Bacterial meningitis and meningococcal septicaemia in children and young people

Information for the public
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About this information

NICE clinical guidelines advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive. The information applies to people using the NHS in England and Wales.

This information explains the advice about bacterial meningitis and meningococcal septicaemia in children and young people that is set out in NICE clinical guideline 102.

Does this information apply to me?

Yes, if you are the parent or carer of a child or young person (under 16) who has, or is suspected to have, bacterial meningitis or meningococcal septicaemia.

No, if you are the parent or carer of a:

- child or young person with known immunodeficiency (problems with the immune system's ability to fight infections)
- a child or young person with brain tumours, existing hydrocephalus (also known as 'water on the brain') or who is having fluid drained from around their brain
- newborn baby who is already receiving care in neonatal units.
Various aspects of wider management including complications are not dealt with.

For the remainder of this information, the term 'child' will be used to describe a child or young person under 16 years.

Your child's care

If you think that your child's care does not match what is described in this information, please talk to a member of your child's healthcare team.

Meningitis and meningococcal septicaemia are life-threatening diseases that require urgent, emergency treatment.

Treatment and care should take into account the child's needs and preferences, as well as those of their parents or carers, and you have the right to be fully informed and to make decisions in partnership with your child's healthcare team. In some cases, children can give consent for themselves, depending on their age and how well they understand their condition and the treatment. Sometimes you will be asked to give consent for them as their parent or the person with parental responsibility. Healthcare professionals should follow the Department of Health's advice on consent (https://www.gov.uk/government/publications/reference-guide-to-consent-for-examination-or-treatment-second-edition) and the code of practice for the Mental Capacity Act. Information about the Act and consent issues is available from www.nhs.uk/CarersDirect/ moneyandlegal/legal. In Wales healthcare professionals should follow advice on consent from the Welsh Government (www.wales.nhs.uk/consent).

Sometimes if a child appears to have a serious illness that could indicate the need for urgent treatment, the medical staff may not have time to fully discuss what is involved in that treatment beforehand. In these circumstances, detailed discussions and explanations may have to wait.

In an emergency, if the person with parental responsibility cannot be contacted, healthcare professionals may give treatment immediately when it is in the child's best interests.

All healthcare professionals should treat you and your child with respect, sensitivity and understanding. The information you get from your child's healthcare team should include details of the possible benefits and risks of particular treatments, and you should be offered clear and simple explanations of bacterial meningitis and meningococcal septicaemia. You and your child (where appropriate) can raise questions and discuss options for treatment. You can change your mind as your child's treatment progresses, or your child's condition or your own circumstances change.
Your child's treatment and care, and the information you are given about it, should take account of any religious, ethnic or cultural needs your family may have. It should also take into account any additional factors, such as physical or learning disabilities, sight or hearing problems, or difficulties with reading or speaking English. Your child's healthcare team should be able to arrange an interpreter and/or an advocate (someone who supports you in putting across your views) if you need them.

**Bacterial meningitis and meningococcal septicaemia**

Bacterial meningitis and meningococcal septicaemia are not very common, but when they happen, they can be very serious and can quickly lead to complications such as brain damage, skin damage and amputations, and even death. However, most children and young people make a full recovery if they are treated early.

Bacterial meningitis occurs when bacteria infect the lining of the brain (the meninges) and the spinal cord. Meningococcal septicaemia – or blood poisoning – occurs when the bacteria in the blood multiply uncontrollably. Meningococcal disease can appear as meningococcal meningitis or meningococcal septicaemia, or a combination of both.

For the remainder of this information, bacterial meningitis and meningococcal septicaemia will be referred to as meningitis and septicaemia respectively.

**Symptoms and signs**

If you visit your GP with your unwell child, your GP should assess them to try and find out what is wrong. Your GP should also consider how concerned you are about your child's illness, how quickly the illness is progressing and how severe the illness is.

If your child has certain symptoms or signs (see boxes 1 and 2 below), your GP may suspect that they have meningitis or septicaemia, or both of these conditions. If your child has suspected meningococcal disease and a non-blanching rash (that is, the rash doesn't fade when a glass is pressed firmly against the skin; this is known as the 'tumbler test') your child should be transferred to hospital as a 999 emergency and given antibiotics at the earliest possible opportunity.

If your GP suspects meningitis and your child doesn't have a non-blanching rash, your child should be transferred to hospital as a 999 emergency. If this isn't possible (for example if the hospital is far away) your child should be given antibiotics before being transferred to hospital.
Box 1: Symptoms and signs of bacterial meningitis

- Fever/vomiting
- Headache
- Stiff neck
- Dislike of bright lights
- Very sleepy/vacant/difficult to wake
- Confused/delirious
- Non-blanching rash (but in some kinds of meningitis there is no rash)
- Seizures

Babies may also refuse feeds, be irritable with a high-pitched cry, have a stiff body and have a bulging soft spot on the top of their head.

Not everyone gets all of these symptoms. If you think your child is ill enough to need medical help, then trust your instincts.

Box 2: Symptoms and signs of meningococcal septicaemia

Non-blanching rash plus:

- fever
- vomiting/nausea
- lethargy
- muscle ache/joint pain
- cold hands/feet
- leg pain
- pale/mottled skin
- rapid breathing/breathlessness
- confusion
- very sleepy/vacant/difficult to wake.

Not everyone gets all of these symptoms. In the early stages, there may not be a rash, or the rash may fade on pressure (blanch). If you think your child is ill enough to need medical help, then trust your instincts.

**At the hospital – diagnosis and treatment**

*Rash*

If your child has a rash, the doctor will do a very careful assessment to see whether the child is likely to have meningitis, septicaemia or a combination of both. In particular, the doctor will look to see whether the rash is spreading and whether it is non-blanching.

If your child has a non-blanching rash, they should be given antibiotics immediately if they look unwell or they have symptoms and signs of meningitis or septicaemia (see boxes 1 and 2 in **Symptoms and signs**).

If your child has a non-blanching rash and fever (or has previously had a fever) they may need to have a blood test. If results of the blood tests are not normal, your child should be given antibiotics and admitted to hospital. If the blood tests are normal your child's condition be monitored for several hours, and if the doctor thinks there is a possibility they may have meningitis or septicaemia, they should be given antibiotics and admitted to hospital.

After assessing your child, the doctor may conclude that they probably don't have septicaemia or meningitis and they may be discharged after initial observation. However, you should return to hospital immediately if your child looks unwell.

If your child has a non-blanching rash but no fever, and they don't look unwell, they probably don't have meningitis or septicaemia, so the doctor may want to consider a different diagnosis.
Diagnostic tests

Once your child has arrived at the hospital, the doctors should carefully examine them. If the doctors suspect meningitis or septicaemia, they should do some tests to confirm the diagnosis. Your child should be kept under observation and their condition monitored carefully.

Meningitis

Your child should have a blood test if meningitis is suspected.

Almost all children with suspected meningitis will need to have a lumbar puncture to confirm the diagnosis. This is a routine test in paediatrics and should not alarm you. During this procedure, a sample of cerebrospinal fluid (the fluid surrounding the brain and spinal cord) is taken from the lower part of the spinal canal using a hollow needle. Any fluid taken is then tested in a laboratory.

If the blood tests or lumbar puncture tests are abnormal and indicate a bacterial infection, your child will need antibiotics. The tests may also show which types of bacteria are causing any infection, and the doctor will use this information to decide which type of antibiotic to use.

Babies will sometimes need to have a second lumbar puncture during the course of treatment if they have a persistent fever or a fever that has returned, their condition gets worse, they have new symptoms or there is evidence of continuing infection on blood tests.

If your child is having problems staying conscious, or they have signs of brain injury or brain inflammation (these are known as focal neurological signs), your child might have a brain scan (also known as a computed tomography scan or a CT scan) to see if there is an underlying problem.

Septicaemia

Your child will normally have a blood test if septicaemia is suspected. If the blood tests are abnormal, this may indicate a bacterial infection and your child will usually be given antibiotics.

Questions you might like to ask your child's healthcare team when you arrive at the hospital

- Please tell me what you are going to do and why.
• How serious is this illness?
• Please tell me what the treatment will involve.
• How long will it take for the treatment to have an effect?
• How will you know the treatment is working?
• Does my child need to be transferred to another hospital for ongoing or intensive care?
• Can I check that I've understood what you've said?

Emergency care

The doctor will check your child for specific signs if he or she thinks your child has meningitis or septicaemia. Some of the signs described below can occur in either condition.

Meningitis

If meningitis is suspected or has been confirmed, the doctor should look for signs of raised pressure in the brain and signs of dehydration.

If your child is dehydrated, they should be given fluids. The fluids may be given intravenously, through a needle or thin tube inserted directly into a vein. Alternatively, the fluids can be given directly into the stomach or small intestine using a thin tube, which is usually inserted through the nose. Your child’s condition should be monitored to make sure their body is getting the right amount of fluid.

Depending on the results of the lumbar puncture (see Diagnostic tests), your child may be given drugs called corticosteroids to reduce the inflammation in the brain.

Septicaemia

If your child is suspected of having septicaemia the doctor should look for signs of shock. Clinical shock is when the blood doesn't circulate around the body properly, which means that the body’s tissues and organs cannot function correctly. If your child is in shock they should be treated with fluids and then immediately reassessed. Severe shock eventually causes low blood pressure, so they may need drugs urgently to help improve the circulation quickly and stabilise their condition.
If your child has suspected or confirmed septicaemia they may need some help to breathe. This may involve using a special face mask or a machine called a ventilator to help them breathe in more oxygen. If your child needs to be put on a ventilator, or their condition is very serious, they may need to be transferred to a paediatric intensive care unit.

### Questions you might like to ask your child's healthcare team once their condition has stabilised

- Please tell me more about meningitis and/or septicaemia.
- Is there some written information (like a leaflet) that I can have?
- Are there any support organisations in my local area?

### Information, support and follow-up

Before your child is discharged from hospital their doctor should consider what their needs might be after they've left hospital. Most children recover well, but for some it will take a while to return to normal. The doctor should discuss with you and your child what the long-term effects of the disease might be, as well as likely patterns of recovery, and give opportunities to ask questions.

The circumstances will be different for each child but after-effects of meningitis might include emotional and psychological problems or minor learning difficulties, which may require extra help or support at school. Very severe cases can cause hearing loss, and damage to the brain or other parts of the nervous system, perhaps causing learning impairment, epilepsy, and problems with movement and coordination. Septicaemia can cause scarring to the skin, and could lead to amputations and other damage to bones. The kidneys may be affected. These problems should be obvious very early in the course of the illness.

You should be offered information about further care and how to access it, and contact details of patient support organisations (some of these are given in More information).

If your child has had meningitis or septicaemia they should be offered a hearing test, if possible before they are discharged from hospital. If they are severely or profoundly deaf, they should be offered an urgent assessment for cochlear implants (small devices that help with hearing by stimulating the auditory nerve, which carries 'hearing information' to the brain in the form of
electrical impulses) as soon as they are fit to be tested. About 4–6 weeks after the hearing test, a paediatrician should discuss with you and your child the results of the test and any conditions they may have as a result of having meningitis or septicaemia.

Your child's doctor should let their GP, health visitor and school nurse know about your child's meningitis or septicaemia. Healthcare professionals monitoring your child should be alert for any late complications that may develop, including sensory, nerve, bone, or emotional or psychological problems.

Other tests

Some children with meningitis or septicaemia can have an abnormality of the immune system that has made them susceptible to these diseases. This is very rare but occasionally needs to be investigated. If this is the case, your child might later be tested for a condition called 'complement deficiency', depending on their own medical history and that of their immediate family. This will check whether your child has a problem with their immune system, such as a pre-existing genetic defect, that could increase the risk of developing infections.

If your child is found to have complement deficiency, then you and/or the child's biological parents, and their brothers and sisters should also be tested for it. Your child should also be referred to a healthcare professional who has expertise in managing the condition.

If your child has meningococcal disease that keeps returning, they should be assessed by a specialist in immunology and infections.

More information

The organisations below can provide more information and support for people with meningitis or septicaemia. NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

- The Meningitis Trust, 0808 801 0388 (24-hour freephone helpline)
  www.meningitis-trust.org

- Meningitis Research Foundation, 0808 800 3344 (24-hour freephone helpline)
  www.meningitis.org

You can also go to NHS Choices (www.nhs.uk) for more information.
Accreditation