EMERGENCY CENTRE MANAGEMENT OF COVID-19 (updated 15/12/2020)

Patient presenting with possible COVID-19 to the Emergency Centre

Access Control: Case definition screening and Triage

ROUTINE EC TRIAGE (SATS)
- Respiratory Rate
- O2 Sats
- Heart Rate
- Temp
- Mental State/ AVPU

ASSESS CURRENT SYMPTOMS AND RISKS?
- Contact with positive person, someone with 'flu-like symptoms', patients if HCW
- Travel History (cross border and international), public transport use
- Attendance of mass gatherings, funerals
- Dry, non-productive cough, Fever >38 degrees, Dyspnoea/ SOB, Sore throat, Rhinorrhoea, Headache, Chest Pain, Haemoptysis, Ansomia/ Loss of taste

KEY PAST MEDICAL & SOCIAL HISTORY
- Diabetes
- Asthma/ COPD
- TB
- HPT
- Current Smoker
- Immunocompromise (HIV, Chronic steroids use, immunosuppressive medication)
- Cancer with ongoing treatment

Direct to Appropriate Treatment Area

Continue directly to lifesaving intervention — YES — Requiring Emergency Life saving Intervention? — NO

$SpO_2 \geq 95\%$
Resp rate < 25 / min
HR < 120 / min
Temp 36 - 39°C
Mental status normal
?

YES → **MILD/ MODERATE WHO PNEUMONIA CRITERIA**
Less Likely Needs Oxygen

NO → **SEVERE OR CRITICAL PNEUMONIA WHO CRITERIA**
- Fever or suspected Respiratory Tract Infection
- $SpO_2 \leq 93\%$
- Resp rate > 30 / min
- Severe respiratory distress
- Acute Repiratory Failure and/or Shock

Age >65 and/or **Comorbities?**

NO → **TREATMENT PLAN MILD DISEASE**
- Use clinical discretion when deciding on further test/ imaging
- Send COVID-19 PCR
- Advise to return if symptoms worsen/ call the call centre
- Symptomatic Treatment

YES → Mild Disease with Risk Factors

!!TAKE NOTE: Geriatric patients are more likely to have atypical symptoms (e.g. delirium, exacerbation of underlying chronic resp. illness, loss of appetite)

EC DISCHARGE CRITERIA OF COVID POSITIVE OR SUSPECTED INDIVIDUALS
- No drop, or <3 % drop, in O2 Sats reading on exercise. *A 3% drop in pulse oximeter reading on exercise is cause for concern in COVID-19 patients.*
  - The **1-minute sit-to-stand test** [Patient goes from sit to stand as many times as they can in 1 minute] has been validated
  - The **40-step test** [take 40 steps on a flat surface] is in widespread use internationally. It is however unvalidated

**** Neither should be attempted outside a supervised care setting if oximeter reading is < 96%.***
- **NO Significant respiratory effort/work of breathing**.
- The social circumstances of the patient are conducive to self-isolation.
- Patients that do not fulfil all the above criteria should be considered for continued inpatient care.

INVESTIGATIONS: IMAGING
- CXR (consider mobile)
- Baseline ECG
- POCUS if indicated (e.g. Intubated patients, ? Pneumo/ ? Cardiac involvement)
- CT not routinely indicated

INVESTIGATIONS: LABORATORY

Bloods: FBC with diff, Ferritin, CMP, D-Dimer, Pro-BNP, Trop, U+E, LFT, CRP, clotting profile, PCT, ABG

COVID-19 Swab for PCR

Consider other **respiratory swab (e.g. Influenza and RSV)**

+-Specimen for culture to confirm other infection sources or organism

MONITORING IN THE EC
- Review frequently (at least every hour)
- RR, work of breathing, Sats,HR
- If high PaCO2 at presentation repeat ABG
- Admit if Discharge criteria not met

TREATMENT OF PATIENTS REQUIRING ONGOING CARE
- **Symptomatic Treatment**: Paracetamol 1 g PO or IV if not tolerated orally. In children Paracetamol syrup 15mg/kg.
- **Bronchodilator** via Metered Dose Inhaler or Spacer device. Nebulsing is an aeosolising procedure and should be avoided.
- **Fluids**: Be restrictive with fluids. Avoid 'maintenance' IV fluid, high volume enteral nutrition and fluid bolus for hypotension.
- **Supplemental O2:** O2 should be provided in severe acute respiratory infection and respiratory distress, hypoxaemia or shock with a target SpO2 > 95%. In mild case consider NC or Face mask O2 (with reservoir bag only if necessary). HFNO2 should be considered but requires full PPE as this is an aerosolising intervention. Please place a surgical mask on the patient if they are given HFNO2.
- **CPR**: This is an aerosol generating procedure so ensure PPE in place. Be careful if BVM used – ensure good seal to minimise risks of leak.

*** Remember -** Look for other treatable pathology (e.g. a tension pneumothorax) that may cause COVID-19 patients to decompensate.

*** Remember –** Don't assume that all deteriorating patients are COVID-19 related. We will still see & treat all other cases that present to the EC.

TRANSMISSION BASED PRECAUTIONS

Hand Hygiene remains a foundational imperative at all times.

DROPLET AND CONTACT PRECAUTIONS:
For routine care of COVID-19 patients e.g. clinical assessment, performing vital signs or a bed bath (non-aerosol generating procedures)
PPE: surgical mask; visor/goggles; disposable apron; gloves.

AIRBORNE CONTACT PRECAUTIONS:
When caring for a ventilated patient or when aerosol generating procedures (AGP) are being performed e.g. intubation, suctioning, non-invasive ventilation, tracheostomy, CPR, manual ventilation before intubation and brochoscopy etc.

PPE: N95 respirator; visor/goggles; impermeable disposable gown (or fabric gown and apron); gloves

INTUBATION SUMMARY

- **Hand Hygiene and Don Appropriate PPE**
- The most experienced doctor to tube
- Use video laryngoscopy
- **Pre-O2**: 3-5Min @15L/min NRM & nasal O2 or a tightly applied BVM, attached to high flow O2 for the spontaneously breathing patient.

RSI AND OTHER MEDICATIONS

Ketamine 1–2 mg/kg IV
Rocuronium 1.2 mg/kg IV

- Consider **Propofol** Induction 1-1.5 mg/kg only in haemodynamically stable patients
- **Fentanyl** 50-100 mcg, **Sufentanil** 10-20mcg, or **Remifentanil** 2.5 mcg/kg may be used to suppress laryngeal reflexes and optimize the intubation condition. Caution: watch for cardiovascular side effects.
- Ensure full neuromuscular blockade before intubation
- Have stat dose of vasopressor ready in case of hypotension for example:

Adenaline/Epinephrine 5-20 mcg or
Phenylephrine 50-200 mcg or
Norepinephrine 8-16 mcg= 0.5-1ml of 16 mcg/ml infusion. Mix in 3cc syringe

- Use a supraglottic device (LMA/iGel) to re-oxygenate (during RSI) rather than bagging
- Once intubated, inflate the cuff before positive pressure ventilation
- Once intubated, minimise circuit disconnects
- Use in-line suction
- If needing to disconnect the circuit and there is a risk of the patient coughing- clamp tube while disconnected

REFERENCES:
1. Australasian College for Emergency Medicine. Clinical Guidelines for the Management of Covid-19 in Australasian emergency departments v1.0 26 March 2020.
2. NICD COVID Treatment guidelineshttps://www.nicd.ac.za/wp-content/uploads/2020/03/Clinical-Management-of-COVID-19-disease_Version-3_27March2020.pdf
3.COVID-19 Airway management principles: Faculty of Intensive Care Medicine, Intensive Care Society, Association of Anaesthetists, Royal College of Anaethetists.
4. UCSF Health COVID-19 Algorithm for On-site Respiratory Evaluation in Adult Respiratory Screening Clinics (RSCs) & Accelerated Care Units (ACUs). Owners: S Smith & B Boslett, MD
5. https://www.westerncape.gov.za/assets/departments/health/COVID-19/wcgh_circular_h81_of_2020_-_guidance_for_emergency_centres_in_the_western_cape_during_the_covid-19_response.pdf

MANAGEMENT OF COVID-19 IN-HOSPITAL WARD (updated 15/12/2020)

CONSIDER FOR ADMISSION IF
- Room Air Oxygen Saturation ≤ 95% at rest
- Respiratory rate ≥ 26 breaths/ minute
- Pulse rate ≥ 121 beats/ minute
- Temp ≥ 38.1°C
- Abnormal Mental State

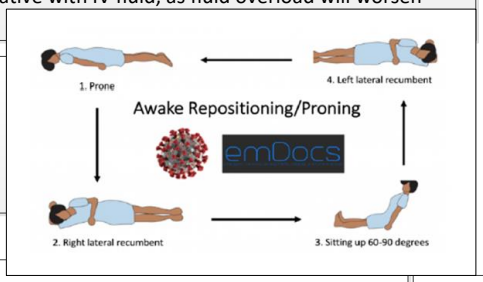
INVESTIGATIONS

IMAGING AND OTHER INVESTIGATIONS
- CT chest not a diagnostic requirement
- (Findings: Viral pneumonia picture, +-GGO, Septal thickening, +- consolidation)
- CXR not required daily only if change in condition or plan
- Baseline ECG- If chloroquine please repeat on Day 2 of treatment to review QT interval

LABORATORY INVESTIGATION
- **Bloods Admission**: FBC, Ferritin, Pro-BNP, Trop, U+E, CRP, ABG
- **Consider Blood repeat** of K+ & ABG if high O2 req.
- COVID-19 SWAB PCR
- +- Specimen to confirm other source or type of infection
- **If worsening**: LFT, trop, CRP, PCT, LDH, ferritin, d-dimer, clotting profile, ABG

BASIC WARD CARE PLAN
- **Ensure IPC principles are adhered to** (hand hygiene, droplet/contact precautions, PPE)
- Routine ward observations- vital signs (including O_2 Sats 4 hourly) Consider more frequent observation in those who are particularly unwell.
- Closely monitor patients for signs of clinical deterioration, e.g. rapidly progressive respiratory failure and sepsis, and apply supportive care interventions
- Pressure care
- Prone positioning (e.g. rotating 2 hourly in prone, left lateral, right lateral, semi-fowlers) potentially benefits oxygenation- see below
- VTE risk assessment and prevention (consider therapeutic and mechanical preventative mechanisms)
- ***Be vigilant with the recognising and rescuing of deteriorating patients as hypoxaemia and ARDS may happen quickly**
- Monitor **HGT and Potassium** levels as these can be impacted by the medication and disease process
- **IV Fluids**: Be cautious of giving 'maintenance fluid'. Balsol, or if unavailable, ringers lactate should be used. Be conservative with IV fluid, as fluid overload will worsen oxygenation.

AWAKE REPOSITIONING/ PRONING
30min-2h Prone with bed flat; then
30min-2h lie on Right side bed flat; then
30min-2h sit in Semi-fowlers; then
30min-2h lie on Left side bed flat; then
Repeat



OXYGEN THERAPY IN THE WARD
- Give O_2 therapy immediately to patients with Sats <95%
- Escalate O_2 as follows: Administer oxygen initially via Nasal Cannula (2-5l/min) and thereafter Face Mask 40 % (6-8l/min), Reservoir mask (Flow to fill reservoir mask)
- Titrate according to patient's O_2 saturation.
- O_2 Flow >10l/min is an Aerosol Generating Procedure. Airborne transmission precautions must be in place.
- **Saturation Aims of O_2 therapy (NICD):**
  - Non pregnant adults: ≥ 90%
  - Pregnant patients: ≥ 92
  - Children: ≥ 92%
  - Children with emergency signs: ≥ 94%
- **Look out for clinical signs of respiratory distress and call doctor if the following are present:**
  - If the patient is not improving on standard O_2 therapy
  - Sats <90% on 40% face mask O_2
  - Deterioration or change in mental state
  - Respiratory rate >30 breaths/minute
  - Using accessory muscles/ laboured breathing despite maximum non-invasive oxygen therapy.
- On blood gas- look at the PaO_2, Ph and PaO_2/FiO_2 ratio.
- **Seek ventilation advice early as deterioration occurs quickly**.
- High Flow Nasal O_2 or CPAP can be considered as bridging ventilation. Airborne transmission precautions necessary.

PHARMACEUTICAL TREATMENT
- Paracetamol 1 gram 6-8 hrly (Only consider IV route if oral not tolerated)
- Continue with corticosteroids for chronic management of asthma or COPD (Not indicated for COVID-19 treatment)
- Thrombo-prophylaxis if no contraindication (Enoxaprin 40-60mg SC dly)
- Bronchodilator via **metered dose inhalers** (e.g. Asthavent)
- Cough suppressants are NOT indicated

Other supportive treatment considerations (limited evidence of benefit)
- Zinc (acetate, gluconate or picolinate) 75-100 mg PO dly
- Acorbic Acid (stock limited)
- Calciferol 50 000 IU 1 tablet dly for 3 days or Vitamin D3 2000-4000 IU dly PO

There is currently insufficient evidence for use of any specific drug to treat or prevent COVID-19. When Experimental treatment is considered use per MEURI framework

TREATMENT CONSIDERATION FOR POTENTIAL CO-INFECTION:
Consideration should be given to empiric antimicrobials if evidence of co-infection:
- **Conventional Community-Acquired Pneumonia**
  - Amoxicillin-Clavulanate 1 g 12 hrly or 2 g/125 mg 12 hrly
- **IF risk of Atypical pneumonia pathogens add**:
  – Azithromycin 500mg dly x 3 days
- **Influenza (if influenza epidemiology fits and the patient has severe illness)**
  – Oseltamivir (Tamiflu®) 75 mg PO bd x 5 days
  Discontinue Tamiflu if PCR negative.
- **PJP** (if appropriate risk factors present, e.g. HIV with low CD4 count)

***Empiric therapy should be de-escalated on the basis of microbiology results and clinical judgment.**

Patient deteriorates? YES → Call treating doctors for possible HC/ ICU admission as per Critical Care Society South Africa Guidelines (CCSSA)

NO

DISCHARGE
Provide patient advice sheets: Discharge + Safe self-isolation sheets

DISCHARGE CONSIDERATIONS
- Consider the patient risk factors
- Discharge destination
- Clinical condition
- Current course of illness
- Current capacity and availability of step down care

DISCHARGE CRITERIA
- Room Air Oxygen Saturation ≥ 95% at rest
- Respiratory rate ≤ 25 breaths/ minute
- Pulse rate ≤ 120 beats/ minute
- Temp < 38°C
- Normal Mental State
- No repeat PCR test needed

REFERENCES
1.NICD & DOH. 2020. Clinical management of suspected or confirmed COVID-19 disease (v4 18 May 2020)
2. Uptodate.com. 2020. Uptodate. [online] Available at: <https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19
3.World Health Organization (WHO). Coronavirus: landscape analysis of therapeutics as of 17 Februrary 2020. Accessed March 16, 2020. Available on the World Wide Web at action/table_of_therapeutics_Appendix_17022020.pdf?ua=1. 17. Colson P, Rolain J, Lagier J, et al.

MANAGEMENT OF COVID-19 IN-HOSPITAL ICU (updated 15/12/20)

ICU ADMISSION CRITERIA MET (CCSSA ALGORITHM SOFA AND FRAILTY ASSESSMENT)

ROUTINE ICU CARE ACTIVITIES

1. **Haemodynamic monitoring, assessment and intervention**
* NOTE THAT COVID-19 PATIENTS DETERIORATE QUICKLY
* Watch for Rhythm abnormalities particularly those as result of a medication side effect or as a result of hypokalaemia.
2. **Aspiration prevention**
3. Reduce HAI by consistently performing the **bundle elements**
4. **Pressure Care**
5. **VTE assessment and prevention**
6. Optimise **Nutrition**
7. **Blood Glucose Monitoring** as some medications used in COVID-19 treatment can cause glucose abnormalities.
8. Monitor **Potassium levels** as there is a increased risk of hypokalemia in COVID-19 patients
9. Strict monitoring of **Fluid Balance.** In ARDS patients aim for a neutral to 500ml negative fluid balance.
10. Judicious fluid therapy: ensure adequate intravascular volume as patients may be hypovolemic. Avoid fluid overload.
11. Daily **SOFA** scores

IN-PATIENT OXYGENATION

Ensure adequate oxygenation and hemodynamic support during acute phase of illness is crucial.
Oxygen therapy is likely to be the single most effective supportive measure in COVID-19 patients overall:

Aim for a SpO_2 of:

- Non pregnant adults: ≥ 90%
- Pregnant patients: ≥ 92 – 95%
- Children: ≥ 90%
- Children with emergency signs: ≥ 94%

TRANSMISSION BASED PRECAUTIONS

Hand Hygiene remains a foundational imperative at all times.

DROPLET AND CONTACT PRECAUTIONS:
For routine care of COVID-19 patients e.g. clinical assessment, performing vital signs or a bed bath (non-aerosol generating procedures)
PPE: surgical mask; visor/goggles; disposable apron; gloves.

AIRBORNE CONTACT PRECAUTIONS:
When caring for a ventilated patient or when aerosol generating procedures (AGP) are being performed e.g. intubation, suctioning, non-invasive ventilation, tracheostomy, CPR, manual ventilation before intubation and brochoscopy etc.

PPE: N95 respirator; visor/goggles; impermeable disposable gown (or fabric gown and apron); gloves

INVESTIGATIONS

LABORATORY

- **Bloods Admission**: FBC with diff, Ferritin, CMP, D-Dimer, Pro-BNP, Trop, U+E, CRP, clotting profile, PCT, ABG
- **Bloods Daily**: FBC, Magnesium, U+E
- **Blood every other day**: LFT, LDH, CRP, Ferritin
- **If deteriorating**: LFT, U+E, Trop, CRP, ProBNP, PCT, LDH, Ferritin, Clotting profile
- COVID-19 Nasal Swab PCR
- +- Specimen to confirm other source or type of infection

IMAGING AND OTHER

- Chest X-ray with repeat Chest X-ray only necessary if the patient deteriorates. Consider beside rather than moving patient to radiology
- CT chest: not a diagnostic requirement and also cannot be done bedside.
- Point of Care USS (POCUS) if indicated
- Baseline ECG
- Consider Echocardiography

TREATMENT

RESPIRATORY CARE

Call for help if PAO_2 <72kpa or 9.5mmHg or requiring >40% O_2.
Respiratory Management of Patients unable to maintain a SpO_2 >90% with reservoir bag oxygen mask (15L/min)

- Self proning is encouraged
- High flow nasal oxygen cannula (tape into position) under a surgical facemask
- Nebuliser masks are currently **not recommended**
- Use Non-Invasive Ventilation with caution

Consider Intubation

- Hypoxaemia with severe respiratory distress despite standard O2 therapy
- Cardiac dysfunction
- Cytokine storm/Hyperinflammatory state

Commencing Mechanical Ventilation

- Degree of lung elastance will influence ventilation strategy.

Low elastance (alveoli well aerated so good lung compliance)
- Will not significantly benefit from lung recruitment strategies
- **Vt 6-8 ml/kg IBW with PEEP (initiate at 10 cm H2O and titrate)**

High elastance (atelectasis and poor lung compliance due to consolidation)
- Should benefit from small tidal volumes
- **Vt 4-6 ml/kg IBW and lung recruitment strategies with PEEP (initiate at 10 cm H2O and titrate)**

- Titrate FiO2 to maintain sat Of 88- 90% and aim to get the **Fi02 below 0.6 (60%)**
- Permissive hypercapnia provided stable hemodynamically and pH>7.15

If Refractory Hypoxaemia or still requiring an FiO2 > 0.6 consider the following:

1) Titrate PEEP: Increase the PEEP up to 14-16
2) Review sedation and consider increasing
3) Prone patient : Maintain Peak pressure 30 or if obese 34
4) ECMO – only if in registered centre and should commence prior to signs of MODS.

Consider Airway Pressure Release Ventilation (APRV) early (Only if treating team are comfortable with APRV ventilation)

- Limit plateau pressure to 30Cm H20 and driving pressure to 15cm H20
- Time high 4 secs
- Pressure low 0
- Time low set on the flow tracing- inspiration occurs at 40% of Peak expiratory flow
- Trigger lowest setting- allow spontaneous respiration
- If pCO2 elevated to the extent that pH drops to < 7.3 shorten time high to 3- i.e. increasing the respiratory rate

FLUIDS

- **Be conservative** with fluids in patients- avoid oedema.
- Consider vasopressors early- avoid excessive fluid loading
- Consider the use of **IV Balsol** or if unavailable Ringers Lactate.

SEDATION CONSIDERATION:

- Remifentanyl
- Propofol (only during first 72 hours)
- Midazolam (note that this can worsen delirium)

NUTRITION IN CRITICAL CARE

ENTERAL NUTRITION

- **Enteral nutrition is preferable**. Aim to commence within 12 hours of being placed on vent. This can be done through 10-12Fr NGT. Post-pyloric only if NG route fails.
- **Hypocaloric enteral nutrition should be initiated**, advanced slowly over 7 days of critical illness to an energy goal of 15-20 kcal/kg actual body weight per day (which should be 70-80% of caloric requirements), with a protein goal of 1.2-2.0 gm/kg Actual body weight per day.
- **Withhold feeds in patients with hemodynamic instability requiring vasopressor support (high or escalating doses)**, multiple vasopressor agents, or rising lactate levels. It may be initiated/restarted after the patient is adequately resuscitated and/or has been on a stable vasopressor dose with sustained MAP of >65 mmHg.
- A **standard high protein (> 20% protein) polymeric isosmotic enteral formula should be used in the early acute phase of critical illnes**s. As the patient's status improves and vasopressor requirements abate, addition of fiber should be considered.

REFEEDING SYNDROME

- Older patients with co-morbidities are at higher risk of re-feeding syndrome and should be commenced at 25% of caloric goal. Monitor the serum CMP as calories are increased. The first 72hours being the highest risk.

TPN

- If requiring **parenteral nutrition this should commence early (in only the high risk**- Those with enteral feed intolerance and escalating vasopressors).

PHARMACEUTICAL RX

- Paracetamol 1 gram 6-8 hrly (Only consider IV route if oral not tolerated)
- Therapeutic anticoagulation for severely hypoxaemic patients with a hyperinflammatory state and elevated D Dimer (>1) unless contra-indicated or requiring dosage adjustment for renal or hepatic dysfunction: Enoxaparin 1mg/kg SC 12 hrly.
- Bronchodilator via **Metered Dose Inhaler** (e.g. Asthavent) **avoid nebulising** as this is an aerosolising procedure!
- **Dexamethasone** 6mg IVI dly
- **Vasopressor use**: Have a low threshold to initiate rather than excessive fluid loadinG
- **PPI**: Consider ulcer prophylaxis if at high risk for stress ulcers

Other supportive treatment considerations (limited evidence of benefit)

- Zinc (acetate, gluconate or picolinate) 75-100 mg PO dly
- Acorbic Acid 500 mg IV tds dly
- Calciferol 50 000 IU 1 tablet dly for 3 days or Vitamin D3 2000-4000 IU dly PO

Unproven but possibly beneficial therapies

Several agents are currently being explored which includes: Remdesivir, Tocilizumab, Colchicine, Immunoglobulins. There is currently insufficient evidence to support their inclusion as standard therapy. If considering these agents: seek expert opinion and use as per **MEURI framework**
*** Dual anti-platelet therapy is not recommended**

TREATMENT CONSIDERATIONS FOR POTENTIAL CO-INFECTION:

Consideration should be given to empiric antimicrobials if evidence of Co-infection:

- **Conventional Community-Acquired Pneumonia** Amoxicillin-Clavulanate 1g 12 hrly or 2g/125mg 12 hrly
- **IF risk of Atypical pneumonia pathogens add**: Azithromycin 500mg dly x 3days
- **Influenza (if influenza epidemiology fits and the patient has severe illness)** Oseltamivir (Tamiflu®) 75mg PO bd x 5day **Discontinue Tamiflu if PCR negative.**
- **PJP** (if appropriate risk factors present, e.g. HIV with low CD4 count)

***Empiric therapy should be de-escalated on the basis of microbiology results and clinical judgment.**

References:
1. NICD & DOH. 2020. Clinical management of suspected or confirmed COVID-19 disease
2. Criticalcare.org.za. 2020. CCSSA Management Summary COVID-19.
3. 2020. Allocation Of Scarce Critical Care Resources During The COVID-19 Public Health Emergency In South Africa. www.criticalcare.org.za.
4.2020. Allocation Of Scarce Critical Care Resources During The COVID-19 Public Health Emergency In South Africa. www.criticalcare.org.za.
5. 2020. https://criticalcare.org.za/wp-content/uploads/2020/07/2020-July-02-V-3.0-CCSSA-COVID-19-ICU-Management-Summary.pdf
6.The Gauteng ICU group: Therapy of CoVID 19 - Version 10 (14 July 2020)

COMMON RESULT FINDINGS TO WATCH FOR:

- Myocarditis and elevated troponins (fatal cases)
- Lymphopaenia (common).
- Elevated liver enzymes, LDH and CPK
- Elevated prothrombin time (PT)
- Acute kidney injury
- PCT usually normal- if high consider bacteria infection
- CRP & D-Dimer tend to correlate with severity and can assess response to therapy
- PCT usually normal- if high consider bacteria infection
- Findings on CXR/CT Chest: Viral pneumonia picture, +-GGO, Septal thickening, +- consolidation
- X-ray changes may lag improvements in symptoms
- Septic shock is not common
- ARDS denotes severity of disease

MANAGEMENT OF COVID-19 IN-HOSPITAL PALLIATIVE CARE (review 15/12/20)

COVID-19 PALLIATIVE CARE: Patients with severe symptoms who are not candidates for critical care admission & ventilation if they deteriorate

AIMS OF CARE:
- Limit suffering of patients and families
- Align treatment decisions with patient and family values
- Protect healthcare workers and community from infection

Need to withdraw ventilatory support?

YES

NO

BASIC NURSING CARE PLAN

Be warned of possible sudden deterioration of COVID-19 patients

Stop all non-essential, non-beneficial procedures, e.g. vital signs monitoring & fluid balance monitoring.

Ensure all **IPC principles** are adhered to throughout the admission

1. Nutrition and hydration
- Comfort feeding as required Eips of water
- Prevent fluid overload

2. Hygiene and comfort
- Mouth care
- Pressure care
- Catheter care

3. Emotional and spiritual care
- Communicate sensitively to support emotional and spiritual needs
- Connect the patient electronically to talk/listen to emotional/spiritual support as specified and possible

4. Communication
- Honest, direct, compassionate and culturally sensitive information about the prognosis
- Follow 'important communication skills'

SYMPTOM MANAGEMENT

Administer medication per os, IV or subcutaneously.

Stop all non-essential, non-beneficial medication

1.Fever
- Paracetamol 1 gram 6 hrly PO PRN

2. Dyspnoea

MILD
- Nasal cannula: 1 – 4 l/min (patient must wear surgical mask)
- Face mask: 40 – 60% Oxygen
- If Bronchodilator required (e.g. Asthavent) administer through a Metered Dose Inhaler or Spacer Device.

MODERATE AND SEVERE
- Morphine (Opioids assist with respiratory distress):
  Morphine Syrup PO 2.5 – 5 mg 4 hrly
  (! Check the strength at which it is mixed as this will affect the dose prescribed)
  or
  Morphine Sulphate IV 1-2 mg stat; then 15 mg in 50 ml syringe over 24 hours
  or
  Morphine Subcutaneous 1.5-2.5 mg 4 hrly
  * Note that the elderly may require lower doses.
  * Anti-emetics should be prescribed with morphine
- Positioning: Upright position. Prone nursing can also be considered
- Assist with breathing techniques- relax shoulders, hand on stomach and focus on supporting the outbreath.

3. Anxiety
- Lorazepam 1-2 mg sublingual 2 hrly until patient settled then 8-12 hrly (max 6 mg /24 hours) or
- Alprazolam 0.5-1 mg 8 hrly prn or
- Haloperidol 2-5 mg SC; add 5 mg over 24 hours CSCI or
- Midazolam 5 mg SC 1 hrly until symptoms resolved

4. Restlessness
- Stop non-essential drugs
- Address factors that can agitate patients (full bladder, constipation, pain, thirst)
- Good hygiene and basic nursing care

5. Nausea and vomiting
- Metoclopramide 10 mg 8 hrly prn

6. Pain
- Morphine (review dose and route above)

7. Clear Secretions
- Hyocine Butylbromide (Buscopan®) 20 mg 6-12 hrly SC or IV

WITHDRAWAL OF VENTILATORY (+- INOTROPIC) SUPPORT
- Ensure the correct team are involved in the decision making process (critical care doctor/ anaesthetist)
- Document the decision in the clinical record.
- Discuss with the Family and document in notes.
- Assess timeline of Death (1) RAPID (2) DELAYED

1. RAPID TIMELINE

Predictors High PEEP and Fi02 required. Severe acidosis, Obtunded.
- Ensure neuromuscular blockers have worn off
- Stop Inotropes
- Gradually scale down vent over 30 mins to allow for the titration of medication to control dypnoea and anxiety.
- Decrease pressure support, PEEP, FiO_2 every 5 mins until $0cmH_20$ and 21% 0_2 (Room air)
- Only Extubate after death.
- Administer bolus of a benzodiazepine if anxious or
- IV morphine if breathlessness occurs

2. DELAYED TIMELINE
- Ensure Neuromuscular blockers have worn off.
- Gradually scale down vent support over 30mins to allow time for the titration of medication to control dyspnoea and anxiety.
- Symptom based monitoring and intervention- not vital sign related.
- Stop inotrope infusions
- Administer Buscopan 20 mg IV stat
- Decrease pressure support, PEEP, FiO_2 every 5 minutes until $3cm\ H_20$ and 21% FiO_2.
- Treat with Morphine (breathlessness) or an IV benzodiazepine if anxious.
- Palliative Extubation: PPE is required as this is a high risk procedure and requires the same precautions used when intubating.

IMPORTANT COMMUNICATION SKILLS
- Start by **checking the patient/family's understanding** of the situation. Use these clues to take the conversations forward
- **Give information in small chunks, avoiding medical jargon**
- **Use silence**- this allows emotion and absorbing what was said
- Acknowledge emotion: NURSE acronym
  - **N**ame emotion: 'You seem to be upset/worried?'
  - **U**nderstanding: 'Given what is going on, I can understand that you are concerned.'
  - **R**especting: 'You have been really patient under difficult circumstances.'
  - **S**upporting: 'I understand that this will be very hard. We will be here to help.'
  - **E**xploring: 'Tell me more; I would like to hear what you are thinking.'
- Never say: 'There is nothing more we can do for you.' **Commit to excellent symptom management, compassionate communication and your presence.**
- Consider **linking family per phone/WhatsApp/online to say a final goodbye**.

REFERENCES

1.NICD & DOH. 2020. Clinical management of suspected or confirmed COVID-19 disease (v4 18 May 2020).

PALPRAC. 2020. Providing palliative care in South Africa during the COVID-19 pandemic. Accessed on 7 April 2020 at https://palprac.org/wp-content/uploads/2020/04/PALPRAC_Providing-Palliative-Care-in-South-Africa-during-COVID-19-Update-5-April-2020-3.pdf

2. RSA: Gauteng Provice Health. ND. Chris Hani Baragwanath Academic Hospital COVID-19 standard operating procedure & assessment protocol

WELLBEING OF HEALTHCARE WORKERS
- Ensure the demands of your work don't exceed your physical, emotional, psychological and spiritual resources and **get help sooner rather than later**
- **Consciously care for yourself**; physically, emotionally, mentally, socially and spiritually
- **Be conscious of burnout** and its symptoms: Exhaustion (physically, emotionally and spiritually); Feelings of cynicism and indifference towards others; A loss of purpose and a sense of failure as a healthcare worker and as a person; Depression, substance abuse, suicidal ideation

ADDITIONAL USEFUL RESOURCES:

1) Critical Care Society of Southern Africa (CCSA) COVID-19 Resources
   https://criticalcare.org.za/covid-9/

2) South African Society of Anaesthesiologists (SASA) COVID-19 Resources
   https://sasacovid19.com/#guidance-documents