Fever with Respiratory Symptoms
Fever with respiratory symptoms

Young children may have 1-2 attacks of cold/month

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Virus Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent</td>
<td>Rhinovirus</td>
</tr>
<tr>
<td>Occasional</td>
<td>Respiratory syncytial virus (RIV)</td>
</tr>
<tr>
<td></td>
<td>Human metapneumo virus</td>
</tr>
<tr>
<td></td>
<td>Corona virus</td>
</tr>
<tr>
<td>Uncommon</td>
<td>Influenza virus</td>
</tr>
<tr>
<td></td>
<td>Para influenza virus</td>
</tr>
<tr>
<td></td>
<td>Adeno virus</td>
</tr>
<tr>
<td></td>
<td>Boca Virus</td>
</tr>
</tbody>
</table>
• RSV is responsible virus in >50% cases occurring in infants.

• Premature infants (Infants with chronic lung disease and congenital heart disease are more prove

• Has a seasonal prediction, many similar cases occur simultaneously

• Presentation is usually fever, cough, dyspnea and irritability.
Fever with respiratory symptoms

Acute bronchiolitis

Diagnosis is mainly clinical – healthy infant presenting with first time wheeze during a community outbreak.

Chest x-ray hyper inflation and patchy atelectasis

WBC count, differential and cell, usually normal

A trial of bronchodilator – if improvement then continues

Use of ipratropium bromide – controversial.
Fever with respiratory symptoms

Acute bronchiolitis

- Corticosteroids – conflicting and negative results
- Aerosolized Ribavarin – For RSV in infants with cong. heart or chronic lung disease
- Antibiotics of no value unless coexisting bacterial infection
- Hypertonic saline (3% aerosol) – May be beneficial
Fever with respiratory symptoms

Influenza

- Common cause of viral pneumonia is a disease of very young and very old.
- More serious in children with chronic disease is pulmonary, cardiac, neurology or neuromuscular system.
- Seasonal disease though occurs throughout the year in our country but maximum cases in the monsoon.
- Pandemics occur when a novel HA or NA enters non immune human population.
Fever with respiratory symptoms

Influenza

• Systemic symptoms like myalgia, headache, fever are common (cf. common cold)
• Resp. manifestation from upper to lower resp. tract.
• During an epidemic clinical decision is enough to start antivirals
• Common complications are otitis media, pneumonia, myocarditis, encephalitis, myelitis and GB syndrome.
Fever with respiratory symptoms

Influenza

- NA inhibitors – Oseltamivir and zanamivir – former can be used above 2 weeks age.

- Treatment started early within 48 hrs. reduces disease severity, complication and mortality.

- Decision to start antiviral treatment should not wait lab confirmation.

- Treatment after 48 hours is recommended for hospitalized, complicated or patients with progressive illness.
Fever with respiratory symptoms

Rhinovirus/Common cold

• One of the commonest cause of primary care visits.

• Present with nasal congestion, clear/watery/viscous discharge, breathing/feeding difficulty.

• Fever, malaise and fatigue is less common.

• Diagnosis is based on clinical findings.

• Role of decongestants, antihistamines, analgesics and antitussive are doubtful.
## Etiology

### Pharyngitis

<table>
<thead>
<tr>
<th>Viral</th>
<th>Bacterial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhinovirus</td>
<td>Strep pyogenes</td>
</tr>
<tr>
<td>Coronavirus</td>
<td>Group C/G Strep</td>
</tr>
<tr>
<td>Adenovirus</td>
<td>Mycoplasma</td>
</tr>
<tr>
<td>Parainfluenza</td>
<td></td>
</tr>
</tbody>
</table>
Etiology

Otitis media

- *Streptococcus pneumoniae*
- *Haemophilus influenzae* type b
- *Moraxella catarrhalis*

Newborn < 2 weeks – Gram Negative, Strep, *S. aureus*
Older Children – *S. pyogenes*
Antibiotics

A ‘no antibiotic prescribing’ strategy or a ‘delayed antibiotics prescribing’ strategy should be agreed for:

- Acute otitis media
- Acute sore throat/acute pharyngitis/acute tonsilitis
- Common cold
- Acute rhinosinusitis
- Acute cough/acute bronchitis
Immediate antibiotics

- Bilateral acute otitis media in children younger than 2 years
- Acute otitis media in children with otorrhea
- Acute sore throat/acute pharyngitis/acute tonsillitis when three or more Centor criteria are present
- Centor criteria (p230)

  • presence of tonsillar exudate
  • tender anterior cervical lymphadenopathy or lymphadenitis
  • history of fever
  • absence of cough
  • age <15 years (adjusted)
AOM management

18 month old with AOM febrile and toxic
Started on Amoxycillin 40 mg/kg day
Fever, pain, irritability persists after 48 hrs.

2nd line antibiotics?
Co-amoxyclav
Cefuroxime
Cefpodoxime
Cefdinir
But NOT cefixime

If no response again – Ceftriaxone 50mg/kg/day for 1-3 days
Case 3

11 year old boy
Weight 28 kg is brought with
High grade fever (104°F)
Associated grunt, refusal to feed
and lethargy
RR 66/min; SpO² 89 with 6 Lt O₂

Chest – Recessions ++, breath
sounds reduced on the right;
scattered rhonchi
**Investigations**

Do all patients require a chest radiograph?

**NO**
Not all CAP, particularly if on domiciliary treatment

**Yes – A few**
If complication suspected (for example, pleural effusion)
Ambiguous clinical features

**Routine microbiological tests are of no use**
TLC, DLC, CRP are not diagnostic but may be useful to monitor the response to treatment.
Pulse oxymetry is a good tool for assessing the severity and for monitoring response in those with severe disease.
Etiology
Community Acquired Pneumonia

2-60 months age

Viruses – 35%
Bacteria – 60%

*H. influenzae*
*S. pneumoniae*
Staphylococci
Mycoplasma – 24-30%  More in above 5 years
Chlamydia – 6-11%
Mixed infections – 9%
<table>
<thead>
<tr>
<th>Predisposing factor</th>
<th>Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyoderma, Measles</td>
<td>Staphylococcus</td>
</tr>
<tr>
<td>HIV</td>
<td>Pneumocystis</td>
</tr>
<tr>
<td>Neutropenia</td>
<td>Gram negative, Aspergillus</td>
</tr>
<tr>
<td>Cystic fibrosis</td>
<td>Pseudomonas, Staphylococcus</td>
</tr>
<tr>
<td>Severe PEM</td>
<td>Gram negative, staph</td>
</tr>
<tr>
<td>Aspiration pneumonia</td>
<td>Anaerobes</td>
</tr>
</tbody>
</table>
# Severity assessment

<table>
<thead>
<tr>
<th></th>
<th>Mild</th>
<th>Severe</th>
</tr>
</thead>
</table>
| **Infants** | • Temperature < 38.5°C  
• RR < 50 breaths/min  
• Mild recession  
• Taking full feeds | • Temperature > 38.5°C  
• RR > 70 breaths/min  
• Moderate to severe recession  
• Nasal flaring  
• Cyanosis  
• Intermittent apnea  
• Grunting respiration  
• Not feeding |
| **Older children** | • Temperature < 38.5°C  
• RR < 50 breaths/min  
• Mild breathlessness  
• No vomiting | • Temperature > 38.5°C  
• RR > 50 breaths/min  
• Severe difficulty in breathing  
• Nasal flaring  
• Cyanosis  
• Grunting respiration  
• Signs of dehydration |
## Antibiotics for outpatients

<table>
<thead>
<tr>
<th>Age</th>
<th>First Line</th>
<th>Second line</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months - 5 years</td>
<td>Amoxycillin*</td>
<td>Coamoxiclav/cefuroxime</td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>Amoxycillin*</td>
<td>Macrolide**/coamoxiclav/cefuroxime</td>
</tr>
</tbody>
</table>

< 3 months treat as inpatients
* Standard doses 40 mg/kg/day
** Erythromycin/ Clarithromycin/ Azithromycin
## Antibiotics for inpatients

<table>
<thead>
<tr>
<th>Age</th>
<th>First Line</th>
<th>Second line</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3 months</td>
<td>Cefotaxime/ Ceftriaxone</td>
<td>+/- aminoglycoside</td>
</tr>
<tr>
<td>3 months-5 years</td>
<td>Coamoxyclav/ Cefuroxime/ Amp + chloro</td>
<td>Ceftriaxone/ Cefotaxime</td>
</tr>
<tr>
<td>5 years</td>
<td>Ampicillin/ Penicillin G</td>
<td>Ceftriaxone/ Cefotaxime</td>
</tr>
<tr>
<td></td>
<td>➢ Coamoxyclav/ Macrolide</td>
<td>AND Macrolides</td>
</tr>
<tr>
<td></td>
<td>➢ (if mycoplasma suspected)</td>
<td></td>
</tr>
<tr>
<td>Suspected staph</td>
<td>MSSA Cefazolin/Clox +/- Aminoglycoside</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MRSA Vancomycin</td>
<td>Linezolid</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td></td>
</tr>
</tbody>
</table>
CAP : Complications and follow-up

If a child remains feverish or unwell 48 hrs after hospital admission with pneumonia, re-evaluation is necessary.

Common complications include empyema, necrotising pneumonia and lung abscess. Needs to be followed up after discharge until complete recovery and chest x-ray is near normal.