

Meningococcal meningitis

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OBJECTIVES

1. To study the epidemiology of meningococcal meningitis.
2. To study the diagnosis and differential diagnosis of meningococcal meningitis.
3. To study its prevention and treatment.

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Introduction



Meningococcal meningitis or cerebro-spinal fever is "an acute communicable disease caused by *Neisseria meningitidis*".

Problem Statement – World

1. **Distribution world-wide, occurring sporadically and in small outbreaks in most parts of the world.**



Problem Statement – World

3. Without epidemics, 1 million cases of bacterial meningitis are estimated to occur with at least 200,000 deaths.
4. About 300,000 of these cases and 30,000 deaths are due to meningococcal meningitis.

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Problem Statement – World

5. In epidemic years the number of meningococcal meningitis cases may double.
6. WHO definition of epidemic is
>100 Cases/100000 population/year

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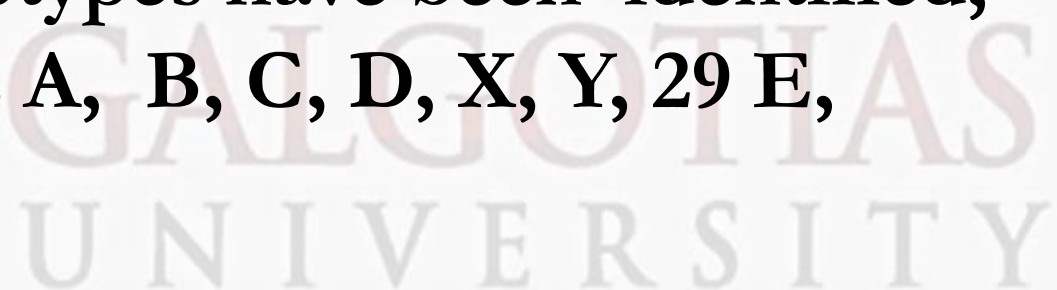
Problem Statement – India

1. Cases of meningococcal meningitis are also reported in India as sporadic cases or small clusters.
2. During 2013 about 3380 cases were reported in India with about 176 deaths.

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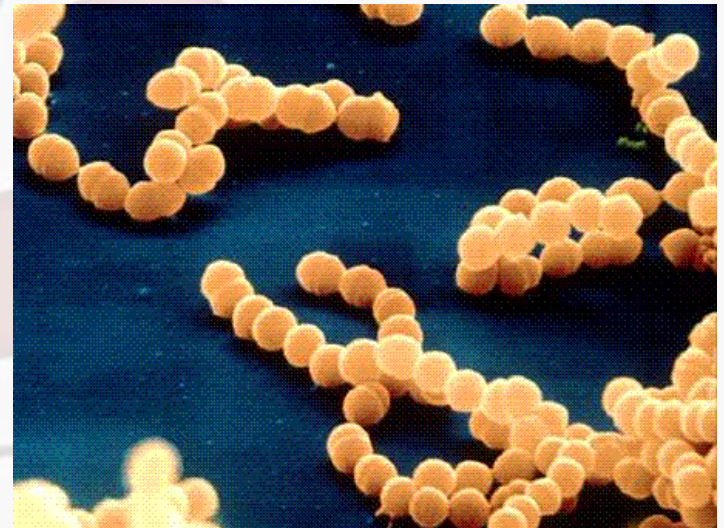
Epidemiological Triad – Agent

1. *Neisseria meningitidis* is a gram-negative diplococci.
2. Several serotypes have been identified, viz. Groups A, B, C, D, X, Y, 29 E, W135, etc.



Epidemiological Triad – Agent

3. **Groups A and C, are to a lesser extent Group B meningococcal are capable of causing major epidemics.**



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Epidemiological Triad – Host Factors

1. This is predominantly a disease of children and young adults of both sexes.



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Epidemiological Triad – Host Factors

2. All ages are susceptible, but younger age groups are more susceptible than older groups as their antibodies are lower.

Immunity is acquired by sub-clinical infection (mostly), clinical disease or vaccination.

Epidemiological Triad – Host Factors

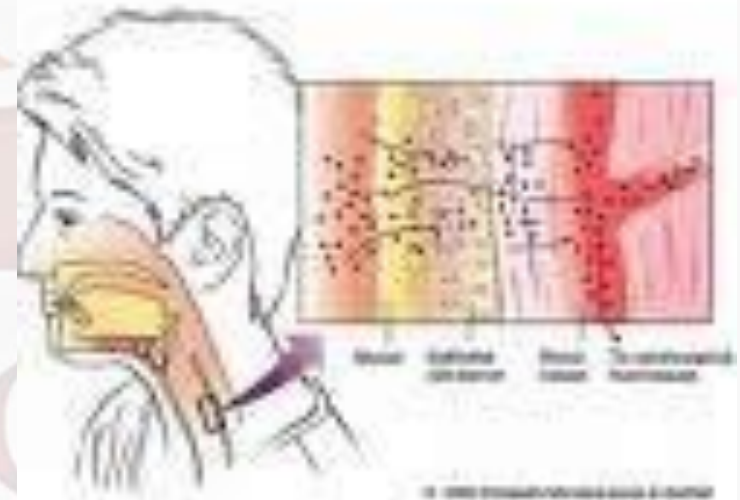
3. Infants derive passive immunity from the mother.

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Epidemiological Triad – Host Factors

Source of Infection

1. Organism is found in the nasopharynx of cases and carriers.



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Epidemiological Triad – Host Factors

Source of Infection

2. **Carriers – most important source of infection.**

5 – 30% of the normal population may harbor the organism in inter-epidemic period. During epidemics, the carrier rate may go as high as 70-80%.

Epidemiological Triad – Host Factors

Period of Communicability

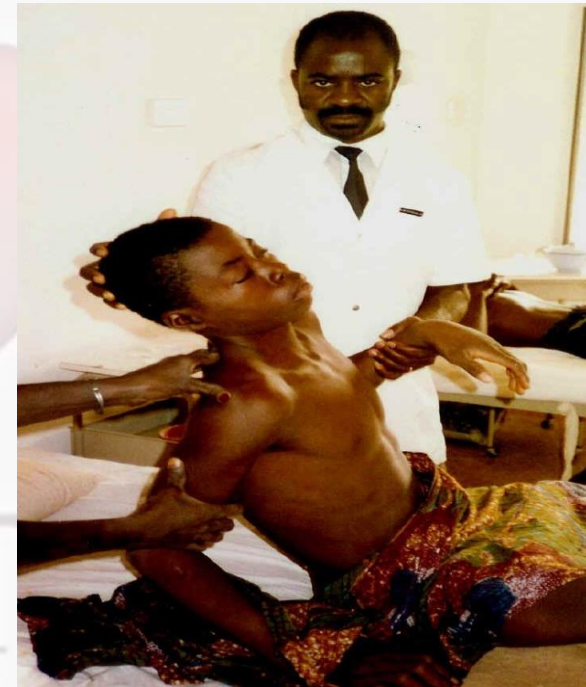
1. It extends until meningococci are present in discharge from nose and throat.

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Epidemiological Triad – Host Factors

Period of Communicability

2. Cases lose their infectivity rapidly within 24 hrs of specific treatment.
3. The mean duration of temporary carriers is 10 months.



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Epidemiological Triad – Environment Factors

1. **Overcrowding (in Schools, Barracks, Refugee camps, etc.) predisposes to spread of infection.**
2. **Outbreaks of the disease occur more in dry and cold months of the year.**

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