69 Paediatric respiratory cases

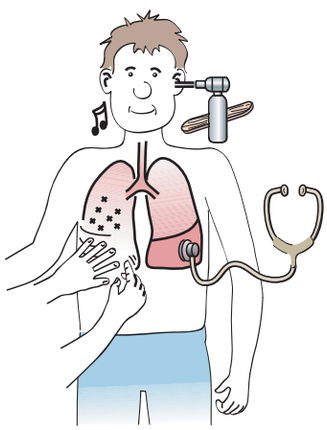
Respiratory history hints

Breathing difficulties	Cyanosis	Failure to thrive	Wheeze/cough/stridor	FH of asthma/atopy
Exercise tolerance	Poor feeding	Episodes of apnoea	ENT symptoms	

Station 186: Paediatric respiratory examination

PALPATION/PERCUSSION
Check trachea
Chest expansion
Apex beat
Cervical lymphadenopathy
Less commonly examined in an OSCE

AUSCULTATION
Appropriate size of stethoscope
Listen for breath sounds and added sounds
If older child, ask them to cough
In a younger child, ask them to blow, then listen when they breathe in again



GENERAL INSPECTION
- Well/unwell
- Signs of respiratory distress (count RR)
- Nutritional state
- Audible noises
- Chest deformity
- Clubbing

Age	Respiratory rate
<1	30-40
1-5	23-35
5-12	20-25
>12	15-20

REMEMBER THE ESSENTIALS CHECKLIST

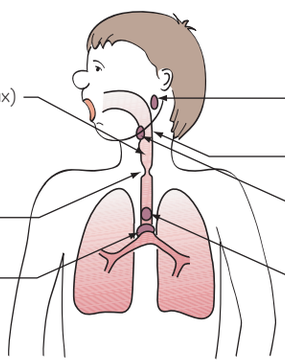
ENT
Important addition to the respiratory examination in children
Ears: use otoscope
Nose: look for polyps/obstruction
Throat: Breath odour
Tonsils, inflammation
NB. leave otoscope and tongue depressor examinations until the end!

Station 187: Stridor

	Epiglottitis	Croup
Age	Older (2–6 years)	Younger (6 months to 4 years)
Sex	♂= ♀	> ♂
Main agent	*Haemophilus influenzae* type b	Para-influenza 1
Seasons	Year-round	Late autumn and winter
Recurrence	Rare	Common
Clinical	Sudden severe airway obstruction Toxic = sick + ↑ fever Drooling Sitting forward Dysphagia Stridor (can be soft) ± sternal recession	1–2 day coryzal prodrome, usually non-toxic If severe → hypoxia manifested by restlessness, ↑ pulse and RR, cyanosis No drooling Barking cough/hoarseness Stridor (often harsh) + sternal recession
Progression	Rapid	Slow

Causes of chronic stridor
Laryngeal anomalies
Laryngomalacia (floppy larynx)
Upper airway obstruction
Tracheal abnormality
Vascular ring

Causes of acute stridor
Croup
Tonsillar abscess (quinsy)
Anaphylaxis
Epiglottitis
Inhaled foreign body



Station 188: Cystic fibrosis

Ear, nose and throat
- Nasal polyps

High salt losses in sweat
- Salty taste to skin
- Risk of salt-losing crisis during very hot weather

Recurrent chest infections
- Cough
- Purulent sputum
- Pneumonia
- Chronic *Pseudomonas* infection
- Bronchiectasis
- Chest deformity
- Eventual respiratory failure

Poor growth
- Require 40% extra energy intake compared with normal child
- Poor weight gain
- Short stature
- Normal growth is achievable with Portacath pancreatic replacement, and aggressive treatment of chest infections

Finger clubbing
- Seen with chronic lung infection

Liver disease
- Obstructive jaundice in neonatal period (rare)
- Biliary stasis may require treatment with ursodeoxycholic acid
- Eventually liver cirrhosis may develop

Gastrointestinal effects
- Pancreatic insufficiency
- Poor fat absorption
- Steatorrhoea (fatty stools)
- Distended abdomen
- Rectal prolapse
- Meconium ileus equivalent –can mimic acute appendicitis
- Need to take pancreatic enzymes with meals
- May develop diabetes
- Meconium ileus at birth (15%)

Expectorant therapy to clear sputum
- Regular chest physiotherapy
- Inhaled or nebulised bronchodilators
- Nebulised dornase alfa can help thin viscid secretions by breaking down DNA strands within the mucous

Male infertility
- Congenital absence of the vas deferens

Station 187: Stridor

• *Please discuss with the examiner the different causes of stridor and how they can be managed*

Discussion points

- What is the cause of croup?
- Discuss the management of a child with croup
- Discuss the management of acute epiglottitis

Causes

• *Acute*: epiglottitis; inhaled foreign body; croup; tonsillar abscess; anaphylaxis

• *Chronic*: structural abnormalities, e.g. upper airway (micrognathia, pharyngeal cyst), larynx (vocal cord palsy, floppy larynx) or tracheal (stenosis, tracheomalacia)

Ix	Epiglottitis	*Do not investigate until the airway is secured*
		FBC and blood cultures
	Croup	None
	Foreign body	CXR (radio-opaque object)
		Bronchoscopy
	Chronic	Microlaryngoscopy
		Barium swallow
Mx	Croup	Supportive
		Pulse oximetry ± IV fluids
		Nebulised steroids
		Oral steroids
		Steam may improve symptoms
	Epiglottitis	*Acute emergency examination of the throat is contraindicated*
		Intubation and stabilisation
		IV antibiotics

Station 188: Cystic fibrosis

• *Please examine the respiratory system of John, who is 12*

• *Emma has a chronic respiratory problem. Please examine her hands and listen to her lungs at the back*

Hints and tips

• Check for a portacath or a Hickman line (chest wall) or other long-term venous access (percutaneously inserted central catheter (PICC) in the arm) – used for repeated courses of antibiotics. Also check the abdomen for a percutaneous endoscopic gastrostomy (PEG) tube.

Discussion points

- What is the genetic problem in cystic fibrosis (CF)?
- How do patients with CF present?
- What tests and monitoring are necessary for suspected CF?
- Discuss the management principles for a child with CF

Aetiology

Cystic fibrosis is an autosomal recessive condition that occurs in one in 2500 (one in 25 are carriers). A mutation with the cystic fibrosis transmembrane regulator protein (CTFR) on epithelial cells causes a problem with the chloride channel. This leads to viscid secretions that block bronchioles and exocrine pancreatic ducts.

Presentation		Recurrent chest infections (50%)
		FTT despite normal intake (30%)
		Meconium ileus (10%)
		Pancreatic insufficiency and malabsorption
		Rectal prolapse (rare)
		Some children are not diagnosed until they start school
Ix	*Imaging*	CXR
	Other	Sweat test – high concentrations of sodium and chloride are diagnostic
		Lung function tests
		Faecal elastase – low in CF
Mx		
Rx	*Medical*	Regular exercise
		Treatment of infections
		Oral, IV or nebulised antibiotics
		Consider prophylactic antibiotics
		Mucolytics
		Inhaled bronchodilators (± steroids) if airway reversibility on lung function testing
		Good nutritional intake – high calorie diet
		Pancreatic enzyme supplements
		Vitamin supplements
	Surgery	Consideration of heart/lung transplant
	Monitoring	Monitor for diabetes and liver problems
	MDT	Regular chest physiotherapy
		Specialist nurses, dietician, family unit
		GP, respiratory paediatrician
		Psychosocial counselling
	Education	For patient and family

Station 189: Chesty child

• *Please state the causes of pneumonia in a child and discuss the investigation and treatment*

• *Write short notes on bronchiolitis including diagnosis, investigation and management*

Hints and tips: bronchiolitis

- Acute respiratory distress
- Obstruction of the small airways
- Caused by RSV in about 80% of cases

NB. Not all that wheezes and crackles in winter is bronchiolitis (consider heart failure).

Ix	Nasopharyngeal aspirate for immunofluorescence
Mx	Supportive
	Humidified O_2 – aim for sats > 92%
	Adequate hydration and nutrition

Causes of pneumonia and bronchiolitis

• Bacterial: *Streptococcus pneumoniae, Haemophilus influenzae, Staphylococcus, Mycoplasma pneumoniae*

• Viral: respiratory synctial virus (RSV); influenza; parainfluenza; coxsackie; metapneumovirus

Indications for hospitalisation

Hypoxaemia; increasing respiratory distress; significant feeding problems; social problems