

*Neisseria meningitidis*: meningitis (base of the brain)

*Neisseria gonorrhoeae*: primary infection sex organs

*Neisseria gonorrhoeae*, also known as gonococcus, aerobic, is a species of gram-negative diplococci bacteria isolated by Albert Neisser in 1879. It causes the sexually transmitted genitourinary infection gonorrhea.

### Classification

Phylum:	<a href="#">Proteobacteria</a>
Class:	<a href="#">Betaproteobacteria</a>
Order:	<a href="#">Neisseriales</a>
Family:	<a href="#">Neisseriaceae</a>
Genus:	<b><i>Neisseria</i></b>

### Culture and identification

*Neisseria gonorrhoeae* is usually isolated on Thayer-Martin agar. Thayer-Martin agar is a chocolate agar plate (heated blood agar) containing nutrients and antimicrobials (vancomycin, colistin, nystatin, and trimethoprim). This agar preparation facilitates the growth of *Neisseria* species while inhibiting the growth of contaminating bacteria and fungi. They are aerobic but may grow anaerobically. The optimum temperature for growth is 35-36°C & optimum pH is 7.2-7.6. It is essential to provide 5-10% CO<sub>2</sub>.

### Sexual transmission is possible through vaginal

*N. gonorrhoeae* can cause infection of the genitals, throat, and eyes. Asymptomatic infection is common in males and females. Untreated infection may spread to the rest of the body.

**Treatment:** Ceftriaxone.

*Neisseria meningitidis* : often referred to as meningococcus, is a Gram-negative bacterium that can cause meningitis and other forms of meningococcal disease such as meningococemia, a life-threatening sepsis. The bacterium is referred to as a coccus because it is round, and more specifically, diplococcus because of its tendency to form pairs. About 10% of adults are carriers of the bacteria in their nasopharynx.

### Signs and symptoms

Meningococcus can cause meningitis and other forms of meningococcal disease. It initially produces general symptoms like fatigue, fever, and headache and can rapidly progress to neck stiffness.

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#### Infection

chills, fever, malaise, headache  
lasts 1-2 days  
can be a transient bacteremia with fever

#### Intracranial pressure

headache, vomiting, fever  
rarely papilledema (edema of the optic disk)  
possible nuchal rigidity

### Virulence

Lipopolysaccharide (LPS) is a component of the outer membrane of *N. meningitidis*. This acts as an endotoxin and is responsible for septic shock and hemorrhage due to the destruction of red blood cells. Other virulence factors include a polysaccharide capsule which prevents host phagocytosis and aids in evasion of the host immune response.

### Prevention

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Receiving a dose of the *Meningococcal vaccine* before traveling to a country in the "meningitis belt" or having a booster meningitis vaccine, normally five years apart could prevent someone from getting an infection from the pathogen.

**Treatment** : cefotaxime