Meningococcal disease

Meningococcal disease is caused by a bacterium called *Neisseria meningitidis* (also known as meningococcal bacteria). These bacteria are divided into 13 'serogroups' designated by letters of the alphabet such as A, B and C. Serogroup B and C cause most of the meningococcal disease in Victoria. Serogroups A, C, Y and W₁₃₅ cause disease in other countries such as those in Africa, and sometimes, these cases are seen in Victoria.

Some people have the bacteria living naturally in their nose and throat. In a small number of people, a dangerous strain of the bacteria can move through the lining of the throat, causing what is known as invasive meningococcal disease. This can take the form of a blood infection (septicaemia) or infection of the membranes covering the brain and spinal cord (meningitis). The infection can develop quickly and can cause serious illness or death. Early diagnosis and treatment with antibiotics are vital.

The meningococcal C vaccine provides good protection against serogroup C strains. The number of cases of C serogroups has decreased in Australia following the introduction of this vaccine. A meningococcal serogroup B vaccine that protects against about 76 per cent of serogroup B meningococcal strains is available to purchase on prescription.

Children aged less than five years, particularly infants aged less than one year, have the highest incidence of invasive meningococcal disease caused by meningococcal B strains. A lower, secondary peak in incidence is seen in late adolescence and early adulthood. People with a poor functioning spleen or who have had their spleen removed or who have a complement disorder should also have the meningococcal B vaccine.

A combined vaccine against serogroups A, C, Y and W₁₃₅ is available for people to purchase who are at high risk of these bacterial strains. People at high risk include travellers to countries where epidemics of meningococcal disease occur and for people with poor functioning or no spleen or who have a complement component disorder.

Overview of meningococcal disease

Meningococcal bacteria live naturally in the back of the nose and throat in about 10 per cent of the population without causing illness. In a small number of people, a particular strain of the bacteria gets through the lining of the throat, enters the bloodstream and causes invasive meningococcal disease.

The infection can develop very quickly. If infection is diagnosed early enough and the right antibiotics are given quickly, most people make a complete recovery. Even with antibiotic treatment, invasive meningococcal disease causes death in about five to 10 per cent of cases.

Most cases occur suddenly and are unrelated to any other cases. Outbreaks where more than one person is affected are rare. Although everyone is a carrier at some time, carriers are most common among young adults, especially men and smokers.

Causes of meningococcal disease

Meningococcal bacteria are difficult to spread. They are only passed from person to person by regular, close, household and intimate contact with infected secretions from the back of the nose and throat. Some research shows that low levels of salivary contact are unlikely to transmit meningococcal bacteria. In fact, saliva has been shown to slow the growth of the bacteria.

Meningococcal bacteria are only found in humans and cannot live for more than a few seconds outside the body. You cannot catch meningococcal disease from the environment or animals. The bacteria cannot be picked up from water supplies, swimming pools, buildings or factories.
Meningococcal disease can occur all year round, but it is more common during winter and early spring.

**High-risk groups for meningococcal disease**

Although meningococcal disease is uncommon, it is a very serious disease that can occur in all age groups. In Victoria, the highest risk groups are children under five years of age and young adults aged 15 to 24 years. Since vaccination through the National Immunisation Program began in 2003, very few cases of meningococcal disease caused by serogroup C bacteria are seen in children under five years.

**Symptoms of meningococcal disease**

Meningococcal bacteria can develop into invasive meningococcal disease and that causes a range of symptoms. If you (or your child) have any of these symptoms below, seek medical attention as soon as possible.

**Symptoms in babies and young children**

Symptoms of invasive meningococcal disease in infants and young children can include:

- fever
- refusing to feed
- irritability, fretfulness
- grunting or moaning
- extreme tiredness or floppiness
- dislike of being handled
- nausea or vomiting
- diarrhoea
- turning away from light (photophobia)
- drowsiness
- convulsions (fits) or twitching
- rash of red or purple pinprick spots or larger bruises.

**Symptoms in older children and adults**

Symptoms of invasive meningococcal disease in older children and adults can include:

- fever
- headache
- loss of appetite
- neck stiffness
- discomfort when looking at bright lights (photophobia)
- nausea and/or vomiting
- diarrhoea
- aching or sore muscles
- painful or swollen joints
- difficulty walking
- general malaise
- moaning, unintelligible speech
- drowsiness
- confusion
- collapse
- rash of red or purple pinprick spots or larger bruises.

**Complications of meningococcal disease**

People with meningococcal disease, could develop conditions including:

- meningitis – an infection of the membrane covering the brain (signs include fever, stiff neck, drowsiness, irritability and refusal of food)
• septicaemia – an infection of the blood
• pneumonia – lung inflammation
• arthritis – joint infection
• permanent brain damage
• death.

Complications such as meningitis and septicaemia are medical emergencies. If you think a person has symptoms that suggest meningitis or septicaemia as described above, contact your doctor immediately, call triple zero (000) for an ambulance or go to the nearest hospital emergency department.

About a quarter of the people who recover from meningococcal disease experience some after-effects of the infection. Most of these problems get better with time. Some of the more common after-effects include:

• headaches
• deafness in one or both ears
• tinnitus (ringing in the ears)
• blurring and double vision
• aches and stiffness in the joints
• learning difficulties.

When to seek medical help

If somebody close to you has some of these signs and symptoms, and seems sicker than you would expect with a normal infection, seek medical help immediately. In the very early stages, meningococcal disease can appear to be like other, less serious illnesses. Your doctor may not immediately recognise this illness.

You are the expert in your family’s health. Do not hesitate to seek immediate medical help:

• if you are worried that the person is sicker than you would expect with a normal infection
• if the person seems to be getting worse, suddenly develops a rash or becomes drowsy
• even if it has only been an hour or two since you last sought help, you can always call NURSE-ON-CALL, triple zero (000) for an ambulance or go to an emergency department of a hospital.

Young adults and children should not be left alone if they suddenly develop a fever, as they may become seriously ill very quickly.

Diagnosis of meningococcal disease

Early diagnosis of invasive meningococcal disease is extremely important. Your doctor will take a medical history. If meningococcal disease is suspected, samples of blood and the fluid around the spinal cord (cerebrospinal fluid) are taken.

The samples are sent to a laboratory to be tested for the presence of meningococcal bacteria. Growing the bacteria confirms the diagnosis and will help to determine which type of bacteria is causing the infection.

Treatment of meningococcal disease

If meningococcal disease is suspected, an antibiotic (usually penicillin) is given immediately by injection. People with meningococcal disease are almost always admitted to hospital and may require admission to an intensive care unit.

The sooner people receive treatment, the less damage the disease will cause. It is important to remember that this is an unpredictable infection that can progress very rapidly, despite the best treatment.

Treatment of close contacts of people with meningococcal disease
Most people, such as school and work friends, who have had contact with an affected person, do not need antibiotics.

Very close contacts of an infected person are offered a short course of ‘clearance’ antibiotics in accordance with Australian guidelines. These people are usually identified and contacted by the Department of Health or the treating doctor. These antibiotics are effective at killing meningococcal bacteria in the throat. They are not a treatment for meningococcal disease, nor do they necessarily prevent anyone from developing the disease.

Very close contacts may include:

- members of the same household
- a girlfriend or boyfriend
- anyone who has stayed overnight in the same house as the person in the seven days before they became unwell.
- children in a childcare facility who have spent at least four hours or more in the same room as the affected person in the seven days before the person became unwell.

**Immunisation against meningococcal disease**

Immunisation against meningococcal serogroup C bacteria was introduced in Australia in 2003 and cases of meningococcal disease from this strain of bacteria have decreased since that time. Between 2003 and June 2006, a catch-up immunisation with this vaccine was offered to all children and adolescents aged from one to 19 years of age, so that most young people would be immunised.

A meningococcal serogroup B vaccine that protects against about 76 per cent of serogroup B meningococcal strains is available to purchase on prescription. Children aged less than five years, particularly infants aged less than one year, have the highest incidence of invasive meningococcal disease caused by meningococcal B strains.

A lower, secondary peak in incidence is seen in late adolescence and early adulthood. People with a poor functioning spleen or who have had their spleen removed, or who have a complement disorder should also have the meningococcal B vaccine.

A combined vaccine against serogroups A, C, Y and W_{135} is available for people to purchase who are at high risk of these bacterial strains. People at high risk include travellers to countries where epidemics of meningococcal disease occur, and people with a poor functioning spleen or no spleen, or who have a complement component disorder.

Protection against meningococcal C disease is available under the National Immunisation Program Schedule. In Victoria, immunisation against meningococcal C is free of charge for:

- Children at 12 months – the immunisation against meningococcal serogroup C bacteria is given as a combination vaccine with the booster dose of vaccine against *Haemophilus influenza* type b (Hib)
- Children from 13 months up to and including nine years – catch-up immunisations are available for children who have not been fully vaccinated

The meningococcal C and B vaccine provides good protection against serogroup C and B strains, and there is also a combined vaccine against serogroups A, C, Y and W_{135}. It is important to know that even if you have had meningococcal disease, you do not have immunity and should still be vaccinated.

Speak to your doctor about which vaccine you should have if you are in a high-risk group including:

- people who have close household contact with those who have meningococcal serogroup C disease and who have not been vaccinated
- people who are travelling to places, such as Africa, that have epidemics of serogroups A, C, W_{135} and Y disease
- pilgrims to the annual Hajj in Saudi Arabia – Saudi Arabian authorities require a valid certificate of vaccination to enter the country
- people who work in a laboratory and who handle meningococcal bacteria
- children aged from six weeks and over and adults who have high-risk conditions such as the lack of a spleen or a spleen without adequate function or a complement component disorder
- People who have had a haemopoietic stem cell transplant.

**Pregnancy and meningococcal disease immunisation**

Meningococcal vaccines are not usually recommended for women who are pregnant or breastfeeding, but they might be given if your doctor thinks your situation puts you at risk of the disease.

**Where to get help**

- Your doctor
- In an emergency, always call triple zero (000)
- Emergency department of your nearest hospital
- Local government immunisation service
- Maternal and Child Health Line (24 hours) Tel. 132 229
- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- Immunisation Program, Department of Health, Victorian Government Tel. 1300 882 008
- National Immunisation Information Line Tel. 1800 671 811
- Pharmacist

**Things to remember**

- Meningococcal bacteria are only passed from person to person by regular close, prolonged household or intimate contact with infected secretions from the back of the nose and throat.
- Meningococcal disease is uncommon but serious.
- It is important to continue to seek help from your doctor or the hospital as often as necessary if you are concerned.
- Immunisation against meningococcal C bacteria and meningococcal B bacteria provides good protection against meningococcal disease.
- Another combination vaccine provides protection against meningococcal serogroups A, C, W135 and Y that are prevalent in places such as Africa.

**This page has been produced in consultation with, and approved by:**

DH - RHP&R - Health Protection - Communicable Disease Prevention and Control Unit

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