**Haemophilus influenzae (H. flu)**

**Epidemiology**
- Normal flora: upper respiratory tract
- Prior to the vaccine, type B was the most common cause of pediatric meningitis

**Clinical syndromes**
- Meningitis: type B, vaccine ↓ incidence by 90%
- Epiglottitis: enlarged epiglottis, sore throat, respiratory distress, tachycardia, hoarseness, airway compromised
- Otitis media, sinusitis, tracheobronchitis, bacteremia, pneumonia, conjunctivitis, purpuric fever

**Virulence factors**
- Polysaccharide capsule: PRP, antiphagocytic, does not induce immune response

**Identification**
- Gram negative coccobacillus
- Chocolate agar, requires growth factors (X factor hematin, V factor NAD)

**Treatment**
- Many strains are resistant to ampicillin: β-lactamase
- Cephalosporins: cefuroxime po for pneumonia, ceftiriaxon iv for meningitis
- Macrolides: azithromycin (NOT erythromycin)
- Fluoroquinolones: levofloxacin
- Meningitis: dexamethasone (glucocorticoid), 3rd gen cephalosporin (ceftriaxone), rifampin (before d/c to eliminate carriage)

**Vaccine**
- Conjugated capsular material (PRP) with an adjuvant carrier protein (e.g. diphtheria toxoid)

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**Haemophilus ducreyi**

Having fun in other countries → STD → chancroid

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**HACEK**

The acronym HACEK refers to a grouping of gram-negative bacilli. These organisms share an enhanced capacity to produce endocardial infections, and are the most common cause of gram-negative endocarditis. Normal oral flora.

<table>
<thead>
<tr>
<th>Haemophilus aphrophilus</th>
<th>Actinobacillus</th>
<th>Cardiobacterium hominis</th>
<th>Eikenella corrodens</th>
<th>Kingella kingae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endocarditis (underlying valvular disease)</td>
<td>Periodontal disease, soft tissue infection, infective endocarditis</td>
<td>Bacteremia, endocarditis (abnormal valves)</td>
<td>Human bite wounds, endocarditis</td>
<td>Endocarditis, skeletal infections (septic arthritis, osteomyelitis, diskitis), bacteremia, stroke</td>
</tr>
<tr>
<td>Embolization to major arteries</td>
<td>Significant embolization</td>
<td>Head/neck malignancy</td>
<td></td>
<td>Dental plague</td>
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<tr>
<td>Fastidious: CO₂ requirements</td>
<td>Bite wound from animals</td>
<td>Recent dental procedures or poor dentition</td>
<td>IV drug abusers who lick their needles before injection or skin poppers</td>
<td>Fall/winter</td>
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<td>Pediatric</td>
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<td>Drug of choice: cefotaxime or ceftriaxone</td>
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<td></td>
<td></td>
<td>3rd gen cephalosporins, fluoroquinolones, aminoglycosides, tetracycline, azithromycin</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Penicillin, ampicillin, 3rd gen cephalosporins, fluoroquinolones, tetracyclines</td>
</tr>
</tbody>
</table>