# Pediatrics - Topic 24 - Pediatric Emergencies – Common Pediatric Emergencies

## Recognizing a Critically Ill Child

- A critically ill child needs simultaneous assessment and treatment rather than a long history before action.

### Team Organisation and Early Assessment

#### Rapid Assessment and Team Organisation

- Call for senior help, obtain the child's weight or a validated emergency estimate, and assign clear team roles.
- Look rapidly at appearance, work of breathing and skin circulation before beginning an airway, breathing, circulation, disability and exposure assessment.
- Respiratory failure and shock commonly precede cardiac arrest in children, so early correction may prevent arrest.

#### Focused History, Monitoring and Dose Safety

- Ask briefly about the onset, trauma, choking, fever, medicines, allergy, previous illness and treatments already given.
- Apply pulse oximetry and cardiac monitoring when indicated, measure glucose early, and repeat observations after every intervention.
- Use age-appropriate equipment, a checked dose chart and closed-loop communication when giving medicines.

## Respiratory Distress and Respiratory Failure

- Respiratory distress is increased effort to maintain ventilation, while respiratory failure means that oxygenation or ventilation is inadequate.

### Signs of Deterioration

- Observe respiratory rate, chest movement, nasal flaring, recession, head bobbing, grunting, stridor and wheeze.
- Central cyanosis is a late and unreliable measure of hypoxaemia, particularly in anaemia, so use a reliable oxygen-saturation measurement.
- Poor air entry, exhaustion, irregular or slowing breathing, altered consciousness and bradycardia suggest impending failure.
- A quieter chest does not necessarily indicate recovery when the child is becoming tired.

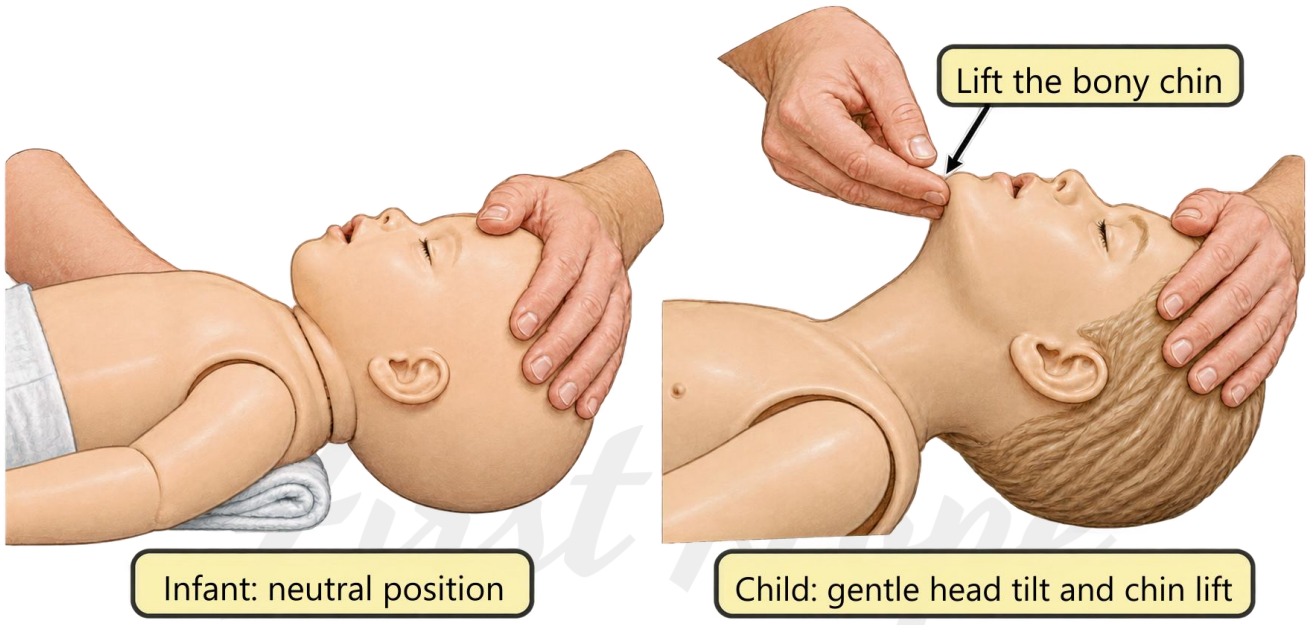
Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

## Likely Causes and Immediate Support

- Consider airway obstruction, pneumonia, bronchiolitis, asthma, pulmonary oedema, neuromuscular weakness, poisoning and metabolic acidosis.
- Give oxygen for hypoxaemia, support inadequate ventilation and treat the cause while arranging higher-level care.

# Airway and Breathing Skills

## Positioning and Opening the Airway




*The infant is kept near neutral, while an older child may need a gentle head tilt and chin lift to open the airway*

### Positioning and Chin Lift

- On a training model, place the child supine on a firm surface and assess whether the airway is open.
- Keep an infant's head near neutral because excessive flexion or extension can obstruct the airway.
- A small shoulder support may help an infant with a prominent occiput, but positioning must be adjusted to the individual.
- Use a gentle head tilt and chin lift in an older child when cervical injury is not suspected.

### Obstruction Removal and Trauma Precautions

- Lift the bony chin without pressing the soft tissue under it, and remove only clearly visible material from the mouth.
- Use jaw thrust with spinal precautions when trauma is suspected, but do not allow unsuccessful precautions to prevent oxygenation.
- Suction obstructing secretions carefully, and use an appropriate airway adjunct when trained and indicated.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

# Choking and Foreign-Body Obstruction

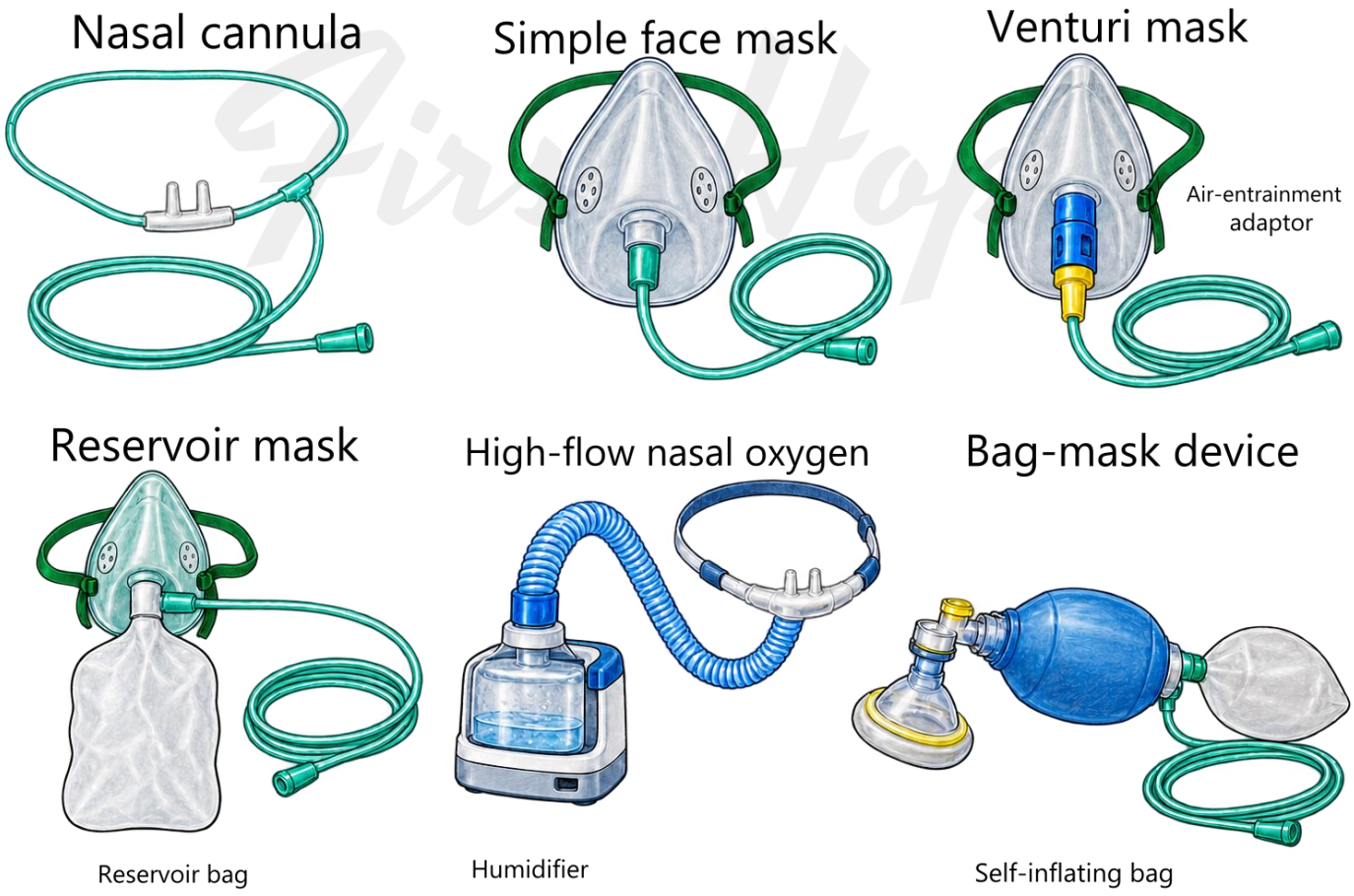
## Responsive Child and Infant Manoeuvres

- Encourage an effective cough and observe closely when the child can cough, speak or cry.
- For severe obstruction in a responsive infant, current guidance uses cycles of five back blows and five chest thrusts.
- Use the heel of one hand for infant chest thrusts under the current resuscitation guidance, and never give abdominal thrusts to an infant.
- For a responsive child with severe obstruction, alternate five back blows with five abdominal thrusts.

## Unresponsiveness and Visible-Object Checks

- If the child becomes unresponsive, activate emergency care and start CPR according to the trained sequence.
- Look for a visible object when opening the airway, but never perform a blind finger sweep.

# Oxygen Delivery




***Common oxygen and ventilation devices require a suitable paediatric size and correctly prescribed flow***

- Choose the device according to the child's size, oxygen requirement, breathing effort and ability to ventilate.
- Check the oxygen source, flowmeter, tubing, connections and supply before applying the device.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- Use an appropriately sized probe and assess its waveform because movement and poor perfusion can produce misleading saturation readings.
- A normal saturation during oxygen treatment does not exclude dangerously low ventilation or a rising carbon dioxide level.

| Method | Practical use and checks |
|---|---|
| Nasal cannula | Low-flow oxygen is comfortable for many children; choose paediatric prongs and titrate the flow and oxygen response to the age and protocol. |
| Simple face mask | Use an appropriate fit and the minimum device flow needed to clear expired gas, commonly at least 4–5 L/min; do not run it at very low flow. |
| Reservoir mask | Use a high enough flow, commonly 10–15 L/min, to keep the reservoir inflated during inspiration. |
| Venturi system | The adaptor and prescribed flow provide a selected oxygen concentration; keep the air-entrainment ports unobstructed. |
| High-flow nasal oxygen | Heated humidified flow and oxygen concentration are set separately, with monitoring for deterioration and timely escalation. |
| Bag-mask ventilation | This supports ventilation in an apnoeic or inadequately breathing child and requires a seal, an open airway and visible chest rise. |

## Starting Flow and Ongoing Titration

### Starting Flows and Prompt Reassessment

- For severe illness under the WHO emergency approach, illustrative starting nasal-prong flows are 0.5–1 L/min for neonates, 1–2 L/min for infants and 2–4 L/min for older children.
- These are low-flow starting ranges, not fixed prescriptions for every disease or substitutes for high-flow settings.
- Reassess saturation and breathing promptly, then change the flow or device and escalate ventilatory support when the clinical response is inadequate.

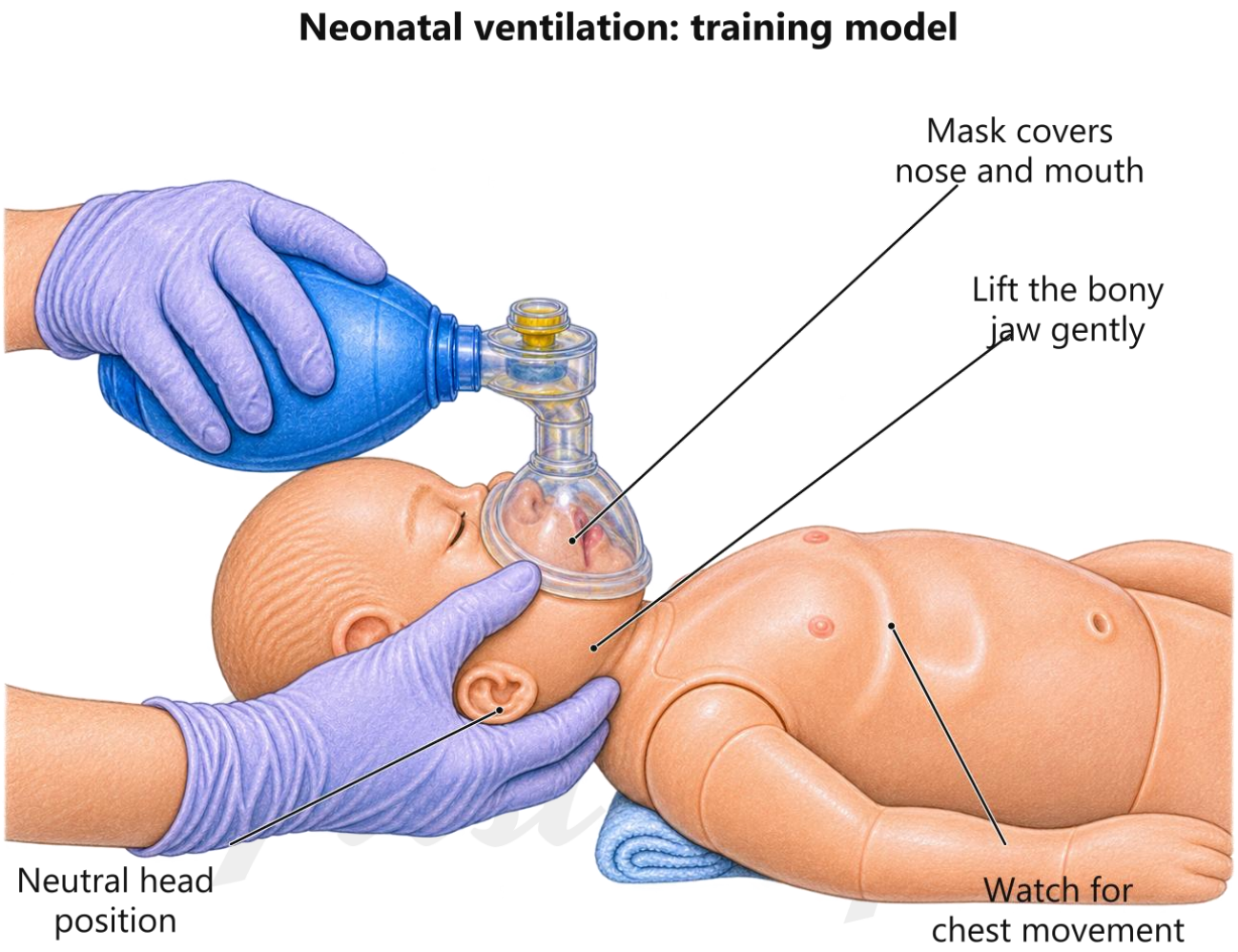
### Disease-specific Targets and Escalation

- Prescribe a saturation target appropriate to the disease and setting, rather than aiming for the highest possible reading in every child.
- Many acutely ill children need a target in the mid-to-high nineties, while bronchiolitis, cyanotic heart disease and premature infancy require their specific protocols.
- High-flow therapy and non-invasive ventilation need trained supervision, suitable monitoring and a clear plan for escalation.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- Apnoea, severe exhaustion or an unprotected airway may require bag-mask ventilation and expert intubation rather than oxygen alone.

## Stages of Assisted Ventilation




*The newborn training model shows the mask seal and jaw support; resuscitation rates depend on the child's age and clinical setting*

### 1. Equipment and Airway Position

- Select a bag and mask appropriate to the child's size, and check the valve, oxygen connection and reservoir.
- The mask should cover the nose and mouth without pressing on the eyes or extending far below the chin.
- Position the airway, hold the mask with a secure seal and lift the jaw towards the mask.
- A two-person technique is useful when one rescuer can maintain the seal while the other squeezes the bag.

### 2. Delivering and Reassessing Breaths

- Give each breath over about one second, using only enough volume to produce visible chest rise.
- Avoid forceful or excessive ventilation because it can inflate the stomach, impair venous return and increase aspiration risk.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

FREE PREVIEW

Click here to visit our website

MBBS PREMIUM NOTES

# Complete MBBS notes for every subject and year are available only in the FirstHope app.

Scan or click here

Click here to get the app >

Available on Google Play

## Browse MBBS notes by year

firsthope.co.in/mbbs

Click here to explore MBBS >

Scan or click here

### FirstHope Medical on Instagram

@firsthope.medical

Click here to follow

### App and notes help

Find answers about access and downloads

Click here for help

YEAR 1 / YEAR 2 / YEAR 3 / YEAR 4