloves between each patient.
- Change apron/gown between each patient or if short supply, change only if wet, dirty, damaged or after performing aerosol-generating procedure.
- Clean and disinfect goggles/visor after removing.
- If using **surgical mask**:
 - If needing to remove mask to eat/drink: carefully remove without touching the outside, and store in a clearly labelled, clean paper bag. Perform hand hygiene after removing and after putting it on again.
 - Discard after your work shift, or sooner if touched by unwashed hands or gets wet/dirty/damaged.
- If using **respirator**:
 - It may be reused for up to 1 week because of current supply shortage.
 - If reusing respirator:
 - Perform seal test before each use: breathe in and out. Mask should move in and out with each breath (air should not leak).
 - Between uses, store in a clearly labelled, clean paper bag. Avoid crushing, bending or trying to disinfect respirator.
 - When replacing, wear gloves and avoid touching inside of respirator.
 - Discard after 1 week of use, or sooner if it gets wet/dirty/damaged or seal test fails.

¹Aerosol-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.

How to put on PPE correctly (donning)

- Ensure you always first put on PPE correctly, even before performing CPR or other emergency procedures.



See a video on how to put on PPE correctly here: www.medicinesuct.ac.za/news/covid-19-resources



1 Clean hands for at least 20 seconds

- Disinfect hands using alcohol-based hand rub, or thoroughly wash hands using soap and water.

2 Put on apron/gown

- If gown, fully cover torso from neck to knees, arms to end of wrists, and wrap around back. Fasten at back of neck and waist.
- If apron, place loop over head and fasten around waist.
- When fastening, use bow (not a knot) for easy release.



3 Put on mask/respirator

- Secure ties or elastic bands at middle of head and neck.
- Mould flexible band to nose bridge (do not pinch).
- Ensure mask is pulled down under chin.
- If respirator, check good fit by breathing in and out: mask should move in and out with breath (air should not leak).
- If reusing N95 respirator, put on clean non-sterile gloves before replacing it. Once on face, remove gloves, clean hands and continue to step 4.



4 Put on goggles/visor

- Place over face and adjust to fit.



5 Put on gloves

- Extend gloves to cover wrists/end of gown.



How to remove PPE correctly (doffing)

- Before leaving patient's room, remove all PPE except mask/N95 respirator.
- After leaving patient's room, close door and then remove mask/N95 respirator.
- When removing PPE, remember that outside of gloves, goggles/visor, gown/apron and mask/respirator is contaminated: if your hands touch the outside of any of these items during removal, immediately clean hands before removing next item.



See a video on how to remove PPE correctly here: www.medicinesuct.ac.za/news/covid-19-resources

1 Remove gloves

- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove.
- Hold removed glove in gloved hand.
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove.
- Discard in medical waste bin.



Clean hands for at least 20 seconds

2 Remove apron/gown

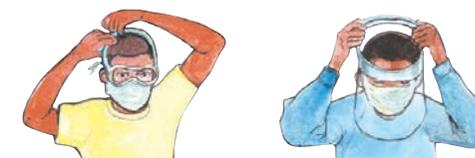
- If wearing a visor (not goggles), remove visor as below *before* removing gown/apron.
- Unfasten gown/apron ties. Ensure sleeves don't touch body when doing this.
- If gown: pull gown away from neck and shoulders, touching only inside of gown. Turn gown inside out.
- If apron: pull over head and roll downwards, touching only inside of apron.
- Fold or roll in to bundle and discard in medical waste bin.



Clean hands for at least 20 seconds

3 Remove goggles/visor

- Remove goggles/visor from back by lifting head band or ear pieces.
- Discard in medical waste bin.



Clean hands for at least 20 seconds

4 Remove mask/respirator

- If mask, first untie/break bottom ties, then top ties and remove without touching front of mask.
- If respirator, first grab bottom elastic, then top elastic and remove without touching front of respirator.
- Discard in medical waste bin.



5 Clean hands for at least 20 seconds

- Disinfect hands using alcohol-based hand rub, or thoroughly wash hands using soap and water.



8. What to do before work



Clothes

- Wear simple, short-sleeved clothing that can be easily washed.
- Wear dedicated closed work shoes.
- Avoid wearing a belt, jewellery, watch and lanyard.



Wallet and keys

- Leave wallet at home – bring only essentials (like access card, drivers licence, bank card) in sealable plastic bag.
- Keep your keys in your pocket/bag and do not remove until after you have washed hands when leaving work.

Phone

- Remove protective case from phone. Keep phone in sealable plastic bag and change this daily.
- Keep your phone in your pocket/bag, avoid placing it on work surfaces.
- Wipe phone/bag with alcohol frequently.



Food and drink

- Bring lunch from home in plastic or washable fabric shopping bag.
- Use own water bottle and avoid sharing food/drinks.

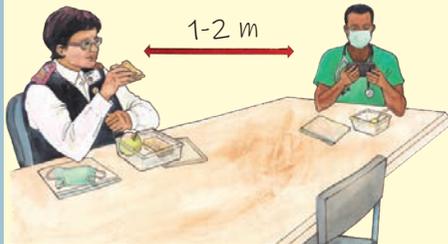


Wash hands before leaving home



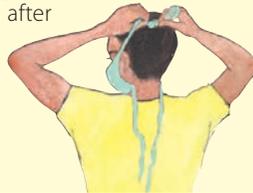
9. How to take a break safely

- Stagger breaks to avoid crowded tearooms. Take break outside if possible.
- Remove all PPE before entering tea room.
- Keep 1-2m apart from colleagues.



When removing mask/respirator to eat or drink:

- Remove carefully without touching the outside.
- Store in clearly labelled, clean paper bag.
- Put mask back on as soon as finished eating or drinking.
- Wash hands well after removing mask and after putting it back on.



- Avoid sharing food and drink.
- Avoid bought lunches and drinks from canteen.
- Avoid water coolers.



- Wash hands well before eating or drinking. Disinfect phone.

- Avoid sharing towels. Use paper towel instead.



- Keep windows and doors open. Report windows that don't open.



- Avoid sharing cups, bottles, cans, dishes, eating utensils – wash these well after use.



- Clean and disinfect frequently touched objects (like kettle, toaster, microwave, counters, door handles, window handles) regularly.



10. What to do after work

When leaving work

- Disinfect phone/bag, stethoscope and pen regularly and again before leaving. Leave pen at work.



- Ensure used masks, gowns and aprons are discarded in designated waste bins.



- If possible, remove work clothes and place in plastic or washable fabric bag to take home.



- Perform thorough hand and arm wash.



- Keep hand sanitiser in bag or car, and use to clean hands after touching public surfaces.

Step 1

- Remove shoes and leave outside, or just inside door, before entering home.
- Clean upper part of shoes with hand sanitiser. Avoid touching soles of shoes.



Step 4

- Immediately have shower/bath/wash.
- Avoid hugs, kisses and direct contact with family members until after shower/bath/wash.

When arriving home:

Step 2

- As you enter, remove cloth mask. Only touch straps to remove it.
- Then remove work clothes if not already changed.
- Put mask and work clothes straight into a hot wash or bucket with hot water and soap, along with fabric bags used for lunch and clothes.



Step 3

- Thoroughly wash hands and arms.



Step 5

- Dry cloth mask and work clothes in the sun or tumble dryer.
- Iron to disinfect.



11. How to travel safely using public or staff transport



- Wear a cloth mask while travelling.
- Avoid wearing work clothes if possible. Rather change into work clothes after arriving at work.

- Ensure all windows are kept open.



- When waiting in the queue, stand 1,5 metres away from other passengers.

1.5 m

- Avoid touching door handles, rails, windows and other surfaces.
- Sit as far from other passengers as possible.



- Clean hands with hand sanitiser before entering and after exiting the vehicle.



12. Look after your mental health



- Get enough sleep.



- Talk to family, friends and colleagues.



- Find a creative or fun activity to do.



- Do a relaxing breathing exercise each day.



- Exercise regularly.



- Seek help if you are struggling:
- Mental Health helpline: 0800 12 13 14

- Limit alcohol and avoid drugs.



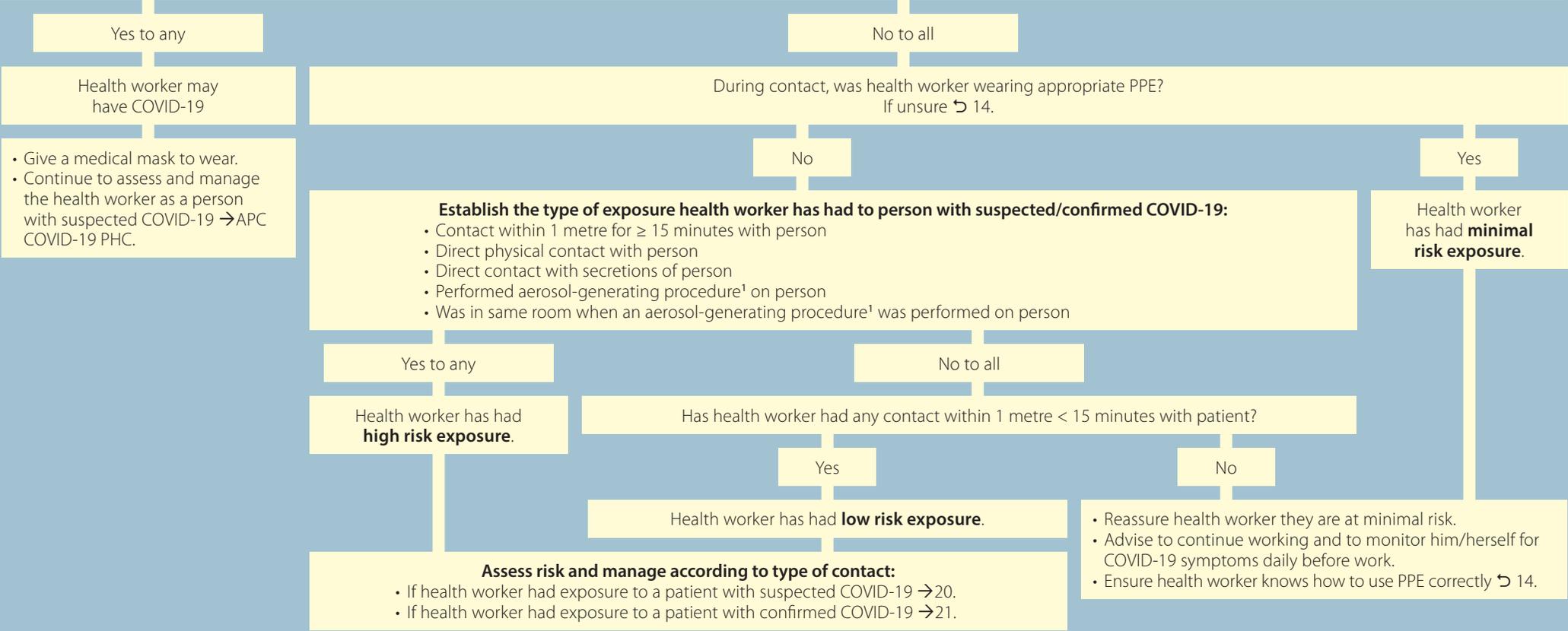
MANAGE THE HEALTH WORKER EXPOSED TO A PERSON WITH SUSPECTED OR CONFIRMED COVID-19

The health worker has had potential exposure to COVID-19 if s/he has had any contact with:

- A person with suspected COVID-19 who is waiting for test result or
- A person with confirmed COVID-19: this is a person with a positive COVID-19 test result. If a person with COVID-19 symptoms did not qualify for a test, manage exposure as for confirmed COVID-19.

First check if the health worker has new onset in the last 14 days of symptoms suggestive of COVID-19:

- Shortness of breath or difficulty breathing
- Cough
- Sore throat
- Loss of sense of smell or change in sense of taste
- If known with asthma or COPD with chronic symptoms: worsening cough or breathing



Assess risk and manage according to type of contact:

- If health worker had exposure to a patient with suspected COVID-19 →20.
- If health worker had exposure to a patient with confirmed COVID-19 →21.

- Reassure health worker they are at minimal risk.
- Advise to continue working and to monitor him/herself for COVID-19 symptoms daily before work.
- Ensure health worker knows how to use PPE correctly → 14.

¹Aerosol-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.

The asymptomatic health worker exposed to a patient with suspected COVID-19

What type of exposure did the health worker have with the patient with suspected COVID-19 as determined on previous page?

High risk exposure

- Advise to quarantine and give information leaflet.
- Advise to monitor for COVID-19 symptoms.
- Follow up the COVID-19 test results of person with suspected COVID-19:

Negative

- Advise to:
- Resume normal work activities.
 - Ensure strict mask use and hand hygiene.

Reassure health worker that s/he is unlikely to have COVID-19.

Positive

- Continue quarantine.
- Advise to continue to monitor for symptoms for 7 days:

If no symptoms develop within 7 days¹: test on day 7 post-exposure.

COVID-19 test not done

If symptoms develop within 7 days: test early.

Test health worker for COVID-19:

Health worker positive

Health worker has **COVID-19** Provide medical mask, isolate and manage → APC COVID-19 PHC.

Health worker negative

Advise to:

- Resume normal work activities when well enough.
- Continue strict mask use and hand hygiene.

Low risk exposure

- Advise to:
 - Continue working but preferably low risk transmission activities.
 - Wear a mask.
 - Continue strict hand hygiene
- Advise to monitor for COVID-19 symptoms.
- Follow up the COVID-19 test results of person with suspected COVID-19 :

COVID-19 test not done

- Advise to:
- Continue to monitor symptoms until 10 days after exposure.
 - Continue working but preferably low risk transmission activities.
 - Continue strict mask use and hand hygiene.

Symptoms develop within 10 days

Positive

No symptoms develop within 10 days

Negative

Advise to continue strict mask use and hand hygiene.

Advise to resume normal work activities.

- Ensure the cause of the health worker's exposure is known and reported appropriately in order to improve infection control procedures in facility.
- Advise health worker to monitor him/herself for COVID-19 symptoms daily before coming to work. If symptom/s develop, stay home and inform supervisor.
- Ensure health worker knows how to use PPE correctly ↪ 14.
- Manage occupational stress ↪ APC.

¹If health worker agrees, s/he can test on day 5 post-exposure and if negative, and still no symptoms, may return to work.

The asymptomatic health worker exposed to a patient with confirmed COVID-19

What type of exposure did the health worker have with the confirmed COVID-19 person as determined on page 19?

High risk exposure

- Advise to: Quarantine and give information leaflet.
 - Wear a mask.
 - Continue strict hand hygiene.
- Advise to monitor for COVID-19 symptoms for 7 days after exposure:

If no symptoms develop within 7 days¹:
test on day 7 post-exposure.

If symptoms develop within 7 days:
test early.

Low risk exposure

- Advise to: Continue working but preferably low risk transmission activities.
 - Wear a mask.
 - Continue strict hand hygiene.
- Advise to monitor for COVID-19 symptoms until 10 days after exposure:

Symptoms develop within 10 days

No symptoms develop within 10 days

Advise to resume normal work activities.

Test health worker for COVID-19:

Health worker tests positive

Health worker tests negative

Health worker has COVID-19
Provide mask, isolate and manage → APC COVID-19 PHC.

Advise to:

- Resume normal working activities when well enough.
- Continue strict mask use and hand hygiene.

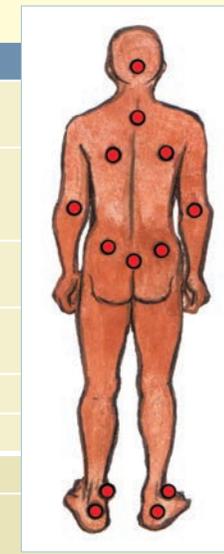
- Ensure the cause of the health worker's exposure is known and reported appropriately in order to improve infection control procedures in facility.
- Advise health worker to monitor him/herself for COVID-19 symptoms daily before coming to work. If symptom/s develop, stay home and inform supervisor.
- Ensure health worker knows how to use PPE correctly → 14.
- Manage occupational stress → APC.

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"> • If fever or shortness of breath, manage ↪ 23. If anxiety, delirium, nausea/vomiting, constipation, diarrhoea or itchiness manage ↪ 24. • If dry mouth, oral candida or other symptoms manage ↪ APC.
Pain	<ul style="list-style-type: none"> • Ask where the pain is and when the pain started. Does pain radiate anywhere? • 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 mild (1-3), moderate (4-7) or severe (8-10). Manage pain depending on severity ↪ 24.
Side effects	<ul style="list-style-type: none"> • Ask about and manage side effects from medication ↪ 24. • If on morphine, check that patient is on a laxative to prevent constipation.
Chronic care	<ul style="list-style-type: none"> • Check that the patient understands why s/he is receiving palliative care. • Assess ongoing need for chronic care in discussion with patient and health care team. Consider which medication/s could be discontinued.
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 ↪ 25.
Oxygen saturation	If oxygen saturation \leq 90% or shortness of breath, provide oxygen ↪ 23.
Pressure ulcers	<ul style="list-style-type: none"> • If patient is bedridden, check common areas daily for damaged skin (change of colour) and pressure ulcers (see picture). • If pressure ulcer, manage ↪ APC.



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 10 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** or **pain**:
 - Provide patient with a cool cloth.
 - Give **paracetamol** 1g orally 6 hourly as needed. If unable to swallow, crush tablet/s and give via nasogastric tube instead.
- 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** or **cough**:
 - 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. Open windows to allow for fresh air.
 - Give oxygen as above and aim for oxygen saturation ≥ 90%.
 - 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 no better with above, give morphine as below. Choose route and dose depending on whether patient can swallow or not:

Patient able to swallow

- Give **morphine hydrochloride** (mist morphine) 2.5-5mg orally 4 hourly.
- Note that amount of morphine solution will vary depending on the strength:
 - If 5mg/5mL: give 2.5-5mL
 - If 10mg/1mL: give 0.25-0.5mL
 - If 20mg/5mL: give 0.6-1.25mL
- If more than 2 doses needed in 24 hours, give instead: **morphine sulphate** (controlled release tablet) 10mg 12 hourly or **morphine hydrochloride** (mist morphine) 2.5-5mg orally 6 hourly as needed.

Patient unable to swallow

- Give **morphine sulphate** 1mg IV or subcutaneously¹ 6 hourly as needed.
 - If no better, increase next dose by 25%.
 - Once better, continue same dose but reduce frequency.

Continue to treat the COVID-19 patient needing palliative care →24.

¹Give 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

- 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.
- Encourage deep breathing if able. Help patient to connect with family via phone or other device. If available, consider referral to counsellor.
- Give **diazepam** 2.5-5mg orally 12 hourly as needed or **lorazepam** 0.5-1mg orally as needed until settled.
- If unable to swallow, give instead **midazolam** 1-5mg subcutaneously¹ or IV as needed.

Delirium

- Give **haloperidol** 0.5mg orally/IV/ subcutaneously¹ 8 hourly. Increase dose as needed and use lowest dose that controls symptoms.
- If elderly or no response:
 - If able to swallow, add **lorazepam** 0.5-1mg orally or sublingually (as crushed tablet) 2-4 hourly as needed.
 - If unable to swallow, add instead **midazolam** 0.5-5mg subcutaneously¹/IV immediately. Increase slowly as needed.

Nausea

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

Constipation

- Give **sennosides A and B** 13.5mg at night and/or **lactulose** 15-30mL orally daily.
- If needed, increase **sennosides A and B** to 27mg at night and/or increase **lactulose** to 12 hourly.
- If severe constipation and unable to swallow, give instead **bisacodyl** suppository 10mg PR daily or **glycerine** suppository 2.4g PR as needed.

Diarrhoea

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

Generalised itchiness

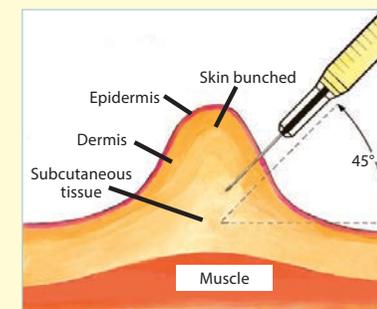
- Give **chlorphenamine** 4mg 6-8 hourly as needed.

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

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.



¹Give 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, delirium, urinary retention and treat as below.
Current care	<ul style="list-style-type: none"> • Assess current medication and procedures and stop any that are non-essential (like BP measurements, vitamins). • If unable to swallow, switch medication route from oral to subcutaneous route.
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"> • Ensure patient and family understand what is happening. • Ask how family are coping and what support and/or spiritual care is needed.
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 10 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** 23.
- Also provide additional breakthrough dosages as needed: if patient can swallow give extra dose orally every hour. If unable to swallow, give extra dose subcutaneously¹/IV every 30 minutes.
- If fever or pain, give **paracetamol** 1g orally 6 hourly as needed. If unable to swallow, crush tablet/s and give via nasogastric tube instead.
- If noisy breathing, excessive secretions likely: give **hyoscine butylbromide** 20mg subcutaneously¹/IM. Increase dose to effect, to a maximum of 120mg.
- If fluid overload, give **furosemide** 20mg subcutaneously¹/IV 2 hourly as needed. Reassess regularly.
- If anxiety or delirium, manage 24.
- 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.

¹Give 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. For an unnatural death in a COVID-19 positive patient, leave all medical equipment attached as is.
- 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).

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
	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)"