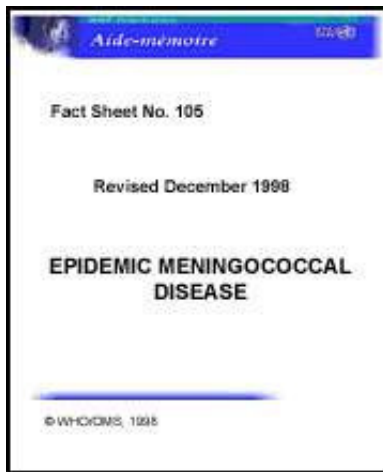


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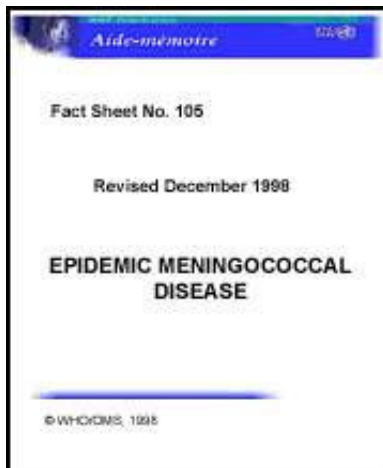



➔  **Fact sheet No 105: Epidemic Meningococcal Disease - Revised December 1998 (WHO, 1998, 2 p.)**

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 **Epidemic Meningococcal Disease**

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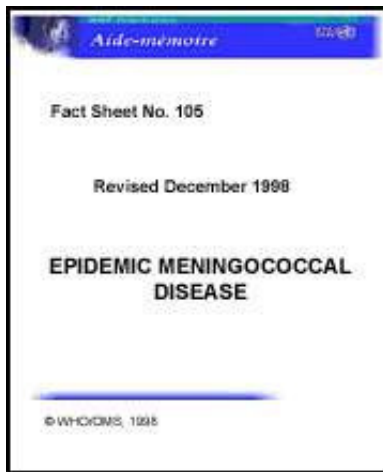



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 **Epidemic Meningococcal Disease**

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  **Epidemic Meningococcal Disease**

Epidemic Meningococcal Disease

Meningococcal meningitis occurs globally. The disease is endemic in temperate climates causing a steady number of sporadic cases or small clusters with a seasonal increase in winter and spring. A different pattern, with epidemics flaring for two to three consecutive years, has been observed in countries in sub-Saharan Africa. This area has experienced epidemic cycles every eight to 12 years in the past, and the intervals between major epidemics have become shorter and more irregular since the beginning of the 1980s.

The most recent meningococcal meningitis pandemic, which began in 1996, has so far resulted in approximately 300,000 cases being reported to the World Health Organization. The most affected countries have been Nigeria, Burkina Faso, Mali and Niger. In 1998, the outbreaks occurring in Chad and Cameroon accounted for about 30% of the total cases reported this year.

In the last four years only Mongolia has reported a large group A meningococcal meningitis epidemic outside of Africa (1994/95), however local outbreaks due to group C meningococcus were reported in Canada and the U.S.A. (1992/93) and in Spain (1995-97) and more recently a serogroup B outbreak has been occurring in New Zealand.

Epidemiology: Apart from epidemics, at least 1.2 million cases of bacterial meningitis are estimated to occur every year; 135,000 of them are fatal. Approximately 500,000 of these cases and 50,000 of the deaths are due to meningococcus. Meningococcal meningitis is the only form of bacterial meningitis which causes epidemics. The largest epidemics of meningococcal meningitis are experienced by sub-Saharan African countries within the so called "meningitis belt" which extends from Ethiopia in the east to Senegal in the west. Epidemics occur in the dry season in this area. While the highest disease rates are found in young children, during epidemics older children, teenagers and young adults are also affected.

A large widespread epidemic can follow on from a localised outbreak the previous year and incidence rates remain elevated during the following 1-2 years unless the appropriate control measures including mass immunisation are instituted.

Etiological (i.e., causal) agent: *Neisseria meningitidis*, a Gram-negative bacterium. Serogroup A and C meningococci are the main causes of epidemic meningitis. Serogroup B, generally associated with sporadic disease, may cause some upsurges or outbreaks.

Transmission: Transmission is by direct contact, including respiratory droplets

from nose and throat of infected persons. Most infections are subclinical and many infected people become symptomless carriers. Waning immunity among the population against a particular strain favours epidemics, as do overcrowding and climatic conditions such as dry season or prolonged drought and dust storms. Upper respiratory tract infections may also contribute to the development of epidemics.

Incubation period: Two to 10 days, often three to four days.

Clinical picture: Meningococcal meningitis is characterized by sudden onset of intense headache, fever, nausea, vomiting, photophobia, and stiff neck. Neurological signs include lethargy, delirium, coma and/or convulsions. Infants may have illness without sudden onset and stiff neck. Even when the disease is diagnosed early and adequate therapy instituted, the case fatality rate is between 5% and 10% and may exceed 50% in the absence of treatment. In addition to the mortality associated with meningococcal meningitis 15% and 20% of those who survive will suffer with neurological sequelae (e.g. deafness, mental retardation) as a result of their illness. A less common but more severe (often fatal) form of meningococcal disease is meningococcal septicaemia which is characterised by rapid circulatory collapse and a haemorrhagic rash.

Diagnosis: Laboratory examination of the cerebrospinal fluid will usually confirm the presence of a bacterial meningitis. More specialized laboratory tests, which may include culture of cerebrospinal fluid and blood specimens, are needed for identification of *Neisseria meningitidis* and the serogroup as well as its susceptibility to antibiotics.

Therapy: Meningococcal disease is potentially fatal and should always be viewed as a medical emergency. Admission to a hospital or health centre is necessary. Antimicrobial therapy must be instituted as soon as possible after the lumbar puncture has been carried out. However, isolation of the patient is not necessary. A range of drugs may be used depending on antibiotic susceptibility: penicillin G, ampicillin; chloramphenicol, ceftriaxone. Oily chloramphenicol may be the drug of choice in areas with limited health facilities because a single dose of the long-acting form has been shown to be effective.

Control: Epidemics usually spread rapidly to a peak within weeks but may last for several months in the absence of vaccination. Polysaccharide vaccines are available against serogroups A, C, Y, W135. A mass immunisation campaign that reaches at least 80% of the entire population with serogroup A & C vaccine can halt an epidemic due to meningococcae of these serogroups.

Prevention: Chemoprophylaxis can be considered for people in close contact with patients in the endemic situation. It is not an effective means of interrupting transmission during an epidemic. Potential antimicrobials for chemoprophylaxis are rifampicin, mynocycline, spiramycin, ciprofloxacin and ceftriaxone. In some countries, vaccination is used for close contacts of patients with meningococcal disease due to A,C,Y, or W135 serogroups to prevent secondary cases.

Advice for travellers: Travellers to areas affected by meningococcal outbreaks are advised to be vaccinated. (Ref: WHO International Travel and Health. Vaccination requirements and Health Advice).

The number of cases of cerebrospinal meningitis (the majority of which will be

meningococcal disease) reported from selected countries in the "African meningitis belt" is shown for years since 1977 in Figure 1. The periodic nature of the epidemics is demonstrated and the shortened inter-epidemic interval observed in recent decades is seen in the case of Niger. Both Sudan and Ethiopia have experienced large epidemics in previous decades but have yet to see an increase in cases in the 1990s, this emphasises the need for national health authorities in such countries to be on the alert and make preparations for the effective management of large outbreaks in the future.

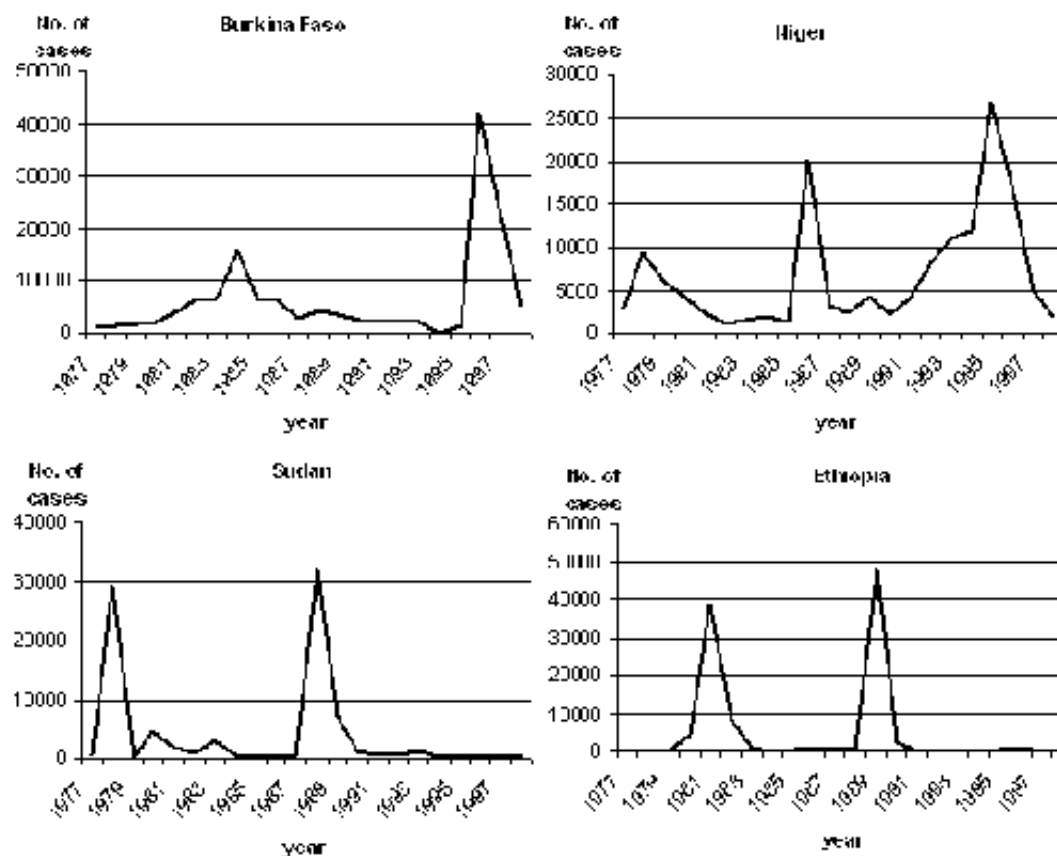


Figure 1. Numbers of cases of meningococcal meningitis reported to WHO from selected countries of "African Meningitis Belt" 1977 to 1998

For further information, journalists can contact:

WHO Press Spokesperson and Coordinator, Spokesperson's Office,

**WHO HQ, Geneva, Switzerland / Tel +41 22 791 4458/2599 / Fax +41 22 791
4858 / e-Mail: inf@who.int.**

