



CHILD WITH BREATHING PROBLEMS

PELC Course





Objectives

Recognition of

- “immediately life threatening” asthma
- “severe” asthma

Case presentation

Management principles

Specific treatments



Signs of deterioration

- Increasing recession
- Increasing respiratory rate
- Increasing pulse rate
- Fatigue
- Altered mental status
- Cyanosis



Key Features

Stridor	⇒	upper airway obstruction
Wheeze	⇒	lower airway obstruction
Fever	⇒	pneumonia
Heart failure	⇒	heart disease
Ingestion	⇒	poisoning
Urticaria/ allergen ingestion	⇒	anaphylaxis



Upper airway noises

Secretions – poor cough reflex

Snoring – poor conscious level

Loud stridor & cough – croup or FB

Soft stridor & septic – tracheitis, epiglottitis

Sudden onset cough & stridor – FB

What do you next ?

BLUE PRINT



PELS Approach

“The Blueprint”

- Triage
- Initial Stabilisation
 - Position
 - Airway
 - Breathing
 - Circulation
 - Disability
 - Measurement
 - Monitoring
 - Reassess
- Directed History and Examination and Ix –
 - Reassess
- Commence Specific Treatment
- Ongoing Care

Initial resuscitation

- **Prop up**
- **Open airway (Sniffing position)**
- **High-flow oxygen**
- **Ventilatory support**

Breathing difficulties

Viral croup – emergency treatment

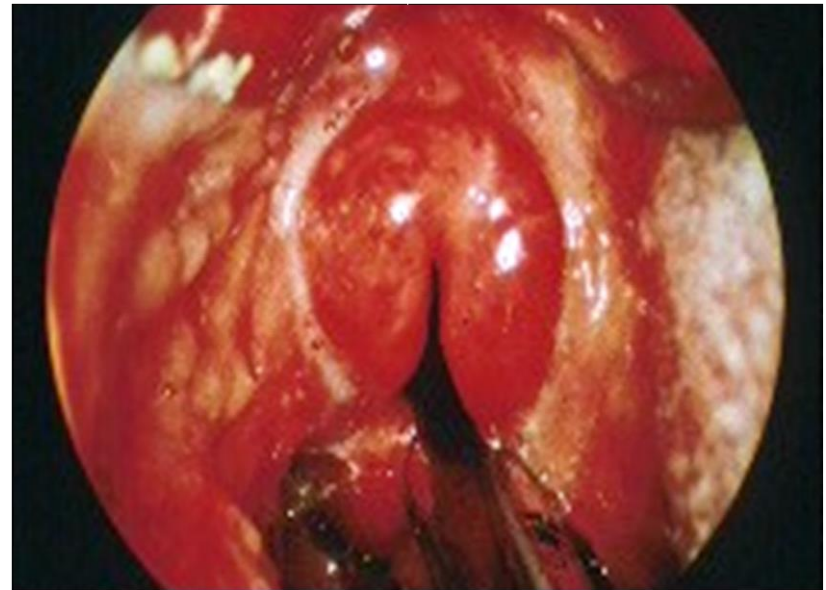
- Oxygen
- Adrenaline nebulised
 - 0.5mL/kg of 1:1000 (max 5mL)
- Give dexamethasone
- Seek expert help if intubation and ventilation required

Avoid unnecessary upset for child

Breathing difficulties

Epiglottitis – emergency treatment

- Oxygen
- Seek expert help to intubate and ventilate
- IV antibiotics



Avoid unnecessary upset for child

Breathing difficulties

Foreign body – emergency treatment

- Choking child algorithm
- Complete obstruction
 - Direct laryngoscopy
 - Cricothyroidotomy
- Severe respiratory distress
 - Seek help – anaesthetist & ENT
 - Urgent laryngoscopy/bronchoscopy with anaesthesia



Avoid unnecessary upset for child

Breathing difficulties

Bronchiolitis

- Infants
- Seasonal
- Characteristics
 - Cough
 - Wheeze
 - Respiratory distress
 - Apnoea

CXR – Hyper inflated lungs

Bronchiolitis – management

- Monitoring
- Airway clearance
- Oxygen
- High-flow nasal oxygen (HFNO)
- Hydration

Pneumonia – Assessment & Management

- Effort, efficacy and effect of breathing
- CXR
- Oxygen
- Antibiotics
- Ventilation may be require



Clinical Scenario

- **8 years old Child with acute wheezing**

How severe? What next?

Asthma Severity

Severe	Life-threatening
Too breathless to talk or feed	Exhaustion
Resp >30/min (>5yr) >50/min (2-5yr)	Poor respiratory effort Silent chest Hypotension
HR >120/min(>5yr) >130/min(2-5yr)	Conscious level depressed/agitated

Breathing – Interventions

- Sniffing position
- Assess breathing / Check SpO2 in air
- High flow oxygen through non-rebreathing face mask
- Nebulisation
 - Salbutamol
 - Salbutamol + Ipratent
- Hydrocortisone 4-6mg/kg 6hourly

Breathing – Nebulisations

- Oxygen source – 6 liters per minute
- Medications
 - Salbutamol / Ipratropium bromide / Combined
- How often
 - 2 hourly / 4 hourly / continuous
- Continuous Nebulisation (Back to back)
 - Use two units (breathing circuits with oxygen source)



Circulation / Hydration

- Dehydration / Normal hydration
- Check Pulse rate, Volume, BP and capillary refill
- Attach to a cardiac monitor
- Insert an IV line (if not already done)
- Blood tests (RBS, FBC, BC, SE-Na/K+, Mycoplasma ab)

Measure

- Blood sugar
- Temperature
- Venous blood gas

Monitor – Signs of deterioration

- Increasing resp rate or slow resp rate
- Falling oxygen saturation
- Abdominal breathing
- Unequal or poor air entry
- Unequal chest expansion on either side

Reassess

Check for Worsening of disease condition

SpO₂	Best
Wheeze	Poor
CXR	Poor
Arterial blood gases	Rarely needed

**Trends are better than
single observations**





Directed History

ASK ABOUT

- Current event
- History suggestive of infection
- Past history of ICU admission
- Current regular medications (theophylline, Inhalers)

SPECIFIC MEDICATIONS



Specific Treatment

IV Salbutamol

- 5 μg / kg loading dose over 5 mins
- Follow with infusion 5-10 μg / kg / hr (may go much higher than this)
- Tachycardia is not a contra-indication



Look for

- Differential diagnoses – FB inhalation
- associated co-morbidity – Heart disease
- Sudden deterioration – Pneumothorax
- Gradual deterioration – Pneumonia
- Surgical emphysema – Rupture of bullae

Treat treatable

- Antibiotics for bacterial infections
- Clarithromycin for mycoplasma
- Rule out FB inhalation

Q&A

STATUS ASTHMA





Important Points

Assess for signs of severity

Treatment is PROMPT + AGGRESSIVE

TREAT before TESTING

IF IN DOUBT, OVERTREAT

Easier to manage unintubated

Frequently reassess clinical status