NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Neonatal infection

NICE quality standard

Draft for consultation

18 December 2014 (first published)

20 July 2023 (update consultation)

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| **This quality standard covers** preventing infection in newborn babies, treating pregnant women and pregnant people whose babies are at risk of infection, and treating newborn babies with suspected or confirmed infection. It includes when to give antibiotics to prevent and treat neonatal infection. It describes high-quality care in priority areas for improvement.  This quality standard will update and replace the existing quality standard on neonatal infection (published December 2014). The topic was identified for update following a review of quality standards. The review identified new and updated [guidance on neonatal infection](https://www.nice.org.uk/guidance/ng195).  For more information see [update information](#_Update_information_2).  This is the draft quality standard for consultation (from 20 July to 24 August 2023). The final quality standard is expected to publish in December 2023. |

# Quality statements

[Statement 1](#_Quality_statement_1:) Pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection are offered intrapartum antibiotics and given the first dose as soon as possible. **[2014, updated 2023]**

[Statement 2](#_Quality_statement_2:) Newborn babies are assessed for the risk factors and clinical indicators of early-onset neonatal infection. **[2014, updated 2023]**

[Statement 3](#_Quality_statement_3:) Neonates who need antibiotic treatment for suspected neonatal infection receive it within 1 hour of the decision to treat. **[2014, updated 2023]**

[Statement 4](#_Quality_statement_4:) Neonates who start antibiotic treatment for suspected neonatal infection have their need for it reassessed at 36 hours for early-onset or at 48 hours for late-onset. **[2014, updated 2023]**

[Statement 5](#_Quality_statement_5:_1) Parents or carers of babies in whom neonatal infection has been a concern are given verbal and written information about neonatal infection before transfer to community care or before the midwife leaves after a home birth. **[2014, updated 2023]**

In 2023 this quality standard was updated and statements prioritised in 2014 were updated **[2014, updated 2023]**. For more information, see [update information](#_Update_information_2).

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| Questions for consultationQuestions about the quality standard **Question 1** Does this draft quality standard accurately reflect the key areas for quality improvement?  **Question 2** Can data for the proposed quality measures be collected locally? Please include in your answer any data sources that can be used or reasons why data cannot be collected.  **Question 3** Do you think each of the statements in this draft quality standard would be achievable by local services given the net resources needed to deliver them? Please describe any resource requirements that you think would be necessary for any statement. Please describe any potential cost savings or opportunities for disinvestment. Questions about the individual quality statements **Question 4** For draft quality statement 1: For audit purposes, the quality statement supporting information states that the antibiotics should be given within 1 hour of the start of active labour, or within 1 hour of admission if the pregnant woman or pregnant person is already in active labour. Is this timescale appropriate and achievable?  **Question 5** For draft quality statements 2 and 3: The equality and diversity considerations for statement 2 and 3 note that central cyanosis may present differently depending on skin colour. Statement 3 also notes that other changes to skin colour can also be a symptom of neonatal infection, for example where the baby becomes very pale or dark yellow.  Are there resources or guides available for healthcare professionals that show how central cyanosis and other changes to skin colour related to neonatal infection may present on different skin colours? If so, could you please provide links to access them?  **Question 6** For draft quality statement 5: Babies in whom neonatal infection has been a concern has been defined based on expert opinion. Is this definition clear and useable? Implementing NICE guidelines **Question 7** What are the challenges to implementing the NICE guidance underpinning this quality standard? Please say why and for whom. Please include any suggestions that could help users overcome these challenges (for example, existing practical resources or national initiatives). |

# Quality statement 1: Intrapartum antibiotics

## Quality statement

Pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection are offered intrapartum antibiotics and given the first dose as soon as possible. **[2014, updated 2023]**

## Rationale

Giving intrapartum antibiotics to pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection (for example, from group B streptococcus or because the pregnant woman or pregnant person may have chorioamnionitis, an infection in their womb) can prevent early-onset neonatal infection. The first dose should be given as soon as possible after the start of labour or after the need is identified, if this is after labour has started, because intrapartum antibiotics are most effective when the baby has sufficient exposure to the antibiotic.

## Quality measures

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

### Process

a) Proportion of pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection who receive intrapartum antibiotics.

Numerator – the number in the denominator who receive intrapartum antibiotics.

Denominator – the number of pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

b) Proportion of pregnant women and pregnant people receiving intrapartum antibiotics who are given them within 1 hour of the start of active labour or 1 hour of admission if already in active labour.

Numerator – the number in the denominator whose intrapartum antibiotics are given within 1 hour of the start of active labour or 1 hour of admission if already in active labour.

Denominator – the number of pregnant women and pregnant people who receive intrapartum antibiotics.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

This measure suggests that the first dose is given within 1 hour of the start of active labour, or within 1 hour of admission if the pregnant woman or pregnant person is already in active labour. This is a suggested timescale for audit purposes only.

### Outcome

Rates of early-onset neonatal infection.

**Data source:**[NHS Maternity Statistics](https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics) include data from hospital episode statistics (HES) on the number of 'delivery episodes' where bacterial sepsis of newborn babies is recorded as a birth complication.

## What the quality statement means for different audiences

**Service providers** (maternity services) ensure that systems are in place to enable intrapartum antibiotics to be offered to pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection and ensure that they are given the first dose as soon as possible. They ensure that systems are in place for antibiotics to be offered straight away if chorioamnionitis is suspected.

**Healthcare professionals** (for example, midwives and obstetricians) identify pregnant women and pregnant people whose babies may be at risk of early-onset neonatal infection. They offer intrapartum antibiotics to those pregnant women and pregnant people and, for those that choose to receive it, ensure that the first dose is given as soon as possible after labour starts. If the need for antibiotics is identified after labour has started, they are given as soon as possible. If chorioamnionitis is suspected, healthcare professionals offer antibiotics straight away.

**Commissioners** ensure that maternity care providers have systems and protocols in place for healthcare professionals to offer intrapartum antibiotics to pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection and that the first dose is given as soon as possible. They ensure that, if chorioamnionitis is suspected, antibiotics are offered straight away.

**Pregnant women and pregnant people whose babies are at risk of early-onset neonatal infection** are offered antibiotics in labour to help prevent their baby developing infection. They are given the first dose of antibiotics as soon as possible after their labour has started or, as soon as possible after the need is identified if this is after labour has started. If healthcare professionals think they may have an infection in their womb (chorioamnionitis), they will be offered antibiotics as soon as this is suspected.

## Source guidance

[Neonatal infection: antibiotics for prevention and treatment. NICE guideline NG195](https://www.nice.org.uk/guidance/ng195) (2021), recommendations 1.2.1 and 1.2.4

## Definitions of terms used in this quality statement

### Babies who are at risk of early-onset neonatal infection

Babies are at risk of early-onset neonatal infection if the pregnant woman or pregnant person:

* is in preterm labour, or
* has group B streptococcal colonisation, bacteriuria or infection during the current pregnancy, or
* has had group B streptococcal colonisation, bacteriuria or infection in a previous pregnancy, and has not had a negative test for group B streptococcus by enrichment culture or PCR on a rectovaginal swab samples collected between 35 and 37 weeks’ gestation or 3 to 5 weeks before the anticipated delivery date in the current pregnancy, or
* has had a previous baby with an invasive group B streptococcal infection, or
* has a clinical diagnosis of chorioamnionitis.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendation 1.2.1]

### Intrapartum antibiotics

These are antibiotics given throughout labour until the baby is born. [[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendation 1.2.2]

### As soon as possible

As soon as possible after labour starts or after the need is identified if this is after labour has started. In the case of chorioamnionitis, this should be as soon as infection is suspected. For audit purposes, the first dose is given within 1 hour of the start of active labour, or within 1 hour of admission if the pregnant woman or pregnant person is already in active labour. [[NICE’s guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendation 1.2.4 and expert opinion]

## Question for consultation

For audit purposes, the quality statement supporting information states that the antibiotics should be given within 1 hour of the start of active labour, or within 1 hour of admission if the pregnant woman or pregnant person is already in active labour. Is this timescale appropriate and achievable?

# Quality statement 2: Assessment for early-onset neonatal infection

## Quality statement

Newborn babies are assessed for the risk factors and clinical indicators of early-onset neonatal infection. **[2014, updated 2023]**

## Rationale

Assessment for the risk factors and clinical indicators of early-onset neonatal infection can identify those babies who are at increased risk, or who are showing possible signs of infection. Early identification of these risk factors or clinical indicators should prompt a physical examination which can lead to healthcare professionals starting antibiotic treatment promptly if needed.

## Quality measures

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

### Process

Proportion of newborn babies who are assessed for the risk factors and clinical indicators of early-onset neonatal infection.

Numerator – the number in the denominator who are assessed for the risk factors and clinical indicators of early-onset neonatal infection.

Denominator – the number of newborn babies.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

## What the quality statement means for different audiences

**Service providers** (maternity, paediatric and neonatal services) ensure that processes are in place for risk factors and clinical indicators of early-onset infection in newborn babies to be identified. They also ensure that healthcare professionals are trained to identify these risk factors and clinical indicators.

**Healthcare professionals** (for example, midwives, neonatal nurses, obstetricians and neonatologists) assess newborn babies for risk factors and clinical indicators of early-onset neonatal infection. If any are present, they perform an immediate physical examination of the baby, including an assessment of the vital signs.

**Commissioners** ensure that maternity, paediatric and neonatal service providers develop and adhere to protocols to support the identification of risk factors and clinical indicators of early-onset neonatal infection, performing immediate physical assessments of newborn babies if any have been identified.

**Newborn babies** have an assessment to check if they are at risk of infection.

## Source guidance

[Neonatal infection: antibiotics for prevention and treatment. NICE guideline NG195](https://www.nice.org.uk/guidance/ng195) (2021), recommendations 1.3.1 and 1.3.3

## Definitions of terms used in this quality statement

### Newborn babies

Babies up to 72 hours old. [Adapted from [NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195/evidence), full guideline]

### Risk factors

Red flag risk factor:

* suspected or confirmed infection in another baby in the case of a multiple pregnancy.

Other risk factors:

* invasive group B streptococcal infection in a previous baby or maternal group B streptococcal colonisation, bacteriuria or infection in the current pregnancy
* preterm birth following spontaneous labour before 37 weeks' gestation.
* confirmed rupture of membranes for more than 18 hours before a preterm birth
* confirmed prelabour rupture of membranes at term for more than 24 hours before the start of labour
* intrapartum fever of more than 38°C if there is suspected or confirmed bacterial infection
* clinical diagnosis of chorioamnionitis.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), box 1]

### Clinical indicators

Red flag clinical indicators:

* apnoea (temporary stopping of breathing)
* seizures
* need for cardiopulmonary resuscitation
* need for mechanical ventilation
* signs of shock.

Other clinical indicators:

* altered behaviour or responsiveness
* altered muscle tone (for example, floppiness)
* feeding difficulties (for example, feed refusal)
* feed intolerance, including vomiting, excessive gastric aspirates and abdominal distension
* abnormal heart rate (bradycardia or tachycardia)
* signs of respiratory distress (including grunting, recession, tachypnoea)
* hypoxia (for example, central cyanosis or reduced oxygen saturation level)
* persistent pulmonary hypertension of newborn babies
* jaundice within 24 hours of birth
* signs of neonatal encephalopathy
* temperature abnormality (less than 36°C or more than 38°C) unexplained by environmental factors
* unexplained excessive bleeding, thrombocytopenia, or abnormal coagulation
* altered glucose homeostasis (hypoglycaemia or hyperglycaemia)
* metabolic acidosis (base deficit of 10 mmol/litre or more).

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), box 2]

## Equality and diversity considerations

One of the clinical indicators of early-onset neonatal infection is hypoxia, which can present as central cyanosis (a generalised bluish discoloration of the body and the visible mucous membranes). It is important that healthcare professionals are aware that central cyanosis may present differently depending on the baby’s skin colour, and understand how best to identify changes in skin colour on different skin tones, for example whereabouts on the body to look for changes in colour.

# Quality statement 3: Prompt antibiotic treatment for neonatal infection

## Quality statement

Neonates who need antibiotic treatment for suspected neonatal infection receive it within 1 hour of the decision to treat. **[2014, updated 2023]**

## Rationale

If the decision to treat is made, intravenous antibiotic treatment for neonatal infection should be started without delay, without waiting for test results. This should always be within 1 hour to improve clinical outcomes for the baby. Most cases of early-onset and late-onset neonatal infection are identified in hospital. For babies with suspected neonatal infection identified outside the hospital setting, the decision to treat would be made on admission to hospital.

## Quality measures

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

### Process

Proportion of neonates who need antibiotic treatment for suspected neonatal infection who receive it within 1 hour of the decision to treat.

Numerator – the number in the denominator who receive antibiotic treatment for suspected neonatal infection within 1 hour of the decision to treat.

Denominator – the number of neonates where a decision to treat with antibiotic treatment for suspected neonatal infection has been made.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

### Outcome

Neonatal mortality because of neonatal infection.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

## What the quality statement means for different audiences

**Service providers** (primary, community, maternity, paediatric and neonatal services) ensure that healthcare professionals can administer antibiotic treatment for suspected neonatal infection to neonates within 1 hour of the decision to treat. This includes having healthcare professionals available who are trained to obtain venous access and having communication channels in place to ensure medications can be available as needed. Service providers ensure that a paediatrician can be contacted at all times by primary or community care staff to discuss emergency admission and care of those babies identified as having a suspected neonatal infection.

**Healthcare professionals** (for example, GPs, health visitors, midwives, neonatal nurses, neonatologists and paediatricians) ensure that antibiotic treatment for suspected neonatal infection is given to neonates within 1 hour of the decision to treat. Healthcare professionals from non-inpatient settings should seek early advice from a paediatrician if infection is suspected and arrangements can be made for emergency admission and administration of antibiotic treatment.

**Commissioners** ensure that maternity, paediatric and neonatal providers, working with non-inpatient services where appropriate, give antibiotic treatment to neonates for suspected neonatal infection within 1 hour of the decision to treat.

**Neonates (babies up to 28 days corrected gestational age) who need antibiotic treatment for suspected neonatal infection** receive it within 1 hour of the need for it being identified in hospital.

## Source guidance

[Neonatal infection: antibiotics for prevention and treatment. NICE guideline NG195](https://www.nice.org.uk/guidance/ng195) (2021), recommendations 1.3.9 and 1.8.4

## Definitions of terms used in this quality statement

### Neonates

Babies of up to and including 28 days corrected gestational age.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), overview section.]

### Neonates who need antibiotic treatment

Neonates with any red flag, or with 2 or more ‘non-red flag’ risk factors or clinical indicators.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendation 1.3.5]

### Risk factors and clinical indicators for early-onset neonatal infection

Red flag risk factor:

* suspected or confirmed infection in another baby in the case of a multiple pregnancy.

Other risk factors:

* invasive group B streptococcal infection in a previous baby or maternal group B streptococcal colonisation, bacteriuria or infection in the current pregnancy
* preterm birth following spontaneous labour before 37 weeks' gestation
* confirmed rupture of membranes for more than 18 hours before a preterm birth
* confirmed prelabour rupture of membranes at term for more than 24 hours before the onset of labour
* intrapartum fever of more than 38°C if there is suspected or confirmed bacterial infection
* clinical diagnosis of chorioamnionitis.

#### Clinical indicators

Red flag clinical indicators:

* apnoea (temporary stopping of breathing)
* seizures
* need for cardiopulmonary resuscitation
* need for mechanical ventilation
* signs of shock.

Other clinical indicators:

* altered behaviour or responsiveness
* altered muscle tone (for example, floppiness)
* feeding difficulties (for example, feed refusal)
* feed intolerance, including vomiting, excessive gastric aspirates and abdominal distension
* abnormal heart rate (bradycardia or tachycardia)
* signs of respiratory distress (including grunting, recession, tachypnoea)
* hypoxia (for example, central cyanosis or reduced oxygen saturation level)
* persistent pulmonary hypertension of newborn babies
* jaundice within 24 hours of birth
* signs of neonatal encephalopathy
* temperature abnormality (less than 36°C or more than 38°C) unexplained by environmental factors
* unexplained excessive bleeding, thrombocytopenia, or abnormal coagulation
* altered glucose homeostasis (hypoglycaemia or hyperglycaemia)
* metabolic acidosis (base deficit of 10 mmol/litre or more).

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), boxes 1 and 2]

### Clinical indicators of late-onset neonatal infection

Behaviour:

* parent or care-giver concern for change in behaviour
* appears ill to a healthcare professional
* does not wake, or if roused does not stay awake
* weak high-pitched or continuous cry.

Respiratory:

* raised respiratory rate: 60 breaths per minute or more
* grunting
* apnoea
* oxygen saturation of less than 90% in air or increased oxygen requirement over baseline.

Circulation and hydration:

* persistent tachycardia: heart rate 160 beats per minute or more
* persistent bradycardia: heart rate less than 100 beats per minute.

Skin:

* mottled or ashen appearance
* cyanosis of skin, lips or tongue
* non-blanching rash of skin.

Other:

* temperature 38°C or more unexplained by environmental factors
* temperature less than 36°C unexplained by environmental factors
* alterations in feeding pattern
* abdominal distension
* seizures
* bulging fontanelle.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendation 1.8.3, Table 2]

## Equality and diversity considerations

One of the clinical indicators of early-onset neonatal infection is hypoxia, which can present as central cyanosis (a generalised bluish discoloration of the body and the visible mucous membranes). Other changes to skin colour can also be a symptom of neonatal infection, for example where the baby becomes very pale or dark yellow. It is important that healthcare professionals are aware that symptoms may present differently on babies depending on their skin colour, and understand how best to identify changes in skin colour on different skin tones, for example whereabouts on the body to look for changes in colour.

It is also important that healthcare professionals are aware that some pulse oximeters can overestimate oxygen saturation levels in babies with dark skin, especially if the saturation level is borderline.

Healthcare services in rural and remote geographical areas should ensure that protocols and plans are in place to ensure that any neonate with suspected neonatal infection can receive intravenous antibiotics promptly, whether this is in hospital or in another healthcare setting before being taken to a hospital.

## Question for consultation

The equality and diversity considerations for statement 2 and 3 note that central cyanosis may present differently depending on skin colour. Statement 3 also notes that other changes to skin colour can also be a symptom of neonatal infection, for example where the baby becomes very pale or dark yellow.

Are there resources or guides available for healthcare professionals that show how central cyanosis and other changes to skin colour related to neonatal infection may present on different skin colours? If so, could you please provide links to access them?

# Quality statement 4: Reassessing antibiotic treatment for neonatal infection

## Quality statement

Neonates who start antibiotic treatment for suspected neonatal infection have their need for it reassessed at 36 hours for early-onset or at 48 hours for late-onset. **[2014, updated 2023]**

## Rationale

Neonates should have their antibiotic treatment reassessed to ensure that they are not receiving antibiotics unnecessarily. Reassessment, including consideration of any blood test results, is needed so that antibiotic treatment can be stopped if there are clinical indications that a baby does not have an infection. This will help to improve safety by reducing the likelihood of local antimicrobial resistance as well as improve the experience of the postnatal period for these babies and their parents or carers.

The timescale for review is later for late-onset infection because it is caused by different bacteria. These grow more slowly, and it can take longer for a blood culture to become positive. This means treatment needs to continue for longer until a negative blood culture result can be confirmed.

## Quality measures

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

### Structure

Evidence that hospitals and laboratories have systems in place to return blood culture results within 36 hours of bloods being taken for early-onset neonatal infection, and within 48 hours of bloods being taken for late-onset neonatal infection.

**Data source:** Data can be collected locally from service level agreements and pathways.

### Process

a) Proportion of neonates who start antibiotic treatment for suspected early-onset neonatal infection who have their need for it reassessed at 36 hours.

Numerator – the number in the denominator who have their need for antibiotic treatment reassessed at 36 hours.

Denominator – the number of neonates who start antibiotic treatment for suspected early-onset neonatal infection.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

b) Proportion of neonates who start antibiotic treatment for suspected late-onset neonatal infection who have their need for it reassessed at 48 hours.

Numerator – the number in the denominator who have their need for antibiotic treatment reassessed at 48 hours.

Denominator – the number of neonates who start antibiotic treatment for suspected late-onset neonatal infection.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

## What the quality statement means for different audiences

**Service providers** (maternity, paediatric, neonatal and laboratory services) have protocols in place to ensure that healthcare professionals reassess antibiotic treatment for early-onset neonatal infection at 36 hours and for late-onset neonatal infection at 48 hours. They ensure there are systems in place for blood culture results to be returned within these timescales to allow the reassessment to take place.

**Healthcare professionals** (for example, midwives, neonatal nurses, microbiologists, obstetricians and neonatologists) reassess the need for antibiotic treatment for early-onset neonatal infection at 36 hours and for late-onset neonatal infection at 48 hours. They stop antibiotic treatment at that time if there are clinical indications that a baby does not have an infection. If antibiotics are continued, the need for them is reassessed every 24 hours until they are stopped.

**Commissioners** ensure that maternity, paediatric, neonatal and laboratory providers reassess the need for antibiotic treatment for early-onset neonatal infection at 36 hours and for late-onset neonatal infection at 48 hours, taking blood-culture results into account.

**Neonates (babies up to 28 days corrected gestational age) receiving antibiotic treatment for suspected neonatal infection** have their treatment checked to see if they need to continue it. If they are receiving antibiotic treatment for suspected early-onset neonatal infection, this check will take place 36 hours after they started treatment. If they are receiving antibiotic treatment for suspected late-onset neonatal infection, this check will take place 48 hours after they started treatment. If they carry on receiving antibiotics after this, their need for them will be reassessed every 24 hours until they are stopped.

## Source guidance

[Neonatal infection: antibiotics for prevention and treatment. NICE guideline NG195](https://www.nice.org.uk/guidance/ng195) (2021), recommendations 1.6.3 and 1.11.3

## Definitions of terms used in this quality statement

### Neonates

Babies of up to and including 28 days corrected gestational age.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), overview section.]

### Reassessment of the need for antibiotic treatment

Includes blood culture, C-reactive protein level, clinical condition and the strength of the initial clinical suspicion of infection. Antibiotic treatment may be stopped if blood culture is negative, initial suspicion of infection was not strong, the baby has no clinical indicators of infection and the levels and trends of C-reactive protein concentrations are reassuring. [[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendations 1.6.3 and 1.11.3]

# Quality statement 5: Information and support for parents and carers

## Quality statement

Parents or carers of babies in whom neonatal infection has been a concern are given verbal and written information about neonatal infection before transfer to community care or before the midwife leaves after a home birth. **[2014, updated 2023]**

## Rationale

Prompt identification of neonatal infection is essential to ensure that babies receive appropriate treatment as soon as possible to prevent complications and achieve the best clinical outcomes. Advising parents or carers about what to look for and when to contact a healthcare professional will help them recognise signs of infection promptly and avoid unnecessary delay in treating the baby.

## Quality measures

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

### Process

Proportion of parents or carers of neonates in whom neonatal infection has been a concern who are given verbal and written information about neonatal infection before transfer to community care or before the midwife leaves after a home birth.

Numerator – the number in the denominator whose parents or carers receive verbal and written information about neonatal infection before transfer to community care or before the midwife leaves after a home birth.

Denominator – the number of neonates in whom neonatal infection has been a concern.

**Data source:** Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records and audits of parental experience.

## What the quality statement means for different audiences

**Service providers** (maternity and neonatal services) ensure that verbal and written information about neonatal infection, including what signs and symptoms to look for and who to contact if they are concerned, is given to parents or carers of babies in whom there have been concerns about neonatal infection. The information should be given before transfer to community care or before the midwife leaves after a home birth and should also include information on organisations and groups they can contact if they need support.

**Healthcare professionals** (midwives, neonatal nurses and neonatologists) discuss neonatal infection with parents or carers of babies in whom there have been concerns about neonatal infection, and give them written information, including what signs and symptoms to look for and who to contact if they are concerned. This information is given before transfer to community care or before the midwife leaves after a home birth.

**Commissioners** ensure that maternity and neonatal services provide verbal and written information about neonatal infection to parents or carers of babies in whom there have been concerns about neonatal infection.

**Parents or carers of babies (up to 28 days corrected gestational age) who may be at risk of developing an infection** are given written information about infection in babies before they leave hospital or before the midwife leaves if the baby was born at home. Their baby’s healthcare professional will also discuss this with them. The information should include how to check if the baby might have an infection and who to contact if they are concerned. The information should also include information on organisations and groups they can contact if they need support.

## Source guidance

[Neonatal infection: antibiotics for prevention and treatment. NICE guideline NG195](https://www.nice.org.uk/guidance/ng195) (2021), recommendation 1.1.2, 1.1.5 and 1.1.12

## Definitions of terms used in this quality statement

### Babies in whom neonatal infection has been a concern

This includes any baby who has had:

* any of the risk factors for neonatal infection or
* any clinical indicator of possible infection where the concern of risk of infection persisted following clinical review or
* antibiotics for suspected or confirmed infection.

[Expert opinion]

### Information about neonatal infection

Verbal and written information for parents and carers that they should seek urgent medical help (for example, from NHS 111, their GP or an accident and emergency department) if they are concerned that the baby:

* is showing abnormal behaviour (for example, inconsolable crying or listlessness) or
* is unusually floppy or
* has an abnormal temperature unexplained by environmental factors (less than 36°C or more than 38°C) or
* has abnormal breathing (rapid breathing, difficulty in breathing or grunting) or
* has a change in skin colour (for example where the baby becomes very pale, blue/grey or dark yellow) or
* has developed new difficulties with feeding.

In addition, if parents are concerned that their baby is unwell, but they do not have any of the symptoms listed, the verbal and written information they are given should encourage them to seek urgent medical help.

[[NICE's guideline on neonatal infection](https://www.nice.org.uk/guidance/ng195), recommendation 1.1.12 and expert opinion]

## Equality and diversity considerations

One of the symptoms of neonatal infection that should be included in the information to parents is a change in skin colour (for example where the baby becomes very pale, blue/grey or dark yellow). It is important that the information clearly explains how this symptom may present differently on babies depending on their skin colour, and how best to identify changes in skin colour on different skin tones, for example whereabouts on the body to look for changes in colour.

Parents and carers should be provided with information about neonatal infection that they can easily read and understand themselves, or with support, so they can communicate effectively with health care services. Information should be in a format that suits their needs and preferences. It should be accessible to people who do not speak or read English, and it should be culturally appropriate. People should have access to an interpreter or advocate if needed.

For people with additional needs related to a disability, impairment or sensory loss, information should be provided as set out in [NHS England's Accessible Information Standard](https://www.england.nhs.uk/ourwork/accessibleinfo/) or the equivalent standards for the devolved nations.

## Question for consultation

Babies in whom neonatal infection has been a concern has been defined based on expert opinion. Is this definition clear and useable?

# Update information

**July 2023:** This quality standard was updated and statements prioritised in 2014 were updated. The topic was identified for update following a review of quality standards. The review identified new guidance on late-onset neonatal infection in the [NICE guideline on neonatal infection: antibiotics for prevention and treatment](https://www.nice.org.uk/guidance/ng195).

Statements are marked as:

* **[2014, updated 2023]** if the statement covers an area for quality improvement included in the 2014 quality standard and has been updated.

The [previous version of the quality standard for neonatal](http://www.nice.org.uk/guidance/QSXX/documents) infection is available as a pdf.

# About this quality standard

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. NICE quality standards draw on existing NICE or NICE-accredited guidance that provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement.

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so achievement levels of 100% should be aspired to (or 0% if the quality statement states that something should not be done). However, this may not always be appropriate in practice. Taking account of safety, shared decision-making, choice and professional judgement, desired levels of achievement should be defined locally.

Information about [how NICE quality standards are developed](https://www.nice.org.uk/standards-and-indicators/timeline-developing-quality-standards) is available from the NICE website.

See our [webpage on quality standards advisory committees](http://www.nice.org.uk/Get-Involved/Meetings-in-public/Quality-Standards-Advisory-Committee) for details about our standing committees. Information about the topic experts invited to join the standing members is available from the [webpage for this quality standard](https://www.nice.org.uk/guidance/indevelopment/gid-qs10173).

NICE has produced a [quality standard service improvement template](https://www.nice.org.uk/about/what-we-do/into-practice/measuring-the-uptake-of-nice-guidance) to help providers make an initial assessment of their service compared with a selection of quality statements. This tool is updated monthly to include new quality standards.

NICE guidance and quality standards apply in England and Wales. Decisions on how they apply in Scotland and Northern Ireland are made by the Scottish government and Northern Ireland Executive. NICE quality standards may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

## Resource impact

NICE quality standards should be achievable by local services. The potential resource impact is considered by the quality standards advisory committee, drawing on resource impact work for the source guidance. Organisations are encouraged to use the [resource impact products for the NICE guideline on neonatal infection: antibiotics for prevention and treatment](https://www.nice.org.uk/guidance/ng195/resources) to help estimate local costs.

## Diversity, equality and language

Equality issues were considered during development and [equality assessments for this quality standard](https://www.nice.org.uk/guidance/indevelopment/gid-qs10173) are available. Any specific issues identified during development of the quality statements are highlighted in each statement.

Commissioners and providers should aim to achieve the quality standard in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations. Nothing in this quality standard should be interpreted in a way that would be inconsistent with compliance with those duties.

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