**Haemophilus influenzae Invasive (Meningitis)**

**Transmission, Exclusion**

- **Source**: upper respiratory tract of humans
- **Transmission**:
  - Person-to-person (via respiratory droplets)
  - Direct contact with respiratory secretions
  - Neonates: intrapartum aspiration of amniotic fluid
- **Incubation**: 3-4 days (2-10 d)
- **Carriers**: 40-80% of children (usually unencapsulated)
- **Meningitis, Pneumonia, Febrile bacteremia, Epiglottitis**
- **Septic arthritis, Cellulitis, Otitis media, Pericarditis**
- **Contagious**: until antimicrobial treatment
- **Exclude**: all children until 24 hrs. after antimicrobial treatment

**Most common in children <5 years**

**Diagnosis**

- **Lab Diagnosis**
  - **Culture**: primary diagnosis criterion
    - positive for *H. influenzae* in CSF, blood, synovial fluid, pleural fluid, or middle ear aspirates on chocolate agar
  - **Serotype**: differentiate between unencapsulated and encapsulated strains. Identify type (a-f).
  - **Antigen Detection**: Latex agg. On Urine/serum
    - False positive (recently vaccinated, fecal contamination)
    - False negative: Do not exclude if negative latex

**Clinical Case Definition**

- **Children <5 yrs.**
- **Sudden onset**
- **Vomiting**
- **Lethargy**
- **Bulging fontanella - infants**
- **Stiff neck/back**
- **Probable**: Clinically compatible case with detection of Hib antigen in CSF
- **Confirmed**: Clinically compatible case that is laboratory confirmed

**Diagnosis**

- Pleomorphic gram-negative coccobacillus
- 6 typable (capsulated) strains (a-f), + unencapsulated strains.
- Type b is most common cause

**Treatment, Prophylaxis**

**Treatment**

- Cefotaxime or ceftriaxone
- Meropenem or combination of ampicillin and chloramphenicol
- Antimicrobial therapy for 10 days (or more) intravenously
- Dexamethasone in infants to decrease risk of neurologic sequelae—given before/concurrent with first antimicrobial dose

**Prophylaxis**

- Rifampin - eradicates Hib from pharynx in 95% of carriers, decreases risk of secondary illness
- Dose: orally once a day for 4 days (20 mg/kg; maximum dose 600 mg)

**Indications for Prophylaxis in Households**

In households with:

- at least 1 contact younger than 48 months of age who is unimmunized or incompletely immunized against Hib,
- or 1 contact younger than 12 months who has not completed the primary Hib immunization series

- Rifampin prophylaxis is recommended for all household contacts, irrespective of age.

Exception: All members of households with a fully immunized but immunocompromised child, regardless of age, rifampin because of concern for ineffective immunization series

**Indications for Prophylaxis in Daycare Centers**

1. When 2 or more cases of invasive disease have occurred within 60 days and
   - Un-immunized or incompletely immunized children attend the child care facility,
   - Rifampin prophylaxis to all attendees and supervisory personnel is indicated.
2. Single case in daycare with unimmunized or incompletely immunized children: many experts recommend no prophylaxis.
3. Unimmunized or incompletely immunized children should complete recommended age-specific immunization schedule

**Control**

**Droplet precautions**

- **Immunization** of all children: Dose at 2, 4, 6 mos. with booster at 12-15 mos.
- **Close contacts + prophylaxis**: see above

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