

Meningococcal Disease

The Facts

Meningitis and Septicaemia

This fact sheet provides information about meningococcal disease (meningitis and septicaemia) and answers some frequently asked questions. This should be read in addition to our 'What is meningitis?' leaflet, which provides more information on signs and symptoms and emergency action to take. You can request a copy by contacting our 24-hour nurse-led helpline on **1800 523 196**.

Words highlighted in **blue** are explained in a glossary on the back page.

What is meningococcal disease?

Meningococcal disease is a life-threatening infection. It is a term used to describe two major illnesses – meningitis and septicaemia (blood poisoning). These can occur on their own or more commonly both together. Most people will make a good recovery but at worst meningococcal disease causes very severe illness that can rapidly result in death. Septicaemia is generally more life-threatening than meningitis.

Meningitis: **inflammation** of the layers that surround the brain and spinal cord. These layers are called the **meninges** – they help protect the brain from injury and infection.

Septicaemia: severe infection of the blood. **Bacteria** multiply in the blood, releasing **endotoxins** that cause widespread damage to the body.

Meningococcal disease is caused by a bacterium called the meningococcus. There are five main groups that commonly cause disease – A, B, C, W135 and Y. Each one of these groups has a unique outer coat, which makes it difficult for the body's immune system to detect and kill it. In Ireland, group B causes the majority of disease.

Key points

- Meningococcal disease is a life-threatening infection.
- Most cases occur in babies and young children. Teenagers and young adults are also at risk.
- Between 4-6% of cases will result in death.
- Approx 15% of people will be left with severe and disabling after-effects.

How many cases of meningococcal disease are there each year?

Around 200-250 cases of meningococcal disease are reported in Ireland each year. This is the most common cause of bacterial meningitis. Group B accounts for around 86% of cases.

Can meningococcal disease be prevented?

Yes, some groups of meningococcal disease can be prevented with **vaccines**. Vaccines are the only way to prevent infectious illnesses such as meningococcal disease.

A routine vaccine is available to prevent group C meningococcal disease. This vaccine has dramatically reduced the number of cases by around 96% in all age groups. No vaccine is yet available for group B disease in Ireland, and it is likely that an effective vaccine is some years away.

Travel vaccines are also available for people visiting parts of the world where they are at risk of developing disease. For more information about meningitis vaccines request a copy of 'Vaccines – The Facts' by calling our 24-hour nurse-led helpline.



24-hour nurse-led helpline

1800 523 196

www.meningitis-trust.ie

Who gets meningococcal disease and why?

Both adults and children can carry meningococcal bacteria harmlessly in the back of the throat. Carriage of bacteria can help build natural **immunity** to infection. Around 10% of the general population will be carriers at any given time and nearly everyone becomes immune as a result of carrying these germs. Bacteria are passed from person to person by coughing, sneezing and intimate kissing.

Babies and young children are more at risk because their body's defences are not fully developed. If the bacteria invade the body their immune system cannot provide resistance to fight off infection. A risk factor for teenagers and young adults is increased social interaction; this increases the number of carriers to around 30%.

The meningococcus is an opportunist and often strikes when a person has a viral upper respiratory tract infection.

Cases of meningococcal disease usually occur between January and March.

What happens in the body?

Occasionally meningococcal bacteria defeat the body's defences and cause infection. The bacteria break through the lining of the back of the throat and pass into the bloodstream. Here they start to multiply rapidly, doubling in number around every 30 minutes. They can travel in the bloodstream to infect the meninges, causing meningitis, or whilst in the bloodstream they can cause septicaemia.

Meningococcal meningitis

When the bacteria infect the meninges, the blood vessels in the lining of the brain are damaged. This allows the bacteria to break through and infect the **cerebrospinal fluid (CSF)**, the meninges become inflamed and pressure around the brain can cause nerve damage. Pressure on the brain can produce the specific symptoms associated with meningitis, such as:

- Severe headache
- Dislike of bright lights (photophobia)
- Neck stiffness
- Nausea and vomiting
- Confusion and drowsiness
- Loss of consciousness
- Fitting

Meningococcal septicaemia

As the bacteria multiply rapidly in the bloodstream, they begin to release endotoxins from their outer coating. The body's natural defences have no effect on these poisons and eventually blood vessels become damaged. The rash associated with septicaemia is caused by blood leaking into the tissues under the skin. Blood vessels are affected throughout the body causing organ damage and slowing the heart rate. This results in the more specific symptoms of septicaemia:

- Fever with cold hands and feet
- Joint or muscle pain
- Rapid breathing
- Stomach cramps and diarrhoea
- Red/purple spots or bruises that do not fade under pressure

Many other symptoms can occur with this disease.

You can get a symptoms card by calling our 24-hour nurse-led helpline on **1800 523 196**.

How is meningococcal disease treated?

Meningococcal meningitis and septicaemia need urgent treatment with antibiotics and rapid admission to hospital. If treated promptly, meningitis and septicaemia respond well to antibiotics. Whilst in hospital other treatment, procedures and investigations will be carried out depending on the patient's condition.

One of the main investigations carried out to test if someone has meningitis is a **lumbar puncture**. This allows the doctor to quickly make a diagnosis of meningitis by analysing the CSF that bathes the meninges. This fluid becomes infected when a patient has meningitis. Sometimes treatment with antibiotics is started because the patient's condition is too serious for a lumbar puncture to be performed. In these cases the lumbar puncture can be done when the patient's condition has improved.

If someone is seriously ill, they will require specialist care and treatment in an intensive care unit. Here the doctors and nurses can closely monitor their condition, respond to emergencies and provide immediate support when it is needed. Appropriate hospital care and treatment are essential if the patient is to make a good recovery.

What happens when there is a case?

When there has been a case of meningococcal disease, there is always the worry that other cases will occur in those who have been in close contact with the patient. However, most cases of meningococcal disease occur alone and the likelihood of a second case is extremely small. To prevent further cases occurring, preventative treatment may be offered to all 'close contacts'.

Management of meningococcal disease in the community is the responsibility of a doctor who specialises in the public health management of infectious diseases. The public health team (doctors and nurses) will visit the patient and their family in hospital in order to identify close contacts; these include household family members and intimate kissing contacts. Close contacts may be given antibiotics in order to reduce the risk of further cases. The antibiotics will kill any meningococcal bacteria being carried in the back of the throat, reducing the risk of further transmission. Close contacts may also be offered vaccination if a vaccine preventable group has been identified.

If two or more cases of meningococcal disease occur within four weeks of the first case, preventative treatment may be offered to more distant contacts. Each situation will be individually assessed and appropriate action taken. For example, if a second case occurs within four weeks in the same creche or pre-school all children and staff will be offered antibiotics, and vaccination if appropriate.

Most cases of meningococcal disease occur alone and the likelihood of a second case is extremely small.

Mouth to mouth resuscitation greatly increases the risk of infection from patient to carer.

It is vital that accurate information is given following a case of meningococcal disease, as it can cause a high level of anxiety and fear. The public health team will liaise with local GPs, relevant schools/nurseries or places of work to ensure good communication between all those concerned.

What happens after meningococcal disease?

Most people who get meningococcal disease make a full physical recovery, but around 15% will be left with severe and often permanent disabilities. However, the exact number of people who experience after-effects is not known. The after-effects of meningitis usually happen because of damage to various areas of the brain, including the nerves responsible for hearing and sight. The serious and disabling after-effects are well recognised and include hearing loss or deafness, loss of vision or blindness, epilepsy, severe brain damage, speech problems, learning difficulties and behaviour problems.

After-effects and complications of septicaemia often occur as a result of damage to the major organs of the body such as the brain, kidneys, lungs, heart and skin.

The toxins in the blood damage vessels and stop the vital flow of oxygen to the organs including the skin and underlying tissues. After-effects include areas of scarring, loss of digits or limbs and organ damage.

After-effects are often complicated and can require ongoing support (for life) from a wide range of health professionals and organisations. In many cases the after-effects will be helped by various kinds of therapy, for example, physiotherapy and occupational therapy.

Many people will experience a wide range of less debilitating but serious after-effects. These can be temporary or permanent and include memory loss, anxiety, depression and headaches. Whatever the after-effect, mild or severe, meningitis can change a person's life forever.

Tragically, some patients will die despite receiving the best possible treatment and care. The death of a loved one following meningitis or septicaemia is always painful and traumatic. If you have lost a loved one, our trained helpline staff are available 24 hours a day, and can explain how we may be able to offer you support.

More detailed information about the outcomes of meningitis is available in our 'After meningitis' booklet. You can request a copy by contacting our 24-hour nurse-led helpline on **1800 523 196**.

Find out more

- **Meningitis Trust**
www.meningitis-trust.ie
Information about meningitis and the work of the Meningitis Trust.
www.meningitis-learning.org
Learn more about meningitis by playing online quizzes and touring the virtual body invasion.
- **Health Protection Surveillance Centre**
www.hpsc.ie
The Health Protection Surveillance Centre (HPSC) is Ireland's specialist agency for the surveillance of communicable diseases.
- **Meningitis a Guide for Families (1997)**
J Simon Kroll, Andrew J Pollard, Parviz Habibi – publisher, Publishing Solutions Ltd (UK).
A recommended read for parents. This book provides excellent information and uses case studies to explain meningitis and meningococcal disease.
- **Need to know meningitis (2004)**
Kristina Routh – Publisher, Heinemann Library. This comprehensive and easy to understand book traces the history, incidence and consequences of meningitis.

The Meningitis Trust

We, the Meningitis Trust, are a registered charity set up in Ireland in 2001.

We are committed to increasing understanding of the disease and providing specialised professional services to anyone who has been affected. These services offer emotional and practical support to help people rebuild their lives.

Here are some of the ways we do this.

24-hour nurse-led helpline – a Freephone service, providing information and support seven days a week

Home visits – trained staff offer information and support in people's homes

Professional counselling and bereavement support – confidential counselling and bereavement support for people who have had meningitis and their families

One-to-one contacts – putting people affected by meningitis in touch with volunteers who have also experienced the disease

This is only made possible by donations from people like you, as we rely almost entirely on voluntary support to fund our work.

Glossary

Bacteria/bacterium

Single-celled micro-organisms, of which there are many types. Some types can cause disease in humans. One organism is called a bacterium, whilst more than one are called bacteria.

Cerebrospinal Fluid (CSF)

A protective fluid that flows around the brain and spinal cord, helping to maintain healthy cells.

Endotoxins

Poisonous proteins contained in the cell walls of some micro-organisms e.g. bacteria. These poisons are released when the bacteria die and cause widespread damage to body tissues and organs.

Immunity / immune response

The body's ability to recognise and resist specific infectious diseases. The immune system responds to infection by producing antibodies.

Inflammation

A response of the body tissues to injury or irritation. The response is characterised by redness, swelling, heat and pain.

Lumbar puncture

A procedure to remove CSF from around the spinal cord.

Meninges

The protective membranes that surround the brain. These are called the dura mater, arachnoid mater and pia mater.

Vaccine / vaccination

An injection given to encourage the body to produce antibodies which help to fight infectious disease. The injection contains small particles of the disease-causing organism.

If you have any questions or wish to discuss anything in this fact sheet in more detail, please phone our 24-hour nurse-led helpline.

24-hour nurse-led helpline

1800 523 196

www.meningitis-trust.ie



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