NICE National Institute for Health and Care Excellence

NICE quality standard

Meningitis (bacterial) and meningococcal septicaemia in children and young people

Quality standard

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Contents

This standard is based on CG102 and NG143.

This standard should be read in conjunction with QS15, QS64, QS75, QS112, QS131, QS145 and QS162.

Introduction and overview

This quality standard covers the diagnosis and management of children and young people (younger than 16 years) with bacterial meningitis or meningococcal septicaemia. For more information see the scope for this quality standard.

Introduction

Bacterial meningitis is an inflammation of the meninges, which are the membranes that cover the brain. In children and young people aged 3 months or older, bacterial meningitis is most commonly caused by *Neisseria meningitidis* (meningococcus). Meningococcal septicaemia is a severe systemic infection in which there is multiplication of infective organisms in the blood stream.

Meningococcal meningitis and meningococcal septicaemia are sometimes referred to as invasive meningococcal disease. Meningococcal disease most commonly presents as meningitis (15% of cases) or septicaemia (25% of cases), or as a combination of the two (60% of cases).

Meningococcal disease occurs primarily in children aged under 5 years, with a peak incidence in those aged under 1 year. There is a smaller, secondary peak in incidence in young people between 15 and 19 years. Most cases of meningococcal disease occur sporadically, with less than 5% occurring in clusters. Outbreaks are most common among young people, occurring for example in schools or universities. In 2010 there were 660 laboratory confirmed cases of invasive meningococcal disease in children and young people aged under 19 years in England and Wales.

Meningococcal disease causes death in around 1 in 10 cases, and is the leading cause of death from infection in early childhood in the UK, making its control a priority for clinical management. The identification and treatment of meningococcal disease is time-critical; emergency admission to hospital and treatment with antibiotics should be sought without delay, as the disease can be fatal within hours of the first symptoms appearing. Prompt recognition of the symptoms and signs is key to preventing death or disability.

This quality standard describes markers of high-quality, cost-effective care that, when delivered collectively, should contribute to improving the effectiveness, safety and experience of care for children and young people with bacterial meningitis and meningococcal septicaemia in the following ways:

- Preventing people from dying prematurely.
- Helping people to recover from episodes of ill health or following injury.
- Ensuring that people have a positive experience of care.
- Treating and caring for people in a safe environment and protecting them from avoidable harm.

These overarching outcomes are from the NHS Outcomes Framework.

Overview

The quality standard for bacterial meningitis and meningococcal septicaemia in children and young people requires that services should be commissioned from and coordinated across all relevant agencies encompassing the whole bacterial meningitis and meningococcal septicaemia care pathway. An integrated approach to provision of services is fundamental to the delivery of high-quality care to children and young people with bacterial meningitis and meningococcal septicaemia.

The quality standard should be read in the context of national and local guidelines on training and competencies. Implementation of this quality standard is predicated on all healthcare professionals involved in the assessment, care and treatment of children and young people with bacterial meningitis or meningococcal septicaemia (including those carrying out assessments remotely) being sufficiently and appropriately trained in recognising disease, and competent to deliver the actions and interventions described in the quality standard.

List of quality statements

Statement 1 Parents and carers of children and young people presenting with non-specific symptoms and signs are given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Statement 2 Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Statement 3 Children and young people presenting with a petechial rash receive antibiotics in accordance with NICE guidance.

Statement 4 Children and young people with suspected bacterial meningitis or meningococcal septicaemia receive intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Statement 5 Children and young people with suspected bacterial meningitis have a lumbar puncture.

Statement 6 Children and young people with suspected bacterial meningitis have their cerebrospinal fluid (CSF) microscopy result available within 4 hours of lumbar puncture.

Statement 7 Children and young people with suspected bacterial meningitis or meningococcal septicaemia have whole blood meningococcal polymerase chain reaction (PCR) testing.

Statement 8 Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia, who have signs of shock or raised intracranial pressure, are assessed by a consultant paediatrician.

Statement 9 Children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Statement 10 Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals are escorted by a healthcare professional trained in advanced paediatric life support.

Statement 11 Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital are transferred by a specialist paediatric retrieval team.

Statement 12 Children and young people who have had bacterial meningitis or meningococcal septicaemia, and/or their parents and carers, are given information before discharge about the disease, its potential long-term effects and how to access further support.

Statement 13 Children and young people who have had bacterial meningitis or meningococcal septicaemia have an audiological assessment before discharge.

Statement 14 Children and young people who have had bacterial meningitis or meningococcal septicaemia have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Quality statement 1: 'Safety netting' information

Quality statement

Parents and carers of children and young people presenting with non-specific symptoms and signs are given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Quality measure

Structure: Evidence of local arrangements for parents and carers of children and young people presenting with non-specific symptoms and signs to be given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Process: Proportion of parents or carers of children and young people presenting with non-specific symptoms and signs who are given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Numerator – the number of people in the denominator who are given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Denominator – the number of parents or carers of children and young people presenting with non-specific symptoms and signs.

Outcome: Parent/carer satisfaction with information received.

What the quality statement means for different audiences

Service providers ensure systems are in place for parents and carers of children and young people presenting with non-specific symptoms and signs to be given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Healthcare professionals give 'safety netting' information to parents and carers of children and young people presenting with non-specific symptoms and signs, including information on bacterial meningitis and meningococcal septicaemia.

Commissioners ensure they commission services that enable parents and carers of children and young people presenting with non-specific symptoms and signs to be given 'safety netting' information that includes information on bacterial meningitis and meningococcal septicaemia.

Parents and carers of children and young people with general symptoms are given 'safety netting' information (for example, advice on what symptoms to look out for and how and when to seek further care) that includes information on bacterial meningitis and meningococcal septicaemia (blood poisoning).

Source guidance

Fever in under 5s: assessment and initial management (2019) NICE guideline NG143, recommendations 1.4.4, 1.5.25 and 1.7.3

Data source

Structure: Local data collection.

Process: Local data collection.

Outcome: Local data collection.

Definitions

Non-specific symptoms and signs

Non-specific symptoms and signs are detailed in table 1 of the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

'Safety netting' information

'Safety netting' information comprises oral and/or written information on what symptoms to look out for, how to access further care, likely time course of expected illness and, if appropriate, the uncertainty of the diagnosis.

Information on warning symptoms should include a specific instruction for parents and carers looking after a feverish child to seek further advice if any of the following occur:

- The child develops a non-blanching rash.

- The parent or carer feels that the child is less well than when they previously sought advice.
- The parent or carer is more worried than when they previously sought advice.
- The fever lasts 5 days or longer.
- The parent or carer is distressed, or concerned that they are unable to look after the child.
- The child is lethargic or irritable.
- The child stops feeding (infants only).
- The child has a fit.

[NICE's guideline on fever in under 5s, recommendations 1.5.25 and 1.7.3]

Quality statement 2: Monitoring

Quality statement

Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia to have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Process: Proportion of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia who have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Numerator – the number of people in the denominator who have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Denominator – the number of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia to have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Healthcare professionals monitor the temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition of children and young people with suspected

or confirmed bacterial meningitis or meningococcal septicaemia at least hourly until stable.

Commissioners ensure they commission services for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia to have their temperature, respiratory rate, pulse, blood pressure, urine output, oxygen saturation and neurological condition monitored at least hourly until stable.

Children and young peoplewith suspected or confirmed bacterial meningitis or meningococcal septicaemia (blood poisoning) have their temperature, breathing, pulse, blood pressure, urine production, blood oxygen levels and level of consciousness monitored at least every hour until they are stable.

Source guidance

- Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.1.6 and 1.4.47
- Fever in under 5s: assessment and initial management (2019) NICE guideline NG143, recommendation 1.2.1

Data source

Structure: Local data collection.

Process: Local data collection. Contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Definitions

Monitoring

Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia have the physiological observations described in the statement assessed regularly throughout their care pathway, whether presenting in primary care or after they have been admitted to hospital.

Neurological condition is assessed using observations that include pupillary reactions, motor function and levels of consciousness (Glasgow Coma Scale or AVPU [Alert, Voice, Pain, Unresponsive]).

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendations 1.1.6 and 1.4.47]

Quality statement 3: Management of petechial rash

Quality statement

Children and young people presenting with a petechial rash receive antibiotics in accordance with NICE guidance.

Quality measure

Structure: Evidence of local arrangements for children and young people presenting with a petechial rash to receive antibiotics in accordance with NICE guidance.

Process: Proportion of children and young people presenting with a petechial rash who receive antibiotics in accordance with NICE guidance.

Numerator – the number of people in the denominator who receive antibiotics in accordance with NICE guidance.

Denominator – the number of children and young people presenting with a petechial rash.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people presenting with a petechial rash to receive antibiotics in accordance with NICE guidance.

Healthcare professionals give antibiotics to children and young people presenting with a petechial rash in accordance with NICE guidance.

Commissioners ensure they commission services that ensure children and young people presenting with a petechial rash receive antibiotics in accordance with NICE guidance.

Children and young peoplewith a rash of small red or purple spots that doesn't fade when a glass is pressed firmly against the skin (a non-blanching rash) have appropriate investigations and receive

antibiotics if their healthcare professional considers them at risk of bacterial meningitis or meningococcal septicaemia (blood poisoning).

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.3.2 (key priority for implementation) and 1.3.3 to 1.3.6

Data source

Structure: Local data collection.

Process: Local data collection.

Definitions

The NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s provides information on the correct prescribing of antibiotics for children and young people presenting with a petechial rash.

NICE guidance on the management of petechial rash is also available in diagrammatical form, see the NICE Pathway on bacterial meningitis and meningococcal septicaemia in under 16s.

Quality statement 4: Initiation of antibiotics

Quality statement

Children and young people with suspected bacterial meningitis or meningococcal septicaemia receive intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected bacterial meningitis or meningococcal septicaemia to receive intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Process: Proportion of children and young people with suspected bacterial meningitis or meningococcal septicaemia who receive intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Numerator – the number of people in the denominator who receive intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Denominator – the number of children and young people with suspected bacterial meningitis or meningococcal septicaemia arriving in hospital.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected bacterial meningitis or meningococcal septicaemia to receive intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Healthcare professionals give children and young people with suspected bacterial meningitis or meningococcal septicaemia intravenous or intraosseous antibiotics within an hour of arrival at hospital.

Commissioners ensure they commission services for children and young people with suspected bacterial meningitis or meningococcal septicaemia to receive intravenous or intraosseous

antibiotics within an hour of arrival at hospital.

Children and young peoplewith suspected bacterial meningitis or meningococcal septicaemia (blood poisoning) are given antibiotics intravenously (directly into a vein through a needle or thin tube) or intraosseously (directly into the bone through a needle or thin tube) within an hour of arrival at hospital.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.2.4 and 1.4.1 to 1.4.3

Data source

Structure: Local data collection.

Process: Local data collection.

Definitions

Antibiotics should be administered for children and young people with suspected bacterial meningitis or meningococcal septicaemia as soon as possible in order to optimise chances of recovery, and within an hour of arrival in secondary care.

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendations 1.4.1 to 1.4.3]

While antibiotics should be given at the earliest opportunity, either in primary or secondary care (without delaying urgent transfer to hospital to do so), this statement concerns children and young people with suspected bacterial meningitis or meningococcal septicaemia for whom there has been no delay in their transfer to hospital, either from their GP or through attendance at an accident and emergency department.

For children and young people for whom urgent transfer to hospital is not possible (for example, in remote locations or adverse weather conditions), antibiotics may be given in primary or community care.

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s,

recommendations 1.2.3 and 1.2.4]

Quality statement 5: Lumbar puncture for suspected bacterial meningitis

Quality statement

Children and young people with suspected bacterial meningitis have a lumbar puncture.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected bacterial meningitis to have a lumbar puncture.

Process: Proportion of children and young people with suspected bacterial meningitis who have a lumbar puncture.

Numerator – the number of people in the denominator who have a lumbar puncture.

Denominator – the number of children and young people with suspected bacterial meningitis.

What the quality statement means for each audience

Service providers ensure systems are in place for children and young people with suspected bacterial meningitis to have a lumbar puncture.

Healthcare professionals perform a lumbar puncture for children and young people with suspected bacterial meningitis.

Commissioners ensure they commission services for children and young people with suspected bacterial meningitis to have a lumbar puncture.

Children and young peoplewith suspected bacterial meningitis have a procedure called a lumbar puncture, in which a sample of the fluid surrounding the brain and spinal cord is taken using a hollow needle inserted into the lower part of the back.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.3.18 (key priority for implementation) and 1.3.19

Data source

Structure: Local data collection.

Process: Local data collection. Contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Definitions

It is important that children and young people with suspected bacterial meningitis have a lumbar puncture as soon as possible, but only when it is safe to do so. Contraindications to lumbar puncture include:

- signs suggesting raised intracranial pressure:
    - reduced or fluctuating level of consciousness (Glasgow Coma Scale score less than 9 or a drop of 3 or more)
    - age-relative bradycardia and hypertension
    - focal neurological signs
    - abnormal posture or posturing
    - unequal, dilated or poorly responsive pupils
    - papilloedema
    - abnormal 'doll's eye' movements
    - tense, bulging fontanelle
- shock
- extensive or spreading purpura

- convulsions until stabilised
- coagulation abnormalities:
    - coagulation results (if obtained) outside the normal range
    - platelet count below 100×10^9/litre
    - receiving anticoagulant therapy
- superficial infection at the lumbar puncture site
- respiratory insufficiency (lumbar puncture is considered to have a high risk of precipitating respiratory failure in the presence of respiratory insufficiency).

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendation 1.3.18]

Quality statement 6: CSF microscopy for suspected bacterial meningitis

Quality statement

Children and young people with suspected bacterial meningitis have their cerebrospinal fluid (CSF) microscopy result available within 4 hours of lumbar puncture.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected bacterial meningitis to have their CSF microscopy result available within 4 hours of lumbar puncture.

Process: Proportion of children and young people with suspected bacterial meningitis who have their CSF microscopy result available within 4 hours of lumbar puncture.

Numerator – the number of people in the denominator who have their CSF microscopy result available within 4 hours of lumbar puncture.

Denominator – the number of children and young people with suspected bacterial meningitis who have had a lumbar puncture.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected bacterial meningitis to have their CSF microscopy result available within 4 hours of lumbar puncture.

Healthcare professionals ensure children and young people with suspected bacterial meningitis have their CSF microscopy result available within 4 hours of lumbar puncture.

Commissioners ensure they commission services for children and young people with suspected bacterial meningitis to have their CSF microscopy result available within 4 hours of lumbar puncture.

Children and young peoplewith suspected bacterial meningitis have the results of their lumbar puncture within 4 hours of the procedure being done.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendation 1.3.20

Data source

Structure: Local data collection.

Process: Local data collection. Contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Definitions

CSF microscopy provides the CSF white blood cell count, which is the most important investigation for a diagnosis of meningitis. Samples should also be routinely processed for total protein and glucose concentrations.

It is important that samples are processed rapidly given that white cell counts decrease significantly with time.

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendation 1.3.20]

Quality statement 7: Blood tests

Quality statement

Children and young people with suspected bacterial meningitis or meningococcal septicaemia have whole blood meningococcal polymerase chain reaction (PCR) testing.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected bacterial meningitis or meningococcal septicaemia to have whole blood meningococcal PCR testing.

Process: Proportion of children and young people with suspected bacterial meningitis or meningococcal septicaemia who have whole blood meningococcal PCR testing.

Numerator – the number of people in the denominator who have whole blood meningococcal PCR testing.

Denominator – the number of children and young people with suspected bacterial meningitis or meningococcal septicaemia.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected bacterial meningitis or meningococcal septicaemia to have whole blood meningococcal PCR testing.

Healthcare professionals carry out whole blood meningococcal PCR testing for children and young people with suspected bacterial meningitis or meningococcal septicaemia.

Commissioners ensure they commission services for children and young people with suspected bacterial meningitis or meningococcal septicaemia to have whole blood meningococcal PCR testing.

Children and young people with suspected bacterial meningitis or meningococcal septicaemia

(blood poisoning) have a blood sample taken for a type of DNA laboratory test called PCR that will help confirm the diagnosis.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendation 1.3.8 (key priority for implementation)

Data source

Structure: Local data collection.

Process: Local data collection. Contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Definitions

PCR testing

PCR is a DNA-based diagnostic test.

PCR testing may not always be appropriate (for example, if the diagnosis has been confirmed by positive blood or cerebrospinal fluid cultures).

Quality statement 8: Access to specialists

Quality statement

Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia, who have signs of shock or raised intracranial pressure, are assessed by a consultant paediatrician.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia who have signs of shock or raised intracranial pressure to be assessed by a consultant paediatrician.

Process: Proportion of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia who have signs of shock or raised intracranial pressure that are assessed by a consultant paediatrician.

Numerator – the number of people in the denominator who are assessed by a consultant paediatrician.

Denominator – the number of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia who have signs of shock or raised intracranial pressure.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia who have signs of shock or raised intracranial pressure to be assessed by a consultant paediatrician.

Healthcare professionals ensure that children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia who have signs of shock or raised intracranial pressure are assessed by a consultant paediatrician.

Commissioners ensure they commission services for children and young people with suspected or

confirmed bacterial meningitis or meningococcal septicaemia who have signs of shock or raised intracranial pressure to be assessed by a consultant paediatrician.

Children and young peoplewith suspected or confirmed bacterial meningitis or meningococcal septicaemia (blood poisoning) who have signs of shock (for example unusual skin colour or breathing difficulty) or raised pressure in the brain are assessed by a consultant paediatrician.

Source guidance

Fever in under 5s: assessment and initial management (2019) NICE guideline NG143, recommendation 1.5.27

Data source

Structure: Local data collection.

Process: Local data collection.

Quality statement 9: Tracheal intubation and mechanical ventilation in meningococcal septicaemia

Quality statement

Children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Quality measure

Structure: Evidence of local arrangements for children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation to have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Process: Proportion of children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation who have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Numerator – the number of people in the denominator who have the tracheal intubation and mechanical ventilation procedure undertaken by an anaesthetist experienced in paediatric airway management.

Denominator – the number of children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation to have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Healthcare professionals ensure that children and young people with meningococcal septicaemia

undergoing tracheal intubation and mechanical ventilation have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Commissioners ensure they commission services for children and young people with meningococcal septicaemia undergoing tracheal intubation and mechanical ventilation to have the procedure undertaken by an anaesthetist experienced in paediatric airway management.

Children and young people with meningococcal septicaemia (blood poisoning) receiving help to breathe using a tube inserted into their windpipe (tracheal intubation) through which air is pushed into the lungs via a ventilator machine (ventilation), have the procedure undertaken by an experienced specialist (an anaesthetist experienced in paediatric airway management).

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.4.30 (key priority for implementation) and 1.4.35

Data source

Structure: Local data collection.

Process: Local data collection. Contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Definitions

Tracheal intubation with mechanical ventilation is required for the following indications.

- Threatened (for example, loss of gag reflex) or actual loss of airway patency.
- The need for any form of assisted ventilation, for example bag–mask ventilation.
- Clinical observation of increasingly laboured breathing.
- Hypoventilation or apnoea.
- Features of respiratory failure, including:
    - reduced or fluctuating level of consciousness (Glasgow Coma Scale score less than 9 or

- – a drop of 3 or more)
  - irregular respiration (for example, Cheyne–Stokes breathing)
  - hypoxia (PaO_2 less than 13 kPa or 97.5 mmHg) or decreased oxygen saturations in air
  - hypercapnia ($PaCO_2$ greater than 6 kPa or 45 mmHg).
- Continuing shock following infusion of a total of 40 ml/kg of resuscitation fluid.
- Signs of raised intracranial pressure.
- Impaired mental status, including:
  - reduced or fluctuating level of consciousness (Glasgow Coma Scale score less than 9 or a drop of 3 or more)
  - moribund state.
- Control of intractable seizures.
- Need for stabilisation and management to allow brain imaging or transfer to the paediatric intensive care unit or another hospital.

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendation 1.4.37]

An anaesthetist experienced in paediatric airway management is an anaesthetist who has maintained their skills in paediatric resuscitation to the level of advanced paediatric life support or equivalent (for example by undertaking regular supernumerary attachments to paediatric lists or secondments to specialist centres/paediatric simulator work).

In the absence of an anaesthetist, another clinician experienced in paediatric airway management may undertake tracheal intubation and mechanical ventilation for children and young people with meningococcal septicaemia.

A paediatric intensivist should be consulted by the clinician undertaking tracheal intubation and mechanical ventilation.

Quality statement 10: Transfer within and between hospitals

Quality statement

Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals are escorted by a healthcare professional trained in advanced paediatric life support.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals to be escorted by a healthcare professional trained in advanced paediatric life support.

Process: Proportion of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals who are escorted by a healthcare professional trained in advanced paediatric life support.

Numerator – the number of people in the denominator who are escorted by a healthcare professional trained in advanced paediatric life support.

Denominator – the number of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals to be escorted by a healthcare professional trained in advanced paediatric life support.

Healthcare professionals ensure children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals are escorted by a healthcare professional trained in advanced paediatric life support.

Commissioners ensure they commission services for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia being transferred within or between hospitals to be escorted by a healthcare professional trained in advanced paediatric life support.

Children and young peoplewith suspected or confirmed bacterial meningitis or meningococcal septicaemia (blood poisoning) being transferred within or between hospitals are escorted by a healthcare professional trained in life saving treatment for children (advanced paediatric life support).

Source guidance

Topic Expert Group consensus.

Data source

Structure: Local data collection.

Process: Local data collection.

Quality statement 11: Transfer to intensive care

Quality statement

Children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital are transferred by a specialist paediatric retrieval team.

Quality measure

Structure: Evidence of local arrangements for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital to be transferred by a specialist paediatric retrieval team.

Process: Proportion of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital who are transferred by a specialist paediatric retrieval team.

Numerator – the number of people in the denominator who are transferred by a specialist paediatric retrieval team.

Denominator – the number of children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital to be transferred by a specialist paediatric retrieval team.

Healthcare professionals ensure children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or

high dependency unit in another hospital are transferred by a specialist paediatric retrieval team.

Commissioners ensure they commission services for children and young people with suspected or confirmed bacterial meningitis or meningococcal septicaemia requiring transfer to a paediatric intensive care unit or high dependency unit in another hospital to be transferred by a specialist paediatric retrieval team.

Children and young peoplewith suspected or confirmed bacterial meningitis or meningococcal septicaemia (blood poisoning) who need to be transferred to a paediatric intensive care unit or high dependency unit in another hospital are taken by a team of healthcare professionals that specialises in caring for and transporting seriously ill children (a paediatric retrieval team).

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendation 1.4.50

Data source

Structure: Local data collection.

Process: Local data collection. Contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Definitions

Specialist paediatric retrieval team

A specialist paediatric retrieval team comprises medical and nursing staff with specialist training in the transfer of sick children and young people from hospitals to paediatric intensive care or high dependency units.

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendation 1.4.50]

Quality statement 12: Information provision

Quality statement

Children and young people who have had bacterial meningitis or meningococcal septicaemia, and/or their parents and carers, are given information before discharge about the disease, its potential long-term effects and how to access further support.

Quality measure

Structure: Evidence of local arrangements for children and young people who have had bacterial meningitis or meningococcal septicaemia, or their parents and carers, to be given information before discharge about the disease, its potential long-term effects and how to access further support.

Process: Proportion of children and young people who have had bacterial meningitis or meningococcal septicaemia, or their parents or carers, who receive information before discharge about the disease, its potential long-term effects and how to access further support.

Numerator – the number of people in the denominator or their parents or carers who receive information before discharge about the disease, its potential long-term effects and how to access further support.

Denominator – the number of children and young people who have had bacterial meningitis or meningococcal septicaemia.

Outcome: Patient and/or parent or carer satisfaction with information received before discharge.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people who have had bacterial meningitis or meningococcal septicaemia, and/or their parents and carers, to be given information before discharge about the disease, its potential long-term effects and how to access further support.

Healthcare professionals give information before discharge to children and young people who have had bacterial meningitis or meningococcal septicaemia and/or their parents and carers about the disease, its potential long-term effects and how to access further support.

Commissioners ensure they commission services for children and young people who have had bacterial meningitis or meningococcal septicaemia, and/or their parents and carers, to be given information before discharge about the disease, its potential long-term effects and how to access further support.

Children and young peoplewho have had bacterial meningitis or meningococcal septicaemia (blood poisoning), and/or their parents and carers, are given information before leaving hospital about the disease, its potential long-term effects and how to access further support.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.5.1 and 1.5.2

Data source

Structure: Local data collection.

Process: Local data collection.

Outcome: Local data collection.

Definitions

Further support

Further support can be provided for children and young people who have had bacterial meningitis or meningococcal septicaemia, and their parents or carers by the GP, or hospital paediatrician and by patient support organisations, including meningitis charities that can offer support, befriending, in-depth information, advocacy, counselling, and written information to signpost families to further help.

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendation 1.5.2]

Quality statement 13: Audiological assessment

Quality statement

Children and young people who have had bacterial meningitis or meningococcal septicaemia have an audiological assessment before discharge.

Quality measure

Structure: Evidence of local arrangements for children and young people who have had bacterial meningitis or meningococcal septicaemia to have an audiological assessment before discharge.

Process: Proportion of children and young people who have had bacterial meningitis or meningococcal septicaemia who have an audiological assessment before discharge.

Numerator – the number of people in the denominator who have an audiological assessment before discharge.

Denominator – the number of children and young people who have had bacterial meningitis or meningococcal septicaemia.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people who have had bacterial meningitis or meningococcal septicaemia to have an audiological assessment before discharge.

Healthcare professionals ensure children and young people who have had bacterial meningitis or meningococcal septicaemia have an audiological assessment before discharge.

Commissioners ensure they commission services for children and young people who have had bacterial meningitis or meningococcal septicaemia to have an audiological assessment before discharge.

Children and young peoplewho have had bacterial meningitis or meningococcal septicaemia (blood poisoning) have a hearing test before they leave hospital.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendation 1.5.3

Data source

Structure: Local data collection.

Process: Local data collection.

Definitions

It may not be possible to arrange an audiological assessment before discharge in all circumstances. Where this is the case the assessment should be undertaken within 4 weeks of the child or young person being fit to undergo testing (that is, once they are no longer critically ill).

[NICE's guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s, recommendation 1.5.3]

Quality statement 14: Follow-up

Quality statement

Children and young people who have had bacterial meningitis or meningococcal septicaemia have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Quality measure

Structure: Evidence of local arrangements for children and young people who have had bacterial meningitis or meningococcal septicaemia to have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Process: Proportion of children and young people who have had bacterial meningitis or meningococcal septicaemia who have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Numerator – the number of people in the denominator who have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Denominator – the number of children and young people who are discharged after having had bacterial meningitis or meningococcal septicaemia.

What the quality statement means for different audiences

Service providers ensure systems are in place for children and young people who have had bacterial meningitis or meningococcal septicaemia to have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Healthcare professionals ensure that children and young people who have had bacterial meningitis or meningococcal septicaemia have a follow-up appointment with a consultant paediatrician within 6 weeks of discharge.

Commissioners ensure they commission services for children and young people who have had bacterial meningitis or meningococcal septicaemia to have a follow-up appointment with a

consultant paediatrician within 6 weeks of discharge.

Children and young people who have had bacterial meningitis or meningococcal septicaemia (blood poisoning) have an appointment with a specialist (a consultant paediatrician) within 6 weeks of leaving hospital.

Source guidance

Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102, recommendations 1.5.5 (key priority for implementation) and 1.5.7

Data source

Structure: Local data collection.

Process: NHS Digital Hospital Episode Statistics contain the data necessary for the monitoring of outpatient follow-up.

Also contained within the baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s.

Using the quality standard

It is important that the quality standard is considered alongside current policy and guidance documents listed in development sources.

Quality measures and national indicators

The quality measures accompanying the quality statements aim to improve the structure, process and outcomes of healthcare. They are not a new set of targets or mandatory indicators for performance management.

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so aspirational achievement levels are likely to be 100% (or 0% if the quality statement states that something should not be done). However, it is recognised that this may not always be appropriate in practice taking account of patient safety, patient choice and clinical judgement and therefore desired levels of achievement should be defined locally.

See NICE's how to use quality standards for further information, including advice on using quality measures.

Diversity, equality and language

During the development of this quality standard, equality issues have been considered and equality assessments are published on the NICE website.

Good communication between healthcare professionals and children and young people with bacterial meningitis or meningococcal septicaemia, and their parents or carers, is essential. Treatment and care, and the information given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English. Children and young people with bacterial meningitis or meningococcal septicaemia, and their parents or carers, should have access to an interpreter or advocate if needed.

Development sources

Evidence sources

The documents below contain clinical guideline recommendations or other recommendations that were used by the Topic Expert Group to develop the quality standard statements and measures.

- Fever in under 5s: assessment and initial management (2019) NICE guideline NG143
- Meningitis (bacterial) and meningococcal septicaemia in under 16s: recognition, diagnosis and management (2010) NICE guideline CG102

Policy context

It is important that the quality standard is considered alongside current policy documents, including:

- Public Health England (2018) Meningococcal disease: guidance on public health management
- Department of Health (2009) Healthy lives, brighter futures – The strategy for children and young people's health
- Department of Health (2004) National service framework for children, young people and maternity services

Definitions and data sources for the quality measures

References included within in the definitions and data sources sections:

- Hospital Episode Statistics
- Baseline assessment for the NICE guideline on meningitis (bacterial) and meningococcal septicaemia in under 16s

Related NICE quality standards

When commissioning and providing a high-quality service for children and young people with bacterial meningitis or meningococcal septicaemia, the following related quality standard should also be considered:

- Fever in under 5s (2014) NICE quality standard 64

The Topic Expert Group and NICE project team

Topic Expert Group

Mrs Angela Cloke
Patient/carer member

Ms Linda Glennie
Lay member

Professor Simon Kroll
Professor of Paediatrics, Imperial College London

Mrs Patricia Milne
Clinical Educator PICU, Newcastle upon Tyne Hospitals NHS Foundation Trust

Ms Sheila McQueen
Academic Head, Northumbria University

Dr Moira Mugglestone
Director of Guideline Development, National Collaborating Centre for Women's and Children's Health

Dr Simon Nadal
Consultant in Paediatric Intensive Care, St Mary's Hospital London

Professor Andrew Pollard (Chair)
Professor of Paediatric Infection & Immunity, University of Oxford

Dr Andrew Riordan
Consultant in Paediatric Infectious Diseases and Immunology, Alder Hey Children's NHS Foundation Trust

Mr Stuart Rowe
Senior Commissioning Manager, The London Specialised Commissioning Group

Dr Tina Sajjanhar
Consultant in Paediatric Emergency Medicine, University Hospital Lewisham

Dr Matthew Thompson
GP & Senior Clinical Scientist, University of Oxford Department of Primary Health Care Sciences

Dr Alistair Thomson
Consultant Paediatrician, Mid Cheshire Hospitals NHS Trust

NICE project team

Lorraine Taylor
Associate Director

Tim Stokes
Consultant Clinical Adviser

Rachel Neary
Programme and Project Manager

Anna Brett
Lead Technical Analyst

Lucy Spiller
Coordinator

Update information

Minor changes since publication

November 2019: Changes have been made to the source guidance references to reflect the updated NICE guideline on fever in under 5s.

October 2018: Changes have been made to this quality standard to update source guidance and policy context references, and links to data sources.

July 2015: References for the evidence sources were amended to reflect that the NICE guideline on fever in under 5s has been updated.

About this quality standard

NICE quality standards are a set of specific, concise statements and associated measures. They set out aspirational, but achievable, markers of high-quality, cost-effective patient care, covering the treatment and prevention of different diseases and conditions. Derived from the best available evidence such as NICE guidance and other evidence sources accredited by NHS Evidence, they are developed independently by NICE, in collaboration with NHS and social care professionals, their partners and service users, and address three dimensions of quality: clinical effectiveness, patient safety and patient experience.

The methods and processes for developing NICE quality standards are described in the quality standards process guide.

This quality standard has been incorporated into the NICE Pathways on bacterial meningitis and meningococcal septicaemia in under 16s and fever in under 5s.

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Supporting organisations

Many organisations share NICE's commitment to quality improvement using evidence-based guidance. The following supporting organisations have recognised the benefit of the quality standard in improving care for patients, carers, service users and members of the public. They have agreed to work with NICE to ensure that those commissioning or providing services are made aware of and encouraged to use the quality standard.

- Royal College of Paediatrics and Child Health
- Meningitis Research Foundation
- Royal College of Pathologists
- Meningitis Now