

Haemophilus influenzae

- *H. influenzae* is a **pleomorphic** Gram negative bacillus bacterium of the *Pasteurellaceae* family
 - The **capsulated type b strain** commonly causes infection by colonisation of the **respiratory** tract of infants
 - This often causes **meningitis**
 - It is known as a fastidious bacteria due to its **nutritional** and **incubational requirements**
 - It requires **increased CO₂ conditions**
- It is often the cause of RTI's in young children, but may also invade the blood stream
 - In children 3 months to 5 years, it is implicated in meningitis
 - The peak incidence of this is at 2 years
 - The test for meningitis requires the extraction of **cerebrospinal fluid** and a Gram stain test
 - The mortality rate is **~5%**
 - **By age 12, most children have specific antibodies** in their system to protect them from infection
- *H. influenzae* will grow **on enriched blood agar, such as chocolate agar** in an **enriched CO₂ atmosphere (5-10%)**. The right image shows this:
- Bacitracin (10U) inhibits growth of Gram positive bacteria such as streptococci and Gram negative bacteria such as *Neisseria spp* which may mask presence of *H. influenzae*
- Growth of *H. influenzae* only occurs around disc XV in the following image due to it containing both, haemin (X) and nicotinamide dinucleotide (NAD) (V). On itc with one or the other, the bacteria will not grow:



- The *H. influenzae* capsule allows the **avoidance of phagocytosis** by **polymorphonuclear leucocytes**, however, it is also an **aid in producing a vaccine against the bacterium**
 - The type b **vaccine is prepared using purified oligosaccharides**
 - The vaccine is given to infants **between 2 and 4 months**
- The capsule, when present, causes **meningitis, septicaemia, and epiglottitis**. When absent, it is associated with less severe diseases

Legionella