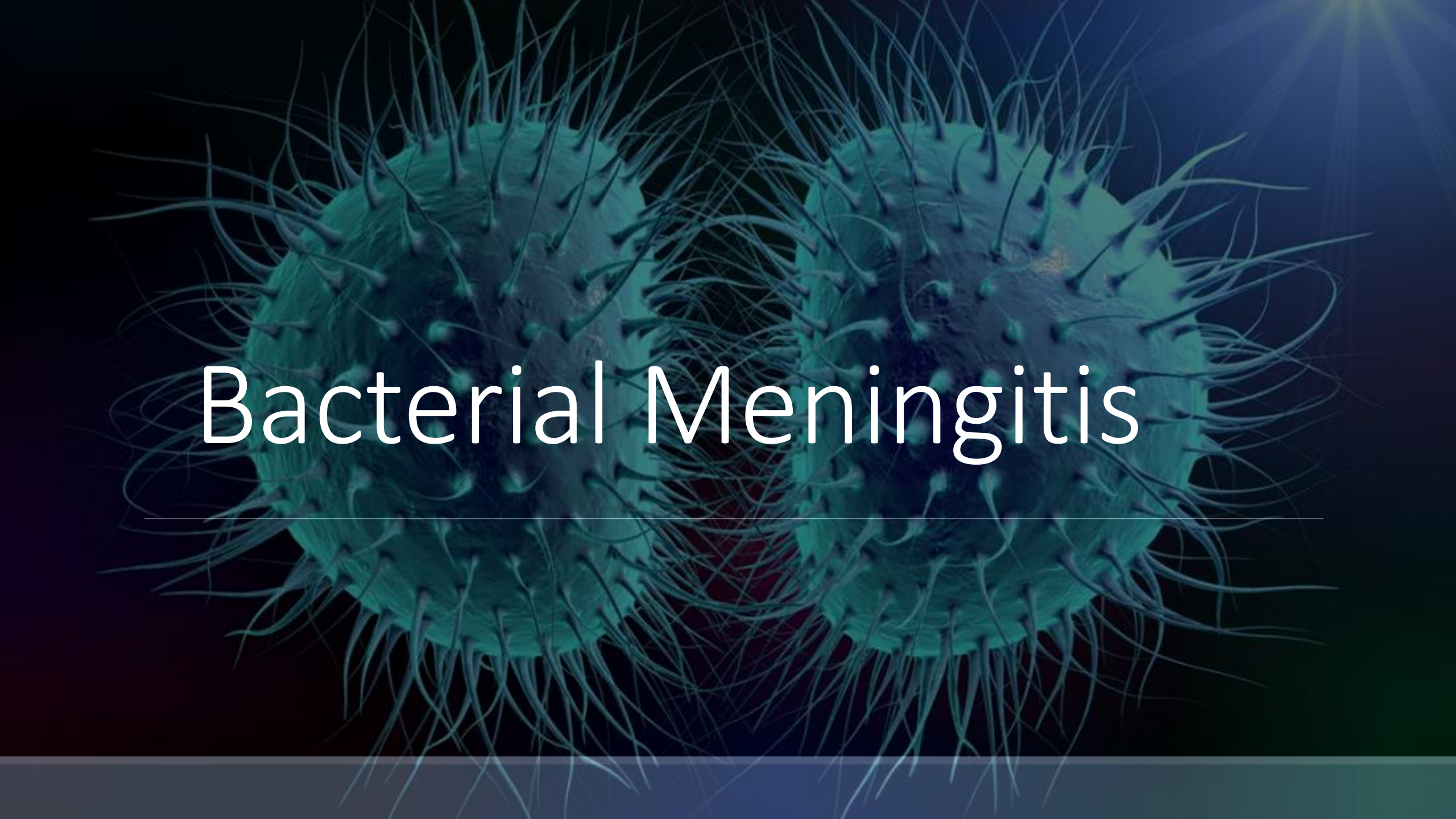
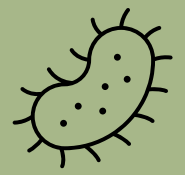


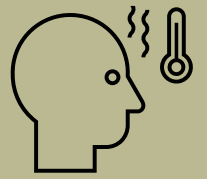
Bacterial Meningitis

Content Overview

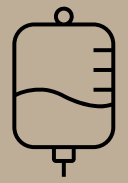
Causes



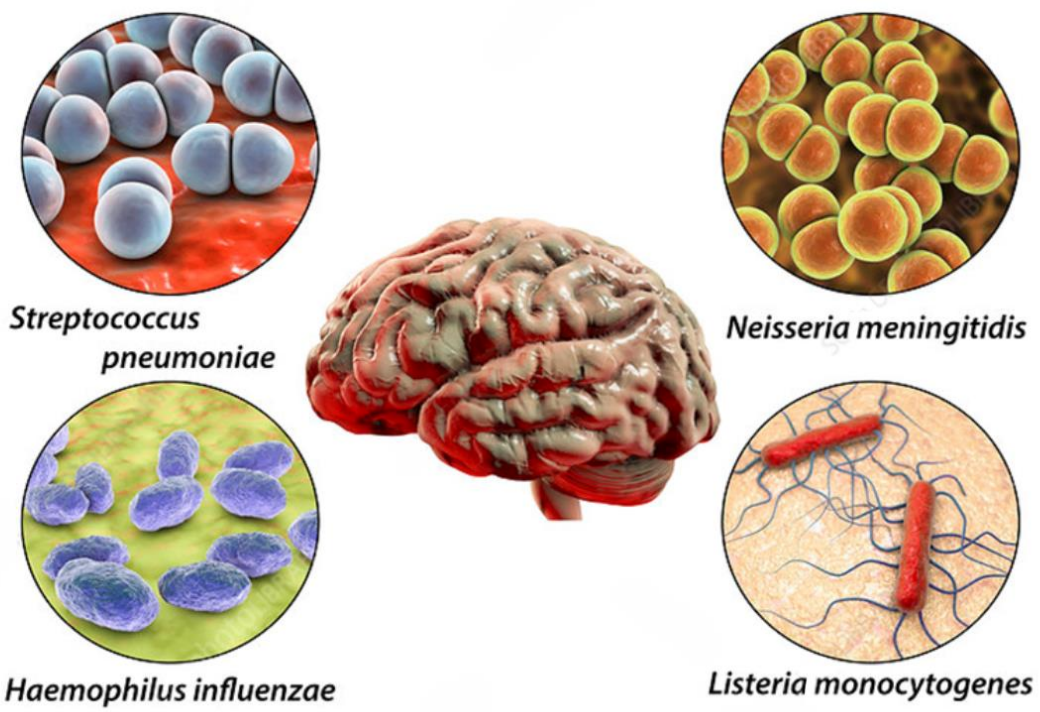
Symptoms



Treatment



Bacterial Meningitis (Background)



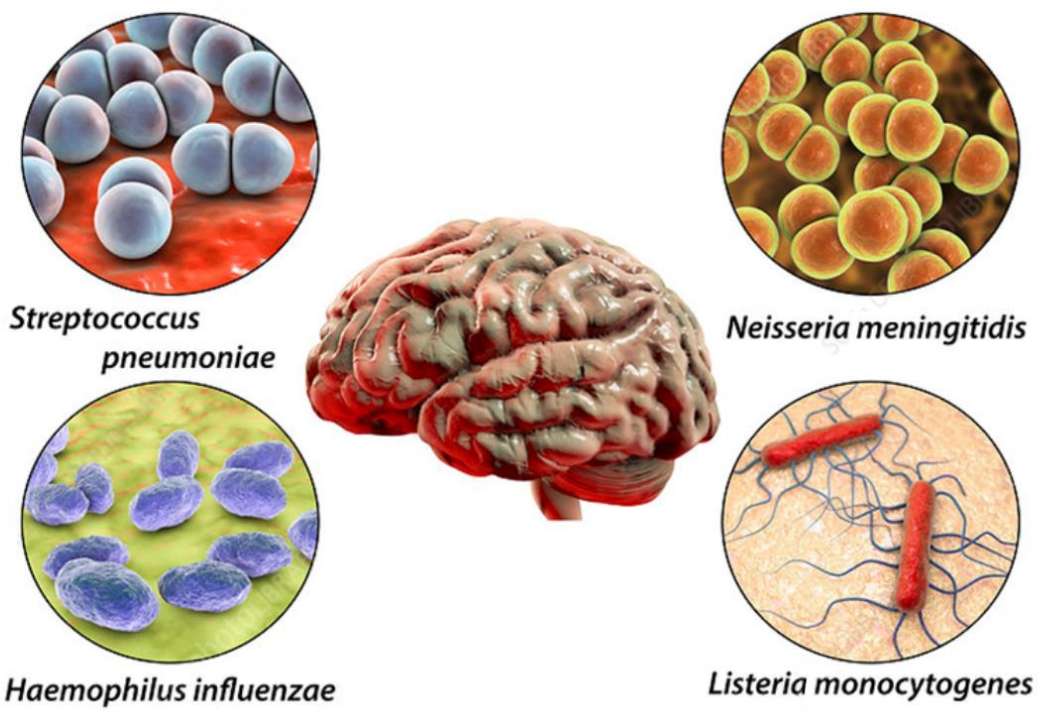
A serious bacterial infection of the meninges of the brain

- Some people with the infection can die in as little as a few hours
- Most recover, but can have permanent disabilities including:
  - Brain damage
  - Hearing loss
  - Learning disabilities

Several types of bacteria can cause meningitis

- *Streptococcus pneumonaie*
- Group B *Streptoccocus*
- *Neisseria meningitidis*
- *Haemophilus influenzae*
- *Listeria monocytogenes*
- *Escherichia coli*
- *Mycobacterium tuberculosis* (less common, called TB meningitis)

Bacterial Meningitis (Background)



Many of these bacteria can also be associated with sepsis, another serious illness

- Body's extreme response to infection
- Life-threatening
- An infection triggers a chain reaction throughout the body which quickly leads to tissue damage, organ failure, and death

Causes/Transmission

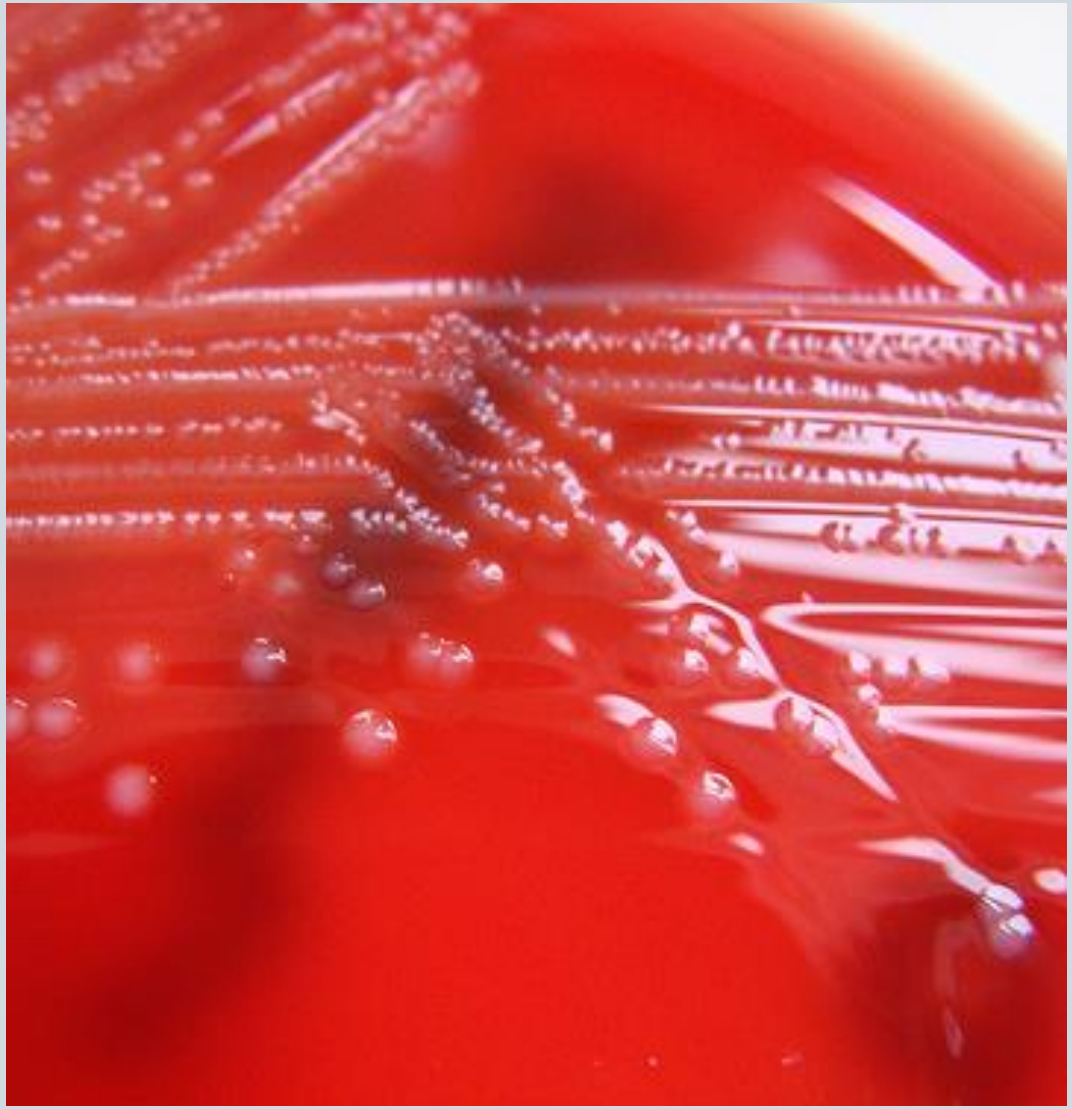
Depends on the type of bacteria

Some can have the bacteria in or on their bodies without being sick, “carriers”

- Most carriers never become sick, but can still spread the bacteria to others

Examples of transmission

- **Group B *Streptococcus*** and ***E. coli***: Mothers can pass these bacteria to their babies during birth
- ***H. influenzae, M. tuberculosis,*** and ***S. pneumoniae***: Spread by coughing or sneezing while in close contact with others, who breathe in the bacteria
- ***N. meningitidis***: People spread these bacteria by sharing respiratory or throat secretions (saliva or spit)
  - Coughing or kissing
  - Lengthy contact, such as living with others
- ***E. Coli:*** People can get these bacteria by eating food prepared by people who did not wash their hands well after using the toilet, or by eating contaminated food
- ***L monocytogenes:*** Contaminated food



Causes/Transmission (continued)

Incubation Period

- Symptoms develop within 3 to 7 days after exposure
  - Except for TB meningitis

Risk Factors

- **Age -** While anyone can develop bacterial meningitis, babies are at increased risk for bacterial meningitis
- **Group setting -** Infectious diseases tend to spread where large groups gather
- **Certain medical conditions -** Immunosuppressive conditions, medications, and surgical procedures can put people at increased risk for meningitis. *i.e., HIV infection, CSF leak, or not having a spleen*
- **Working with meningitis-causing pathogens -** Microbiologists or healthcare professionals exposed to the meningitis-causing bacteria
- **Travel -** ex. the meningitis belt in sub-Saharan Africa, mostly during dry seasons, and Mecca, during the annual Hajj and Umrah pilgrimage.

Clinical Presentation

Sudden Onset Of:

- Fever
- Headache
- Stiff Neck

Other Symptoms:

- Nausea
- Vomiting
- Photophobia (sensitivity to light)
- Altered mental status (confusion)

Newborns and babies may not have or display the classic symptoms, instead they may present with:

- Being slow or inactive
- Irritability
- Vomiting
- Feeds poorly
- Having a bulging fontanelle (“soft spot” on baby’s head)
- Having abnormal reflexes

People with bacterial meningitis can also have seizures, become comatose, and even die.

- For this reason, anyone who thinks that they may have bacterial meningitis should seek medical care as soon as possible

Treatment for Bacterial Meningitis

Doctors treat bacterial meningitis with a variety of antibiotics.

- Vancomycin or ampicillin, depending on age group

It is important to start treatment as soon as possible.

Prevention Measures - Vaccination

Vaccines are the most effective way to protect against certain types of bacteria that can cause meningitis.

- Meningococcal vaccines help protect against *N. meningitidis.*
- Pneumococcal vaccines help protect against *S. pneumoniae.*
- *Haemophilus influenzae* serotype b (Hib) vaccines help protect against Hib.
- Bacille Calmette-Guérin vaccine helps against tuberculosis disease, but is not widely used in the US.

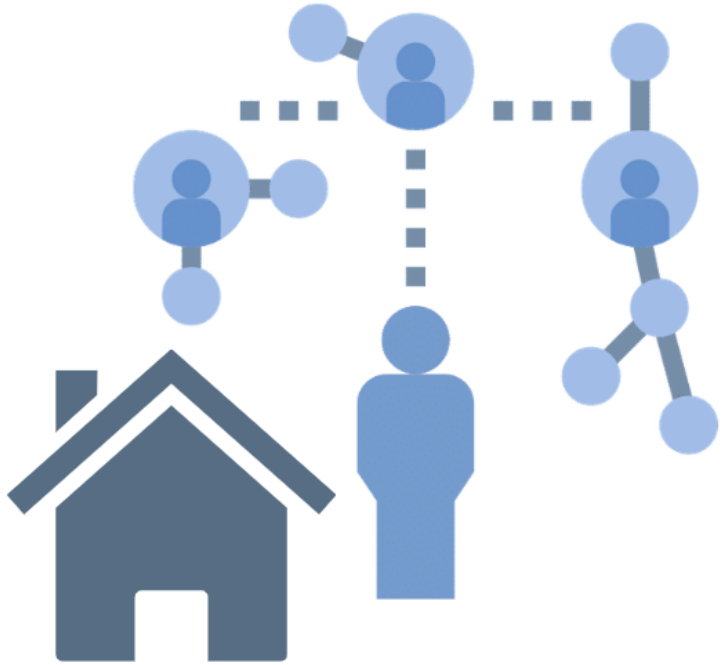
Make sure you and your child are vaccinated on schedule.

- CAVEAT: As with any vaccine, these vaccines do not work 100% of the time. The vaccines also do not protect from every strain of each bacteria. For these reasons, there is still a chance that vaccinated people can develop bacterial meningitis

Prevention Measures - Prophylaxis

CDC recommends prophylaxis for:

- Close contacts of someone with meningitis caused by *N. meningitidis*
- Household members of someone with a serious Hib infection when the household includes one or more people at increased risk of Hib based on age, vaccination status, and/or immunocompromising conditions



Prevention Measures – Healthy Practices

Pregnant women should talk to their doctor or midwife about getting tested for group B *Streptococcus*

Women receive the test at 36-37 weeks pregnancy

- If positive, antibiotics are given during labor to prevent the passage of group B strep to newborns.

Avoid foods at larger risk for bacterial contamination:

- Unpasteurized products
- Unheated deli meats
- Raw sprouts
- Refrigerated meat spreads or smoked fish

Prevention Measures – Healthy Practices

1. Don’t smoke and avoid smoke as much as possible
2. Get plenty of rest
3. Avoid close contact with sick individuals
4. Wash hands with soap and water often (use hand sanitizer if soap and water are unavailable)
5. Cover mouth and nose with a tissue when coughing or sneezing

Schools' Role - Exclusion and Reporting

Schools that have cases of bacterial meningitis need to **IMMEDIATELY** notify the local health department.

Highly encourage good hand hygiene.

Discourage sharing personal items and eating utensils.

Medical clearance required

- Exclude until 24 hours after antimicrobial treatment.

School closure may be considered if there is an outbreak and/or if disinfection or mitigation actions are needed.

- Consult LHD for specific recommendations.
- If school is closed, notify LHD **immediately.**

References

Bacterial Meningitis | CDC

Managing Communicable Diseases in Schools | MDHHS