Paediatric respiratory cases

Respiratory history hints

<table>
<thead>
<tr>
<th>Breathing difficulties</th>
<th>Cyanosis</th>
<th>Failure to thrive</th>
<th>Wheeze/cough/stridor</th>
<th>FH of asthma/atopy</th>
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</thead>
<tbody>
<tr>
<td>Exercise tolerance</td>
<td>Poor feeding</td>
<td>Episodes of apnoea</td>
<td>ENT symptoms</td>
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</tbody>
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Station 186: Paediatric respiratory examination

**PALPATION/FERCUSSION**
- 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

**REMEMBER THE ESSENTIALS CHECKLIST**

<table>
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<th>Station 187: Stridor</th>
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<tr>
<td><strong>Epiglottitis</strong></td>
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<tr>
<td>Age</td>
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<tr>
<td>Sex</td>
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<tr>
<td>Main agent</td>
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<tr>
<td>Seasons</td>
</tr>
<tr>
<td>Recurrence</td>
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<td>Clinical</td>
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<tr>
<td>Toxic</td>
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<td>Drooling</td>
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<td>Sitting forward</td>
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<tr>
<td>Stridor</td>
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<td>Progression</td>
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<table>
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<th>Station 188: Cystic fibrosis</th>
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<tr>
<td><strong>Ear, nose and throat</strong></td>
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<tr>
<td>- Nasal polyps</td>
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<tr>
<td><strong>Recurrent chest infections</strong></td>
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<tr>
<td>- Cough</td>
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<tr>
<td>- Purulent sputum</td>
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<tr>
<td>- Pneumonia</td>
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<tr>
<td>- Chronic Pseudomonas infection</td>
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<tr>
<td>- Bronchiectasis</td>
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<tr>
<td>- Chest deformity</td>
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<tr>
<td>- Eventually respiratory failure</td>
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</tbody>
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**High salt losses in sweat**
- Salty taste to skin
- Risk of salt-losing crisis during very hot weather

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

**Finger clubbing**
- Seen with chronic lung infection

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

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

**Gastrointestinal effects**
- Pancreatic insufficiency
- Poor fat absorption
- Statorrhoea (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%)

**Male infertility**
- Congenital absence of the vas deferens

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

Epiglottitis
- Causes of acute stridor
  - Croup
  - Tonsillar abscesses (quinsy)
  - Anaphylaxis
  - Epiglottitis
  - Inhaled foreign body
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
  CXR (radio-opaque object)
  Bronchoscopy
  Microlaryngoscopy
  Barium swallow

Croup  
None
  Pulse oximetry ± IV fluids
  Nebulised steroids
  Oral steroids
  Steam may improve symptoms

Chronic  
Supportive
  Acute emergency examination of the throat is contraindicated
  Intubation and stabilisation
  IV antibiotics

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 (CFTR) 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  
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 O₂ – aim for sats > 92%
  Adequate hydration and nutrition

Causes of pneumonia and bronchiolitis
- Bacterial: Streptococcus pneumoniae, Haemophilus influenzae, Staphylococcus, Mycoplasma pneumoniae
- Viral: respiratory syncitial virus (RSV); influenza; parainfluenza; coxsackie; metapneumovirus

Indications for hospitalisation
Hypoxaemia; increasing respiratory distress; significant feeding problems; social problems