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Meningococcal infection

Neisseria meningitidis, also known as meningococcus, is a germ (bacterium). Infection with meningococcus is uncommon but is very serious and can be life-threatening.

If you suspect meningitis or septicaemia – get medical help immediately.

What are meningitis and septicaemia?

- Meningitis is an inflammation of the lining that covers the brain and spinal cord (the meninges). Bacterial or viral infection is the usual cause. Bacterial meningitis is uncommon but serious. Viral meningitis is quite common but much less serious than a bacterial cause.
- Septicaemia is an infection of the blood with bacteria. It is often called 'blood poisoning'. If bacteria multiply and release poisons (toxins) into the blood it can cause serious illness and death.

Meningococcus typically causes meningitis and [sepsis](#) at the same time.

How common is meningococcal infection?

Meningococcal infection is uncommon but it is the most common cause of bacterial meningitis in the UK. About 2,500 people in the UK have bacterial meningitis each year.

Are there different types of meningococcal infection?

Yes – meningococcal germs (bacteria) are divided into several groups (types or strains):

- **Groups B, C and, more recently, W** are the common strains in the UK. Most cases of bacterial meningitis in the UK are caused by group B. Most of the rest are caused by group C (although the number of group C cases has fallen greatly due to immunisation introduced in 1999). Infection caused by group W has increased in the UK in recent years.
- **Group A** is rare in the UK but more common in certain parts of the world – in particular, sub-Saharan Africa and parts of Saudi Arabia.
- **Groups Y, 29E and Z** are rare in the UK but group W has been the cause of several recent outbreaks in different parts of the world, including the UK.

Who gets meningococcal infection?

It can affect anyone, at any age. However, children under the age of 5 years (especially babies) are the most at risk. The second most common age group at risk is teenagers aged 15 to 19.

How do you get meningococcal infection?

Meningococcal germs (bacteria) live harmlessly in the noses and throats of about 1 in 4 people. These people are called carriers. Meningococcal bacteria do not survive outside the body. Close contact is needed to pass them on to others, such as intimate kissing, coughing, or sneezing near to others.

Rarely, this germ (bacterium) overcomes the body's immune system and gets into the blood to cause meningitis and/or blood poisoning (septicaemia). It is not clear why a few people are prone to serious illness and many other people are carriers of the same bacterium but experience no ill effects.

Most cases of meningococcal infection are isolated cases. The risk of others catching it are low, as many people are carriers and/or have natural immunity. Sometimes small outbreaks occur when two or more people in the same household or community are affected.

What are the symptoms of meningococcal infection?

One or more of the following symptoms may occur:

Note: not all symptoms may occur. For example, the classic symptoms of neck stiffness and rash may not occur. If you suspect meningitis or septicaemia – get medical help immediately.

Common early warning symptoms

Many children who are developing meningitis or septicaemia have nonspecific symptoms such as just feeling or looking generally unwell. These symptoms may include having a high temperature (fever), being more tired than usual and feeling sick.

However, three symptoms that commonly develop early on – often before the more classic symptoms listed later – are:

- Leg pains. The pains can become severe and prevent a child from standing or walking.
- Cold hands or feet – even if the child has a high temperature.
- Pale, dusky or blue colour of the skin around the lips.

Rash – commonly occurs, but not always

A typical rash is common with meningococcal infection. The rash is red or purple. Small spots develop at first and may occur in groups anywhere on the body. They often grow to become blotchy and look like little bruises. One or two may develop at first but many may then appear in different parts of the body. The rash can be hard to see on dark skin. Check paler areas like the palms of the hands and the soles of the feet.

The spots/blotches do not fade when pressed (unlike many other rashes). To check for this, do the glass test. Place a clear glass firmly on one of the spots or blotches. If the spot/blotch does not fade and you can still see it through the glass, get medical help immediately.

The rash is a sign of sepsis. It may not occur with meningitis alone.

Other symptoms to look out for include the following.

Other symptoms that may occur in babies

- Excessive crying – often high-pitched or moaning and different to their usual cry.
- Fast breathing, or unusual patterns of breathing.
- Fever – but the baby may not look hot and the skin may look pale or blotchy, or turn blue. The hands and feet may feel cold. The baby may shiver.
- Will not take feeds – sometimes repeatedly being sick (vomiting).
- Being irritable – especially when picked up and handled.
- Drowsiness or sleepiness – does not wake easily.
- A bulging fontanelle sometimes develops. The fontanelle is the soft spot on the baby's head.
- Jerky movements may occur and the body may appear stiff. Sometimes the opposite occurs and the body appears quite floppy. Fits or seizures (convulsions) sometimes develop.

Other symptoms that may occur in older children and adults

These include:

- Fever and shivering – however, the hands and feet often feel cold.
- Stiff neck – cannot bend the neck forwards.
- Headache – which can become severe.
- Fast breathing.
- Aches and pains in muscles or joints – the pains can become quite severe.
- The skin may look pale or blotchy, or turn blue.
- Dislike of bright lights – will shut eyes and turn away from the light.
- Drowsiness or confusion – may appear vacant.
- Repeated vomiting. Sometimes tummy (abdominal) pain and diarrhoea.

The course of symptoms

The symptoms usually develop quickly, over a few hours or so. Symptoms can occur in any order and not all may occur. Sometimes symptoms develop more slowly, over a few days. The symptoms may suggest a less serious illness at first. For example, fever, headaches and vomiting are common with many viral illnesses such as flu. Therefore, even if you think it was flu to start with, if symptoms become worse then it may be meningitis or septicaemia. [See also the separate leaflet called Meningitis symptoms checklist.](#)

What is the treatment for meningococcal infection?

Antibiotic injections are needed urgently. High doses are usually given. The person will need admitting to hospital - if they are very unwell then they will go to a high dependency or intensive care ward, as the infection often causes shock and problems throughout the body. In an ideal world a spinal tap (lumbar puncture) would be done before treating, so that some fluid from the spinal cord (cerebrospinal fluid) can be sent to the lab to try to grow the germ (bacterium), but often the need for antibiotics is so urgent that these are given first.

What is the prognosis for meningococcal infection?

The outlook (prognosis) often depends on how soon antibiotics are given after the illness starts. Most people make a good recovery if treated early enough. However, without treatment, most people will die.

A difficulty is that meningococcal infection can develop very quickly and can mimic other illnesses when symptoms first begin. Treatment may be delayed if the cause of early symptoms is not clear at first. In some cases a person can be well in the morning, develop flu-like symptoms by the afternoon and be critically ill or dead by the evening.

According to the National Institute for Health and Care Excellence (NICE), in the UK 4-25% of children and 25% of adults with acute bacterial meningitis will die. Of those who survive, some are left with some permanent brain damage, deafness or amputation of one or more limbs. Death rates may be higher if septicaemia occurs.

Can meningococcal infection be prevented?

Immunisation

Children are routinely immunised against certain causes of meningitis. These include *Haemophilus influenzae* type B (Hib), group C meningococcus, pneumococcus and mumps. Immunisation against group B meningococcus was introduced in September 2015.

From August 2015 a vaccine against types A, C, W and Y (MenACWY®) is given to all those aged 17–18 and new university/college students under 25. It will also be given to those aged 14–15 in place of the meningitis C vaccine they currently receive. Other vaccines may be used for travellers going to meningitis-prone countries.

Vaccines are not yet available for other causes of meningitis.

Read more about [meningococcal immunisation](#).

Contacts

Close contacts of a person with meningococcal infection have an increased risk of developing the illness. However, the risk is still low. 'Close contacts' usually means household members or intimate kissing contacts within the previous seven days. These people are offered a short course of antibiotics to prevent possible infection.

If group C meningococcus is the cause, immunisation is usually also offered to close contacts. Occasionally, an outbreak of two or more cases of meningococcal infection occurs in the same school, college or similar community. Antibiotics and/or immunisation may then be offered to a wider group of people.

Further reading

- [Bacterial meningitis and meningococcal septicaemia: Management of bacterial meningitis and meningococcal septicaemia in children and young people younger than 16 years in primary and secondary care](#); NICE Clinical Guideline (last updated February 2015)
- [Immunisation against infectious disease – the Green Book \(latest edition\)](#); UK Health Security Agency.

- [Meningococcal disease: guidance, data and analysis](#); UK Health Security Agency (last updated April 2022)
- [Sepsis – recognition, diagnosis and early management](#); NICE Guideline (July 2016 – updated January 2024)
- [Brouwer MC, McIntyre P, Prasad K, et al](#); Corticosteroids for acute bacterial meningitis. Cochrane Database Syst Rev. 2015 Sep 12;(9):CD004405. doi: 10.1002/14651858.CD004405.pub5.
- [Viallon A, Botelho-Nevers E, Zeni F](#); Clinical decision rules for acute bacterial meningitis: current insights. Open Access Emerg Med. 2016 Apr 19;8:7–16. doi: 10.2147/OAEM.S69975. eCollection 2016.

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