Meningitis and Septicaemia

What are meningitis and septicaemia?

- **Meningitis** is an inflammation of the lining that covers the brain and spinal cord (the meninges). It is usually caused by a bacterial or viral infection.
- **Septicaemia** is an infection of the blood with bacteria (blood poisoning). If bacteria multiply and release toxins (poisons) into the blood it can can cause serious illness.

Meningitis and septicaemia are separate diseases. However, the most common cause of bacterial meningitis (the meningococcus) often causes septicaemia at the same time.

How common is meningitis?

**Bacterial meningitis** is uncommon in the UK. However, it is a serious illness and well-known due to the media coverage when outbreaks occur. Every year around 2,500 cases of bacterial meningitis occur in the UK.

Most cases in the UK are caused by a bacterium called *Neisseria meningitidis* (meningococcus). Other less common causes include: *Streptococcus pneumoniae* (pneumococcus), *Haemophilus influenzae* type b (Hib) and *Escherichia coli* (*E. coli*).

Anyone can be affected. However, children under the age of five years, and teenagers are the most at risk from meningococcal meningitis.

**Viral meningitis** is more common than bacterial meningitis, but exact figures are not known. It is a complication of various viral illnesses. Viral meningitis is usually less serious than a bacterial cause. Most people who develop viral meningitis make a full recovery.

**Other germs** such as fungi and tuberculosis (TB) are rare causes of meningitis.

How do you get meningitis and/or septicaemia?

**Bacterial meningitis and septicaemia**

*Neisseria meningitidis* (meningococcus) is a common bacterium and lives harmlessly in the noses and throats of about 1 in 4 people. These people are called carriers. This bacterium does not survive outside the body. Close contact is needed to pass it on to others, such as intimate kissing, coughing, or sneezing near to others.

Rarely, this bacterium overcomes the body's immune system and gets into the blood to cause meningitis and/or 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 have no ill effect.

Most cases of meningococcal infection are isolated cases. The risk of others catching it is 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.

*Streptococcus pneumoniae* (pneumococcus) is a less common cause of bacterial meningitis. This too is carried in the nose or throat by many people, with no ill effect. Again,
meningitis probably occurs due to a breakdown in the immune system. It most commonly occurs in people aged over 45 years, and in babies. Meningitis due to this bacterium is not thought to be contagious.

Other bacteria that less commonly cause meningitis include: *Haemophilus influenzae* type b (Hib), *Escherichia coli* (*E. coli*), listeria and TB. The infection with meningitis from these germs may occur for various reasons, such as a complication of an infection in another part of the body.

**Viral meningitis**
A variety of viruses can travel to the meninges and cause inflammation. For example, mumps, herpes, chickenpox, influenza, and many other viral infections sometimes cause viral meningitis.

**What are the symptoms of meningitis and/or septicaemia?**

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, 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 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 septicaemia. It may not occur with meningitis alone.

**Other symptoms that may occur in babies include:**

- 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 repeated 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. Convulsions (fits or seizures) sometimes develop.

Other symptoms that may occur in older children and adults include:

- Fever and shivering - however, the hands and feet often feel cold.
- Stiff neck - cannot bend the neck forward.
- 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 abdominal pain and diarrhoea.

The course of symptoms
The symptoms often 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.

What is the treatment for meningitis and septicaemia?

Bacterial meningitis
Urgent treatment is needed with antibiotic injections. These are often given before you are admitted to hospital - for example, your GP may give them to you. Blood tests, and a sample of the fluid that surrounds the spinal cord (a lumbar puncture), may be taken. These tests aim to confirm the diagnosis and to see which bacterium is causing the infection. The antibiotic may be changed depending on the results of the tests.

Intensive care is often needed at first, as the infection often causes shock and problems throughout the body. It is likely that fluids will need to be given directly into the veins (a drip). Oxygen is also often given through a mask on the face.

Steroid injections are also sometimes given. These work by reducing some of the inflammation that occurs with meningitis. Steroid medication has been shown in some studies to reduce the risk of developing hearing problems and other complications.

Viral meningitis
Antibiotics may be given at first when the cause of the meningitis is not known. The antibiotics are stopped if the cause of the meningitis is found to be viral. Antibiotics don't kill viruses. The body's immune system usually clears most viral infections.

What is the outlook (prognosis) for meningitis and/or septicaemia?

Bacterial causes
The outlook often depends on how soon antibiotics are given after the illness starts. Most people make a good recovery if treated early enough. Without treatment, most people will die.

A difficulty is that bacterial meningitis and septicaemia can develop 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.
There are several complications that may occur after having meningitis. These include:

- Hearing loss. This is the most common complication. It is common to have a hearing test after you have recovered from meningitis.
- Learning problems. There is a small risk of your child developing problems with their learning and behaviour. Some children will require extra support and understanding in their schools.
- Epilepsy. A small proportion of children have brain injury after meningitis, which can lead to epilepsy.
- Kidney problems. A small number of children have kidney problems if their kidneys are affected as part of the septicaemia.
- Joint or bone problems. The septicaemia can cause some damage to different tissues in the body. This can lead to scarring to the legs, arms and body. Some people experience joint or bone problems which may develop several years after having meningitis.

**Viral meningitis**
This can cause an unpleasant illness. However, most affected people make a full recovery. In a small number of cases, some brain injury occurs.

**Can meningitis and septicaemia 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. (See separate leaflet called *Childhood Immunisation* for more information.)

Other vaccines may be used for travellers going to meningitis-prone countries. Vaccines are not yet available for other causes of meningitis - in particular, Group B meningococcus.

**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, then immunisation is 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 help and information**

**DermNet website**
Has some pictures of the rash of meningococcal infection

**Meningitis Trust**
Fern House, Bath Road, Stroud, Gloucestershire, GL5 3TJ
Tel (24-hour helpline): 0845 120 2123 Web: www.meningitis-trust.org

**Meningitis Research Foundation**
Midland Way, Thornbury, Bristol, BS35 2BS
Tel (24-hour helpline): 080 8800 3344 Web: www.meningitis.org

**Meningitis UK**
Tel: 0117 373 7373 Web: www.meningitisuk.org
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