GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR

MINISTRY OF HEALTH AND SPORTS

DEPARTMENT OF MEDICAL SERVICES

Pediatric Clinical Management Guidelines for COVID-19 Acute Respiratory Disease

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Pediatric Clinical Management Guidelines for COVID-19
Acute Respiratory Disease

Clinical syndromes associated with COVID-19

Uncomplicated illness	➢ Present with non-specific symptoms of upper respiratory tract viral infection, such as, fever, cough, sore throat, nasal congestion, with/without malaise, headache, muscle pain or malaise ➢ No signs of dehydration, sepsis or shortness of breath ➢ The immunosuppressed may present with atypical symptoms
Mild pneumonia	➢ Cough or difficult breathing AND ➢ Fast breathing: fast breathing (in breaths/min): <2 months, ≥60; 2– 11 months, ≥50; 1–5 years, ≥40 ➢ No signs of severe pneumonia
Severe pneumonia	➢ Cough or difficult breathing, PLUS at least one of the following: • central cyanosis or SpO2 <90%; • severe respiratory distress (e.g. grunting, very severe chest indrawing); • signs of pneumonia with general danger signs: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions ➢ Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): <2 months, ≥60; 2–11 months, ≥50; 1–5 years, ≥40 ➢ The diagnosis is clinical, but chest imaging can exclude complications
Acute Respiratory Distress Syndrome	➢ Onset: new or worsening respiratory symptoms within one week of known clinical insult ➢ Chest imaging (radiograph, CT scan, or lung ultrasound): bilateral opacities, not fully explained by effusions, lobar or lung collapse, or nodules ➢ Origin of oedema: respiratory failure, not fully explained by cardiac

Sepsis	➢ Suspected or proven infection and ≥2 SIRS criteria o Core Temperature - > 38.5ºC or <36ºC (Rectal, Bladder, Oral, or Central catheter) o Tachycardia – mean heart rate >2 SD above normal range for age in absence of external stimuli, chronic drugs or painful stimuli; OR unexplained persistent elevation over 0.5-4 hour; OR persistent bradycardia over 0.5 hour in children <1 year old o Respiratory rate >2 SD above normal range for age or acute need for mechanical ventilation not related to neuromuscular disease or general anesthesia o Leukocyte count – elevated or depressed for age (not secondary to chemotherapy) or >10% immature neutrophils.
Septic shock	➢ Hypotension (SBP <5th centile or >2 SD below normal for age) OR ➢ At least 2 of the following: altered mental state; tachycardia or bradycardia (HR <90 bpm or >160 bpm in infants and HR <70 bpm or >150 bpm in children); prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.

A. Initial assessment and resuscitation

- Immediate implementation of Infection Prevention and Control (IPC) measures (should start at the point of entry to hospitals) : *Refer to DoMS Clinical Management Guidelines*
- Assess A,B,C.
- Give high flow oxygen and consider intubation and ventilation if respiratory compromise [Nasal CPAP where ventilator is not available].
- Obtain IV access or Intraosseous.
- Take blood for finger prick glucose, FBC, CRP, U&E, Creatinine, blood culture, blood group and matching, LFT with enzymes, coagulation profile, ABG, ECG, CXR (PA).
- Use conservative fluid management in patients with SARI when there is no evidence of shock.
- If in shock, give 20 ml/kg of crystalloid or colloid solution as a rapid bolus and up to 40-60 ml/kg in the first hour.
- Monitor vital signs after giving each 20ml/kg of IV fluid.
- Therapeutic goal is to have capillary refill less than 2 seconds, normal pulses with no differential between central and peripheral pulses, warm extremities, urine output more than 1 ml/kg /hr, normal mental status, and normal blood pressure for age.

B. Management of septic shock

- Consider septic shock if no improvement after 40ml/kg of fluid resuscitation or if consistent with definition of septic shock
- Give IV antibiotics once septic shock is considered.
- **Uses of Inotrope**
    - To consider if shock is not revived after giving 40 ml/kg of IV bolus of crystalloid solution
    - Consider to start noradrenalin if available
    - If noradrenalin is not available, start with dopamine IV infusion from 5-10 ug/kg/ min and monitor vital signs and increase the dose gradually after 15-30 minute to maximum 20ug/kg/min.
    - Consider to give adrenaline infusion if shock is not revived by giving dopamine infusion.
    - Titrate epinephrine infusion according to following table.

Vasoactive pharmacologic agents commonly used in the management of pediatric shock

Agent	Dose range	Comments
Dopamine	5-10 µg/kg/min	Inotropic (β1 agonist) effects predominates; increases cardiac contractility ,heart rate and blood pressure.
	10-20 µg/kg/min	Vasopressor (α1 agonist) effects predominate; increases peripheral vascular resistance and blood pressure.
Dobutamine	5-10 µg/kg/min	Inotropic effects (β1 agonist) predominate; increases contractility and reduces afterload.
Epinephrine	0.03-0.1 µg/kg/min	Inotropic effects (β1 and β2 agonist) predominate; increases contractility and heart rate; may reduce afterload to a slight extent via β2 effect.
	0.1-1 µg/kg/min	Vasopressor effects (α1 agonist) predominate; increases peripheral vascular resistance and blood pressure.
Norepinephrine	0.1-1 µg/kg/min	Potent vasopressor (α1 and β1 agonist); increases heart rate, contractility and peripheral vascular resistance.

- Give IV hydrocortisone if shock is poorly responsive to adequate fluid resuscitation and vasopressor and at risk of absolute adrenal insufficiency [e.g. Congenital adrenal insufficiency , nephrotic syndrome and chronic asthma].
- Ongoing fluid therapy should include maintenance, deficit [10% deficit] plus fluid according to modifying factors such as body temperature, SIADH and renal insufficiency.

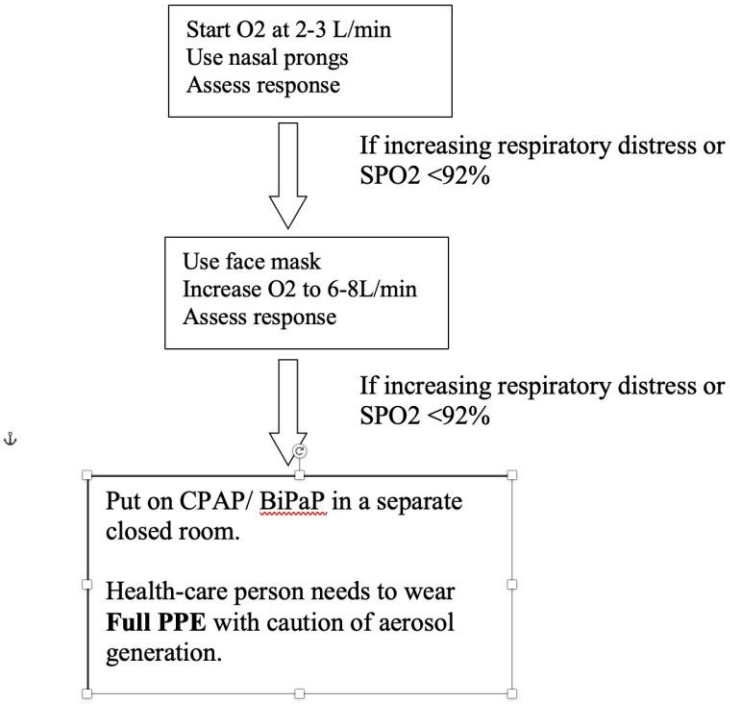
C. Supportive management including oxygen therapy

- Give paracetamol for high temperature
- Adequate nutrition

- Oxygen therapy - Start oxygen if
    - SpO2 <92% (haemodynamically stable patient)
    - Patient is haemodynamically unstable

- Management of hypoxemic respiratory failure and ARDS (For ICU Setting) : *Refer to DoMS Clinical Management Guidelines*

How to deliver invasive oxygen



- Blood products administration
    - Haemoglobin >10g/dl is targeted.
    - Administer platelets when:
        - ➢ Counts <5000/mm3 (5x109/L) regardless of bleeding
        - ➢ Counts - 5000 to 30000/mm3 (5-30x109/L) and there is significant bleeding risk
    - High platelet counts (>=50,000mm3(50x109/L) are required for surgery or invasive procedures
    - Do not use fresh frozen plasma to correct laboratory clotting abnormalities unless there is bleeding or planned invasive procedures

D. Antibiotic therapy

- No antibiotics for uncomplicated illness
- **For mild pneumonia**
    - PO Co-amoxiclauv 30mg/kg/dose 3 times per day for 5-7days **PLUS**
    - PO Azithromycin 10mg/kg/dose OD for 5 days

- **For severe pneumonia and ARDS**
  - Injection Ceftriazone 50mg/kg OD IV/IM for 7 days **PLUS**
  - Injection Azithromycin 10mg/kg OD for 7 days

E. Specific treatment for covid-19 disease

There is **no current evidence** from RCTs to recommend **any specific treatment for COVID-19** disease for patients with suspected or confirmed infection.

Following drugs may be helpful:

- **Antiviral- Oseltamivir (consider antiviral when influenza infection cannot be excluded)**
  Child 1-3 months- 2.5 mg/kg/dose PO BD for 5 days Child
  >3months to 1 year- 3mg/kg/dose PO BD for 5 days Child
  >1 year -12 year
  Body weight <15 kg – 30mg PO BD for 5 days
  Body weight >15 kg – 45 mg PO BD for 5 days

- **Chloroquine/ Hydroxychloroquine** after excluding G6PD deficiency and no contraindication
  This option is needed to consult with central level clinical management committee of pediatrics before starting treatment.
  6.5 mg/kg/dose PO BD for 1st day followed by
  3.25 mg/kg/dose PO BD for 4 days

  Contra-indications to CQ/HCQ

  - Long QTc
  - Drug interaction
  - Myasthenia gravis
  - Retinal pathology
  - Epilepsy

- Ascorbic acid
  IV ascorbic acid of 100 mg 12 hourly

F. Monitoring for in-patients

- Monitor temperature, RR, HR, GCS, chest indrawing and use of accessory muscle of respiration, SpO2 and urine output 4 hourly especially if symptomatic

G. Indication for transfer to ICU

- Haemodynamic instability
- Recurrent Apnoea or Slow irregular respiration
- Rising. RR and PR
- Failure to maintain. SpO_2 < 92 % with 8 lit of O_2

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