



National Guidelines on Clinical Management of COVID-19

(Short Edition of 9th Version)

6.5.2021



**Communicable Disease Control
Directorate General of Health Services**

Classification

Asymptomatic

No symptoms but test positive

Mild case: Influenza Like illness (ILI)

The clinical symptoms are mild, and there is no evidence of pneumonia.

Symptoms may be:

- Fever
 - Cough
 - Loss of taste or smell
 - Myalgia
 - Fatigue
 - Anorexia
 - Headache
 - Ageusia
 - Diarrhoea
 - Vomiting
 - Rhinorrhoea
 - Sore throat
 - Red eye
 - Abdominal pain
 - Skin lesion (chilblain, nodule) etc.
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Moderate case (Pneumonia)

- Adolescent or adult with clinical signs of pneumonia (fever, cough, dyspnoea, fast breathing) but no signs of severe pneumonia (SpO₂ ≥ 90% on room air).
- Child with clinical signs of non-severe pneumonia (cough or difficulty breathing + fast breathing and/or chest indrawing) and no signs of severe pneumonia. Fast breathing (in breaths/min): < 2 months: ≥ 60; 2-11 months: ≥ 50; 1-5 years: ≥ 40.
- While the diagnosis can be made on clinical grounds, chest imaging (radiograph, CT scan, ultrasound) may assist in diagnosis and identify or exclude pulmonary complications.

Severe case (Severe Pneumonia)

Adolescent or adult with clinical signs of pneumonia (fever, cough, dyspnoea, fast breathing) plus one of the following: severe respiratory distress, respiratory rate > 30 breaths/min or SpO₂ < 90% on room air.

Child with clinical signs of pneumonia (cough or difficulty in breathing) + at least one of the following:

- Central cyanosis or SpO₂ < 90%; severe respiratory distress (e.g., fast breathing, grunting, very severe chest indrawing); general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions.
- Fast breathing (in breaths/min): < 2 months: ≥ 60; 2-11 months: ≥ 50; 1-5 years: ≥ 40.

Critical cases (Cases requiring ICU care)

Severe COVID-19 case meeting any of the following criteria:

- Respiratory failure and requiring mechanical ventilation
- Sepsis
- Septic shock
- ARDS
- Any organ failure that requires ICU care

N.B: Pregnant women with COVID-19 should be considered as a severe case if the saturation level is below 94%.

Risk factors for severe COVID-19

- DM
- HTN
- High risk Pregnancy
- CKD
- Asthma
- COPD
- Obesity
- Malignancy
- CLD
- IHD
- Heart failure
- Dementia
- Mental disorder
- Stroke
- On steroids
- Chemotherapy

Triage

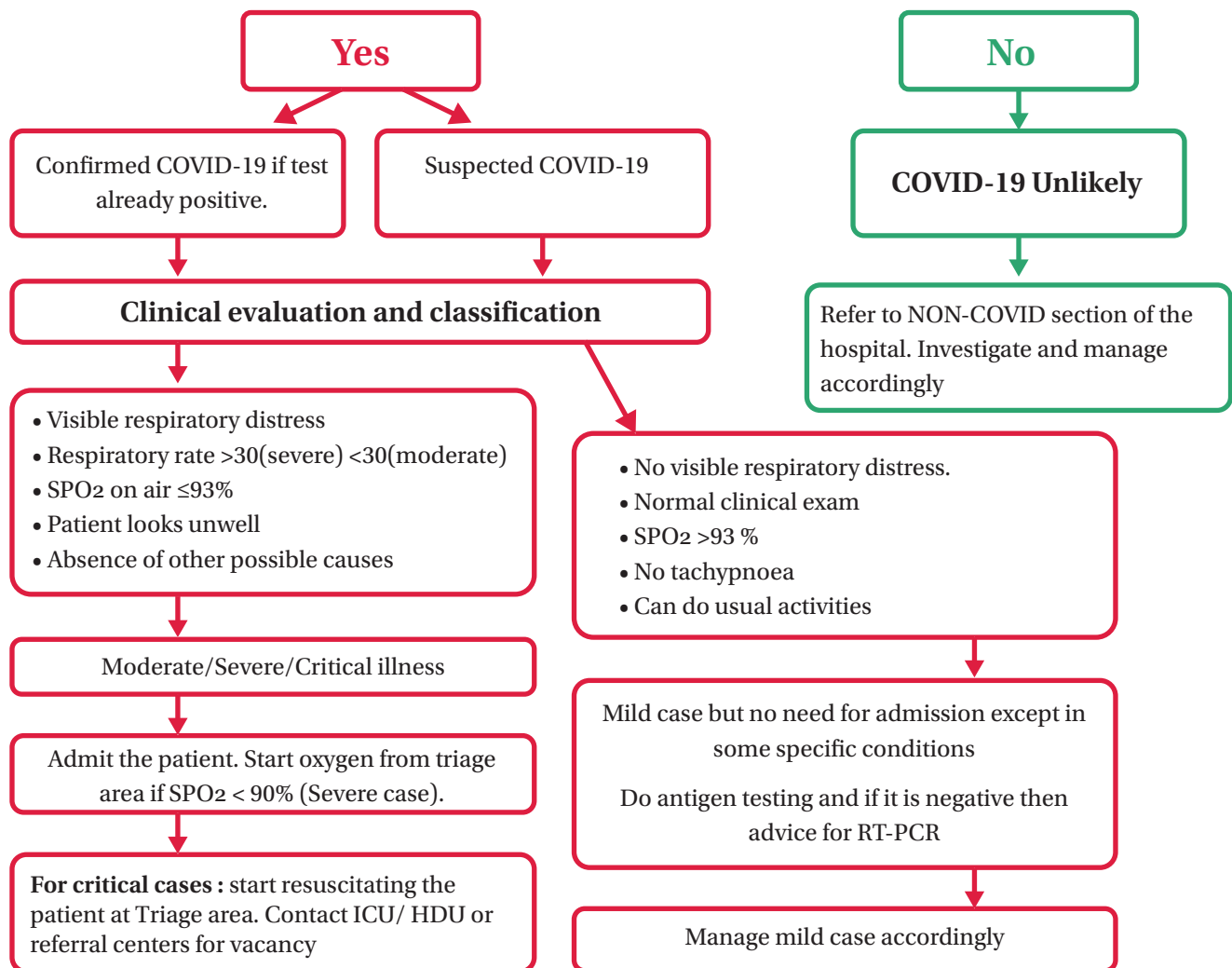
Ask about symptoms of COVID-19

Main symptoms:

- Fever
- Cough
- Dyspnoea
- loss of taste or smell

Other symptoms:

- Myalgia
- Fatigue
- Anorexia
- Headache
- Ageusia
- Diarrhoea
- Vomiting
- Rhinorrhoea
- Sore throat
- Red eye
- Abdominal pain
- Skin lesion (chilblain, nodule) etc.



Admission Criteria

All suspected/ confirmed cases of COVID-19 presenting as

- Moderate case- clinical or radiological evidence of pneumonia
- Severe Pneumonia- clinical or radiological evidence of pneumonia with signs of severe pneumonia (RR > 30 /min or oxygen saturation <90%)
- Critical COVID-19: ARDS, Sepsis, Septic shock
- Hypoxia (SPO₂ ≤93%) even in the absence of any clinical signs
- Patient with multiple uncontrolled comorbidities or prothrombotic state such as high-risk pregnancy, active malignancy, DVT irrespective of severity etc.

Clinical Management

A. Asymptomatic patients

Supportive care + Isolation protocol (either home or institutional depending on national strategy).

Advice for cases in home isolation:

- Rest at home in self-isolation. If self-isolation at home is not possible because of lack of care giver, overcrowding at home or for any other cause, patient should be brought to the hospital for institutional isolation in a designated area.
- Physical distancing with family members. If possible, remain in a separate single room.
- No visitor.
- Regular Hand Wash (20 seconds each time)
- Cough etiquette: use tissue paper or elbow followed by hand wash.
- Medical mask (both patient and caregiver)

B. Mild cases

- Mild case without comorbidities- Only symptomatic management and home isolation in a single room. (above mentioned home isolation protocol should be strictly followed).
- Mild case with controlled comorbidities- such as DM, HTN, IHD, Asthma/COPD/ILD, CKD, CLD, Malignancy, Pregnancy, Obesity can be managed at home. However, patient should be carefully monitored at home with finger pulse oximetry and be watchful about danger signs.
- Mild case with multiple uncontrolled comorbid conditions such as HTN, DM, IHD, CKD, CLD, COPD/Asthma/ILD and prothrombotic state such as high risk-pregnancy and active malignancy etc. should receive thromboprophylaxis along with symptomatic management and should be admitted.

Management of mild cases

- For fever: Tab Paracetamol (500mg) 1-2 tablet 3-4 times daily.
- For Rhinorrhea: Antihistamine.
- For cough: Antitussive for dry cough, inhaled budesonide 200mcg 2 puff 12 hourly.
- Thromboprophylaxis: Thromboprophylaxis is not routinely indicated for mild cases except for Mild COVID 19 cases with multiple uncontrolled comorbidities and prothrombotic conditions: Enoxaparin 40 mg, SC, once daily (OD) [for obese patients (BMI>40), 40 mg BID]. When CrCl< 30ml/min: Enoxaparin 20 mg SC OD for both obese and non-obese patient. or Unfractionated Heparin 5000 unit SC/BD.
- Monitor oxygen saturation at rest and minimum exertion such as walking for 3-6 minutes.
- Look for any danger signs of COVID as for example- Breathing difficulties, chest pain, light headedness, disorientation, extreme weakness which results in even difficulties in walking and drop in oxygen saturation to or $\leq 93\%$ etc.
- Investigations: No routine investigations are required for mild cases.

N.B There is no role of systemic steroid in mild cases. Rather it may be harmful if given during the viremic phase of the disease especially in the first 7 days.

C. Moderate cases

- Symptomatic management as like as mild case
- Oxygen through nasal cannula (Maximum 5 L/min) if required. Target SPO₂ is 94% during initial resuscitation and 90% for stable patients. For pregnant patients and patients with other organ failure target SPO₂ is 94%
- Proning- Maintain prone position for a total of 4-6 hours/day (divided in shorter period over the day)
- Thromboprophylaxis:
 - LMWH(Enoxaparin) at standard dose of 40 mg SC OD
 - For obese patients (BMI >40) LMWH, 40 mg SC BD
 - If CrCl < 30 reduce the dose to 20 mg SC OD (both for obese and non-obese patient)
- If LMWH cannot be given or contraindicated, use unfractionated heparin (UFH). Dose of unfractionated heparin: 5000unit SC BD
- Thromboprophylaxis should be given till discharge or for 7 days whichever is longer and followed by Tab. Rivaroxaban 10 mg once daily Or Tab Apixaban 2.5 mg twice daily for 1 month (especially patients at high risk for thromboembolism and based on clinician's discretion)
- Antiviral: Remdesivir should be used within 10 days of symptom onset and at the discretion of consultant working in the hospital in all hospitalized adult and pediatric patients (>12 years old) with suspected or laboratory-confirmed COVID-19 case
 - Who is hypoxic (SPO₂ $\leq 93\%$) or
 - Having increased breathing difficulties or
 - Who needs oxygen
- Steroid should be given in patients having respiratory distress and becoming hypoxic SPO₂ $\leq 93\%$. Dosing: Dexamethasone (0.5 mg): 12 tablets daily for adults
- Antibiotic: there is no role of antibiotic in COVID-19 infection. Oral antibiotic such as Amoxicillin Clavulanic acid or Doxycycline may be given if bacterial infection is suspected.
- Investigation: CBC, CRP, D-dimer, S. LDH, S. ferritin, S. creatinine, ALT, CXR PA view/HRCT of chest or other markers as per treating clinician's decision.

D. Severe cases

- Symptomatic management for cough and fever described for mild cases
- Oxygen therapy: Escalate oxygen flow as per patient's SPO₂ and degree of respiratory distress. Change of oxygen delivery device as required to maintain SPO₂: Nasal cannula (up to 5 litre), Oxygen mask (6-10 litre) and Non-Rebreather bag with reservoir bag (10-15 litre). We recommend immediate administration of supplemental oxygen to any patient with emergency signs during resuscitation to target SPO₂ ≥ 94% and to any patient without emergency signs and hypoxaemia (i.e. stable hypoxaemic patient) to target SPO₂ > 90% or ≥ 92–95% in pregnant women
- Proning- Maintain awake prone position for a total of 4-6 hours/day or more (divided in shorter period over the day). Please avoid proning if patient is severely dyspneic and if there is any contraindication. In this case try lateral and sitting position
- Steroid- Inj. Dexamethasone 6 mg once daily for 7 to 10 days
- Maintain euvolemia
- Avoid fluid overload
- Anticoagulation:
 - Initiate Thromboprophylaxis (LMWH) in standard doses of 1mg/kg/day and assess the bleeding risk
 - There is lack of high-quality evidence of therapeutic anticoagulation in severe cases. Consider therapeutic anticoagulation (1 mg/kg body weight 12 hourly) only if patient has proven thromboembolism and suspected thromboembolism
 - Thromboprophylaxis should be given till discharge or for 7 days whichever is longer and followed by Tab Rivaroxaban 10 mg once daily Or Tab Apixaban 2.5 mg twice daily for 1 month especially patients at high risk for thromboembolism and based on clinician's discretion
- Antiviral: Remdesivir should be used within 10 days of symptom onset and at the discretion of consultant working in the hospital in all hospitalized adult and pediatric patients (>12 years old) with suspected or laboratory-confirmed COVID-19 case
 - who is hypoxic (SPO₂ ≤93%) or
 - having increased breathing difficulties or
 - who needs oxygen
- Antibiotic— IV broad spectrum antibiotic at the discretion of consultant if bacterial infection is suspected
- Investigation: CBC, CRP, D-dimer, S. ferritin, S. creatinine, ALT, CXR P/A view or other labs or imaging as per treating clinician's decision. HRCT of chest should not be routinely advised. It can only help in diagnostic dilemma. There is no role HRCT scan of chest in the management of COVID-19

Recommendations About Other Drugs

1. Tocilizumab

It should not be routinely used to manage severe to critical COVID-19. It can only be used under consultant's supervision only if following clinical and biochemical criteria are fulfilled. Discuss efficacy, possible adverse events and cost with patient or patient's guardian before starting Tocilizumab.

Indication

A) Clinical Criteria:

Patients (Adult (≥ 18 years) who have been admitted to the intensive care unit (ICU) within the last 24 hours and who require invasive mechanical ventilation, noninvasive mechanical ventilation (NIV), or high-flow nasal canula (HFNC) oxygen (needing >30 L/min of oxygen and $FiO_2 > 0.4$

B) Biochemical criteria: CRP > 75 mg/dl.

Dosing

Consider only 1 dose at 8 mg/kg (max: 800 mg/dose). Can be repeated after 12-24 hours if no clinical improvement. Max 2 doses.

Contraindication

- Significant immunosuppression, particularly in those with a history of recent use of other biologic immunomodulating drugs
- Alanine transaminase (ALT) > 5 times the upper limit of normal
- High risk for gastrointestinal perforation
- An uncontrolled, serious bacterial, fungal, or non-SARS-CoV-2 viral infection
- Absolute neutrophil count < 500 cells/ μ L.
- Platelet count $< 50,000$ cells/ μ L.

2. Baricitinib

In hypoxic patients where steroid cannot be used, the JAK inhibitor Baricitinib may be added at doses of 4 mg once daily for 14 days. They should be given as add on to Remdesivir. There is no room for using Baricitinib alone unless under a specific clinical trial.

3. Convalescent Plasma therapy

Till date, there is no quality evidence to recommend the use of convalescent plasma in severe COVID 19 cases for treatment purpose.

4. Ivermectin

Till date, there is no quality evidence suggesting any role of Ivermectin in treating COVID-19 in any grade of severity or preventing COVID-19. It can only be used in context of clinical trial.

5. Bevacizumab

There is no high-quality evidence of using the drug in COVID-19. It can only be used in context of clinical trial.

Discontinuing of transmission-based precaution including isolation and return to workplace criteria:

- For asymptomatic patients: 10 days after sample collection.
- For symptomatic Mild patients: 14 days after symptom onset provided patient has no fever and decreased respiratory symptoms for 03 days.
- For hospitalized patients: 21 days after symptom onset provided patient has no fever and decreased respiratory symptoms for 03 days.

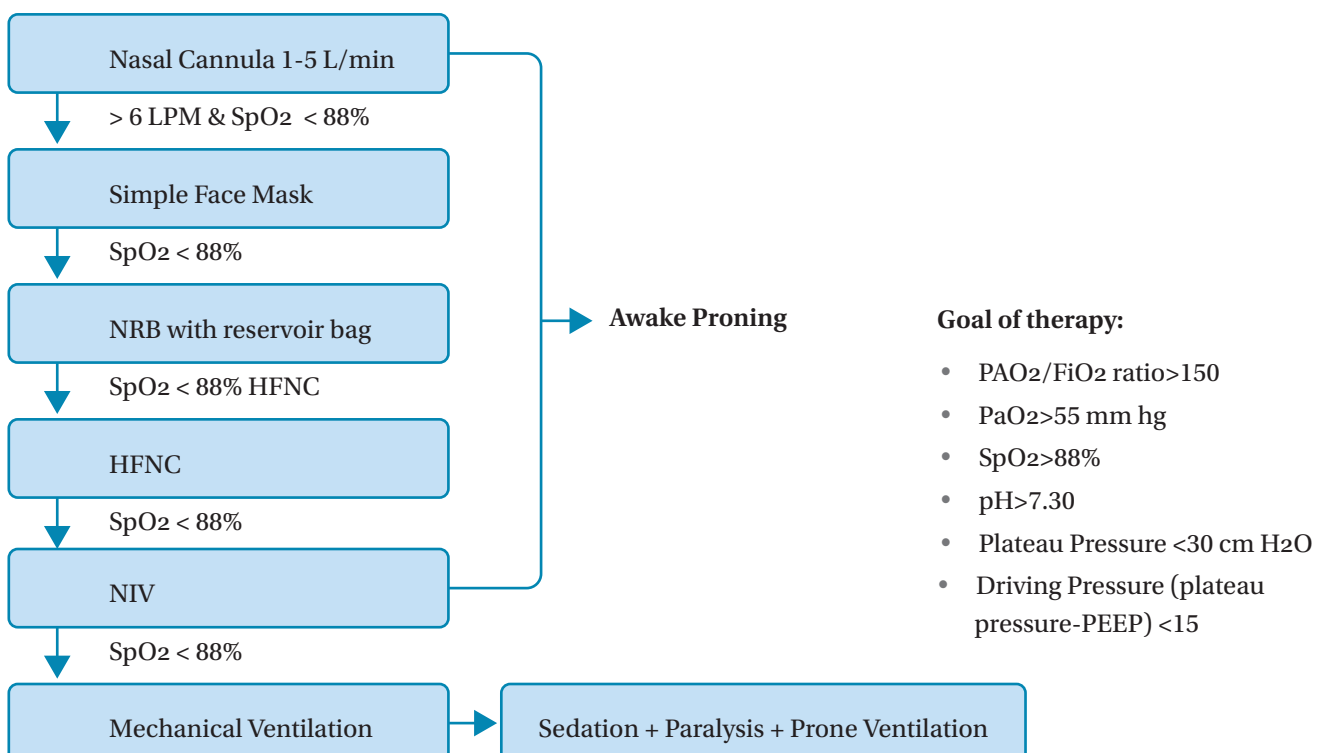
Discharge Criteria

Resolution of fever without the use of anti-pyretics such as paracetamol and significant improvement in the respiratory symptoms (e.g., cough, shortness of breath) for at least 03 days.

- There is no need for retesting the patient to give discharge from hospital.
- For severe or critical patients – physician’s discretion may be used for giving discharge.



Sequence of oxygen delivery devices used in the management of COVID-19



Anticoagulation

	Prophylactic dose	Intermediate dose	Therapeutic dose
Drug	Low molecular weight heparin (Enoxaparin)	Low molecular weight heparin (Enoxaparin)	Low molecular weight heparin (Enoxaparin)
Dose	40 mg SC OD For obese patients (BMI >40) 40 mg BID	0.5 mg/kg body weight SC BD	1 mg /kg body weight SC BD
Candidate (Assess bleeding risk)	Admitted mild case with uncontrolled comorbid conditions, prothrombotic states and moderate cases	Severe cases	Critical cases , patient has proven thromboembolism or strong clinical suspicion of thromboembolism
Dose adjustment if creatinine clearance is < 30	Yes. LMWH 20-30 mg SC OD. Or UFH 5000 IU SC BD	Yes. LMWH 0.5 mg/kg SC OD. Or UFH 7500 Unit, SC, TID	Yes. LMWH 1mg /kg OD. Or UFH 80 unit /kg load +18 unit /kg/hr/day infusion

Dose of Steroid in Other COVID-19 Syndromes

ARDS due to COVID: Inj. Methylprednisolone 1-2 mg/kg q12 OR Inj. Dexamethasone 20 mg IV daily for 5 days & then 10 mg IV daily for 5 days & then 5 mg IV daily for 5 days

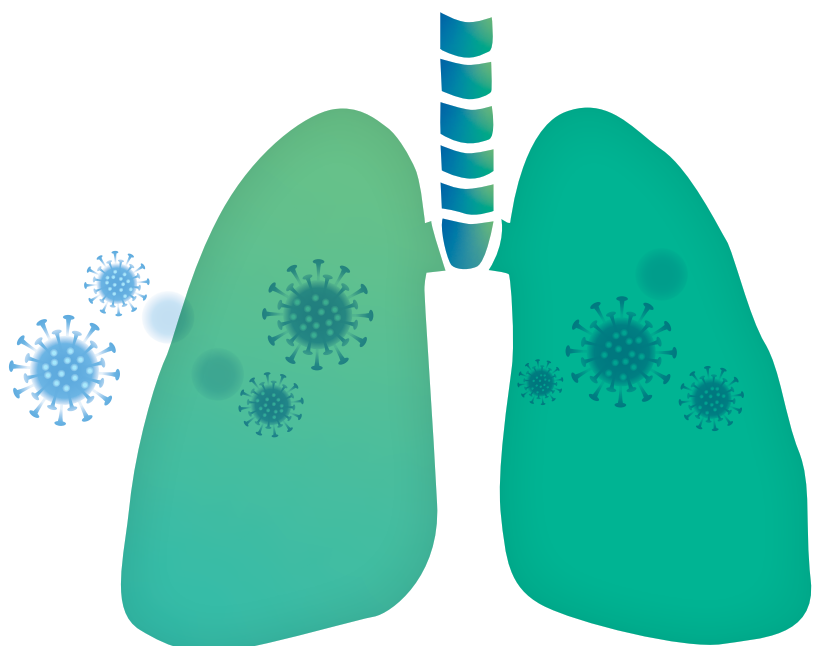
Refractory Sepsis: Hydrocortisone 50 mg IV 6 hourly

Cytokine Release Syndrome (CRS): Inj. Methylprednisolone 1-2 mg/kg q12 OR Inj. Dexamethasone 10 mg q6

Recommendations for Critical COVID-19 Patients

- In selected patients with COVID-19 and ARDS, a trial of HFNO, non-invasive ventilation – continuous positive airway pressure (CPAP), bilevel positive airway pressure (BiPAP) may be used. If there is no improvement after using these devices, further respiratory support is needed.
- Prompt recognition of progressive acute hypoxaemic respiratory failure when a patient with respiratory distress is failing to respond to standard oxygen therapy and adequate preparation to provide advanced oxygen/ventilatory support.
- Endotracheal intubation be performed by a trained and experienced provider using airborne precautions.

- Implementation of mechanical ventilation using lower tidal volumes (4–8 mL/kg predicted body weight [PBW]) and lower inspiratory pressures (plateau pressure < 30 cmH₂O).
- In adult patients with severe ARDS (PaO₂/FiO₂ < 150) awake prone ventilation for 12–16 hours per day is recommended.
- Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion and fluid responsiveness.
- Recognize septic shock in adults when infection is suspected or confirmed AND vasopressors are needed to maintain mean arterial pressure (MAP) ≥ 65 mmHg AND lactate is ≥ 2 mmol/L, in the absence of hypovolaemia.
- Recognize septic shock in children with any hypotension (SBP < 5th centile or > 2 SD below normal for age) or two or more of the following: altered mental status; bradycardia or tachycardia (HR < 90 bpm or > 160 bpm in infants and HR < 70 bpm or > 150 bpm in children); prolonged capillary refill (> 2 sec) or feeble pulses; tachypnoea; mottled or cold skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.
- In resuscitation for septic shock in adults, give 250–500 mL crystalloid fluid as rapid bolus in first 15–30 minutes. In resuscitation for septic shock in children, give 10–20 mL/kg crystalloid fluid as a bolus in the first 30–60 minutes.
- Do not use hypotonic crystalloids, starches or gelatins for resuscitation.
- In adults, administer vasopressors when shock persists during or after fluid resuscitation. The initial blood pressure target is MAP ≥ 65 mmHg in adults and improvement of markers of perfusion.
- In children, administer vasopressors if signs of fluid overload are apparent or the following persist after two fluid boluses:
 - signs of shock such as altered mental state.
 - bradycardia or tachycardia (HR < 90 bpm or > 160 bpm in infants and HR < 70 bpm or > 150 bpm in children);
 - prolonged capillary refill (> 2 seconds) or feeble pulses.
 - tachypnoea; mottled or cool skin or petechial or purpuric rash; increased lactate; oliguria persists after two repeat boluses.
 - or age-appropriate blood pressure targets are not achieved.



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