

# Bronchiolitis in children: diagnosis and management

NICE guideline

Published: 1 June 2015

[www.nice.org.uk/guidance/ng9](https://www.nice.org.uk/guidance/ng9)

## Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

# Contents

Overview .....	4
Who is it for? .....	4
1 Recommendations .....	5
1.1 Assessment and diagnosis.....	5
1.2 When to refer .....	7
1.3 When to admit .....	8
1.4 Management of bronchiolitis.....	10
1.5 When to discharge .....	12
1.6 Key safety information for looking after a baby or child at home .....	13
2 Research recommendations .....	15
2.1 Oxygen saturation measurement in primary care .....	15
2.2 Paediatric early warning score (PEWS) as a predictor of deterioration.....	15
2.3 Combined bronchodilator and corticosteroid therapy for bronchiolitis .....	15
2.4 High-flow humidified oxygen and oxygen .....	16
2.5 Nasal suction .....	16
Rationale and impact .....	17
When to refer .....	17
When to admit .....	18
Management of bronchiolitis.....	20
When to discharge .....	21
Context.....	23
Finding more information and resources .....	24
Update information.....	25

This guideline is the basis of QS122.

## Overview

This guideline covers diagnosing and managing bronchiolitis in babies and children. It aims to help healthcare professionals diagnose bronchiolitis and identify if babies and children should be cared for at home or in hospital. It describes treatments and interventions that can be used to help with the symptoms of bronchiolitis.

In **August 2021**, we reviewed the evidence and updated the recommendations on oxygen saturation thresholds for referral to hospital, admission, management and timing of discharge.

## Who is it for?

- Healthcare professionals
- Commissioners and providers
- Parents and carers of babies and children with bronchiolitis

# 1 Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

[Making decisions using NICE guidelines](#) explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

## 1.1 Assessment and diagnosis

- 1.1.1 When diagnosing bronchiolitis, take into account that it occurs in babies and children under 2 years of age and most commonly in the first year of life, peaking between 3 and 6 months. [2015]
- 1.1.2 When diagnosing bronchiolitis, take into account that symptoms usually peak between 3 and 5 days, and that cough resolves in 90% of infants within 3 weeks. [2015]
- 1.1.3 Diagnose bronchiolitis if the baby or child has a coryzal prodrome lasting 1 to 3 days, followed by:
- persistent cough and
  - either tachypnoea or chest recession (or both) and
  - either wheeze or crackles on chest auscultation (or both). [2015]
- 1.1.4 When diagnosing bronchiolitis, take into account that the following symptoms are common in babies and children with this disease:
- fever (in around 30% of cases, usually of less than 39°C)
  - poor feeding (typically after 3 to 5 days of illness). [2015]
- 1.1.5 When diagnosing bronchiolitis, take into account that young infants with this

disease (in particular those under 6 weeks of age) may present with apnoea without other clinical signs. [2015]

1.1.6 Consider a diagnosis of pneumonia if the baby or child has:

- high fever (over 39°C) and/or
- persistently focal crackles.

See also the [NICE guideline on sepsis and risk stratification tool for sepsis in under 5s](#). [2015]

1.1.7 Think about a diagnosis of viral-induced wheeze or early-onset asthma rather than bronchiolitis in older infants and young children if they have:

- persistent wheeze without crackles or
- recurrent episodic wheeze or
- a personal or family history of atopy.

Take into account that these conditions are unusual in children under 1 year of age. [2015]

1.1.8 Measure oxygen saturation in every baby and child presenting with suspected bronchiolitis, including those presenting to primary care if pulse oximetry is available. [2015]

1.1.9 Ensure healthcare professionals performing pulse oximetry are appropriately trained in its use specifically in babies and young children. [2015]

**December 2018:** Follow the [NHS England Patient Safety Alert on the risk of harm from inappropriate placement of pulse oximeter probes](#).

1.1.10 Suspect impending respiratory failure, and take appropriate action as these babies and children may need intensive care (see [recommendations 1.2.1 and 1.4.5](#)), if any of the following are present:

- signs of exhaustion, for example listlessness or decreased respiratory effort

- recurrent apnoea
- failure to maintain adequate oxygen saturation despite oxygen supplementation. [2015]

## 1.2 When to refer

1.2.1 Immediately refer babies and children with bronchiolitis for emergency hospital care (usually by 999 ambulance) if they have any of the following:

- apnoea (observed or reported)
- baby or child looks seriously unwell to a healthcare professional
- severe respiratory distress, for example grunting, marked chest recession, or a respiratory rate of over 70 breaths/minute
- central cyanosis. [2015]

1.2.2 Consider referring babies and children with bronchiolitis to hospital if they have any of the following:

- a respiratory rate of over 60 breaths/minute [2015]
- difficulty with breastfeeding or inadequate oral fluid intake (50% to 75% of usual volume, taking account of risk factors [see [recommendation 1.3.3](#)] and using clinical judgement) [2015]
- clinical dehydration [2015]
- persistent oxygen saturation of less than 92%, when breathing air. [2021]

**December 2018:** Follow the [NHS England Patient Safety Alert on the risk of harm from inappropriate placement of pulse oximeter probes](#).

1.2.3 When deciding whether to refer a baby or child with bronchiolitis to secondary care, take account of any known risk factors for more severe bronchiolitis such as:

- chronic lung disease (including bronchopulmonary dysplasia)
- haemodynamically significant congenital heart disease

- age in young infants (under 3 months)
- premature birth, particularly under 32 weeks
- neuromuscular disorders
- immunodeficiency. [2015]

1.2.4 When deciding whether to refer a baby or child to secondary care, take into account factors that might affect a carer's ability to look after a child with bronchiolitis, for example:

- social circumstances
- the skill and confidence of the carer in looking after a child with bronchiolitis at home
- confidence in being able to spot red flag symptoms (see [recommendation 1.6.1](#))
- distance to healthcare in case of deterioration. [2015]

For a short explanation of why the committee made the 2021 recommendation and how it might affect practice, see the [rationale and impact section on when to refer](#).

Full details of the evidence and the committee's discussion are in [evidence review A: criteria for referral, admission, oxygen supplementation and discharge](#).

## 1.3 When to admit

1.3.1 Measure oxygen saturation using pulse oximetry in every baby and child presenting to secondary care with clinical evidence of bronchiolitis. [2015]

**December 2018:** Follow the [NHS England Patient Safety Alert on the risk of harm from inappropriate placement of pulse oximeter probes](#).

1.3.2 When assessing a baby or child in a secondary care setting, admit them to hospital if they have any of the following:

- apnoea (observed or reported) [2015]



- persistent oxygen saturation (when breathing air) of:
  - less than 90%, for children aged 6 weeks and over
  - less than 92%, for babies under 6 weeks or children of any age with underlying health conditions [2021]
- inadequate oral fluid intake (50% to 75% of usual volume, taking account of risk factors [see recommendation 1.3.3] and using clinical judgement) [2015]
- persisting severe respiratory distress, for example grunting, marked chest recession, or a respiratory rate of over 70 breaths/minute. [2015]

1.3.3 When deciding whether to admit a baby or child with bronchiolitis, take account of any known risk factors for more severe bronchiolitis, such as:

- chronic lung disease (including bronchopulmonary dysplasia)
- haemodynamically significant congenital heart disease
- age in young infants (under 3 months)
- premature birth, particularly under 32 weeks
- neuromuscular disorders
- immunodeficiency. [2015]

1.3.4 When deciding whether to admit a baby or child, take into account factors that might affect a carer's ability to look after a child with bronchiolitis, for example:

- social circumstances
- the skill and confidence of the carer in looking after a child with bronchiolitis at home
- confidence in being able to spot red flag symptoms (see [recommendation 1.6.1](#))
- distance to healthcare in case of deterioration. [2015]

1.3.5 Clinically assess the hydration status of babies and children with bronchiolitis. [2015]

1.3.6 Do not routinely perform blood tests in the assessment of a baby or child with

bronchiolitis. [2015]

- 1.3.7 Do not routinely perform a chest X-ray in babies or children with bronchiolitis, because changes on X-ray may mimic pneumonia and should not be used to determine the need for antibiotics. [2015]
- 1.3.8 Consider performing a chest X-ray if intensive care is being proposed for a baby or child. [2015]
- 1.3.9 Provide parents or carers with key safety information (see [recommendation 1.6.1](#)) if the baby or child is not admitted. [2015]

For a short explanation of why the committee made the 2021 recommendation and how it might affect practice, see the [rationale and impact section on when to admit](#).

Full details of the evidence and the committee's discussion are in [evidence review A: criteria for referral, admission, oxygen supplementation and discharge](#).

## 1.4 Management of bronchiolitis

- 1.4.1 Do not perform chest physiotherapy on babies and children with bronchiolitis who do not have relevant comorbidities (for example spinal muscular atrophy, severe tracheomalacia). [2015]
- 1.4.2 Consider requesting a chest physiotherapy assessment in babies and children who have relevant comorbidities (for example spinal muscular atrophy, severe tracheomalacia) when there may be additional difficulty clearing secretions. [2015]
- 1.4.3 Do not use any of the following to treat bronchiolitis in babies or children:
- antibiotics
  - hypertonic saline
  - adrenaline (nebulised)
  - salbutamol

- montelukast
- ipratropium bromide
- systemic or inhaled corticosteroids
- a combination of systemic corticosteroids and nebulised adrenaline. [2015]

1.4.4 Give oxygen supplementation to babies and children with bronchiolitis if their oxygen saturation is:

- persistently less than 90%, for children aged 6 weeks and over
- persistently less than 92%, for babies under 6 weeks or children of any age with underlying health conditions. [2021]

**December 2018:** Follow the [NHS England Patient Safety Alert on the risk of harm from inappropriate placement of pulse oximeter probes.](#)

1.4.5 Consider continuous positive airway pressure (CPAP) in babies and children with bronchiolitis who have impending respiratory failure (see [recommendation 1.1.10](#)). [2015]

1.4.6 Do not routinely perform upper airway suctioning in babies or children with bronchiolitis. [2015]

1.4.7 Consider upper airway suctioning in babies and children who have respiratory distress or feeding difficulties because of upper airway secretions. [2015]

1.4.8 Perform upper airway suctioning in babies and children with bronchiolitis presenting with apnoea even if there are no obvious upper airway secretions. [2015]

1.4.9 Do not routinely carry out blood gas testing in babies or children with bronchiolitis. [2015]

1.4.10 Consider carrying out capillary blood gas testing in babies and children with severe worsening respiratory distress (when supplemental oxygen concentration is greater than 50%) or suspected impending respiratory failure (see [recommendation 1.1.10](#)). [2015]

1.4.11 Give fluids by nasogastric or orogastric tube in babies and children with bronchiolitis if they cannot take enough fluid by mouth. [2015]

1.4.12 Give intravenous isotonic fluids (see the [NICE guideline on intravenous fluid therapy in children](#)) to babies and children who:

- do not tolerate nasogastric or orogastric fluids or
- have impending respiratory failure. [2015]

For a short explanation of why the committee made the 2021 recommendation and how it might affect practice, see the [rationale and impact section on management of bronchiolitis](#).

Full details of the evidence and the committee's discussion are in [evidence review A: criteria for referral, admission, oxygen supplementation and discharge](#).

## 1.5 When to discharge

1.5.1 When deciding on the timing of discharge for babies and children admitted to hospital, make sure that they:

- are clinically stable [2015]
- are taking adequate oral fluids [2015]
- have maintained an oxygen saturation in air at the following levels for 4 hours, including a period of sleep:
  - over 90%, for children aged 6 weeks and over
  - over 92%, for babies under 6 weeks or children of any age with underlying health conditions. [2021]

**December 2018:** Follow the [NHS England Patient Safety Alert on the risk of harm from inappropriate placement of pulse oximeter probes](#).

1.5.2 When deciding whether to discharge a baby or child, take into account factors that might affect a carer's ability to look after a baby or child with bronchiolitis, for example:

- social circumstances
- the skill and confidence of the carer in looking after a baby or child with bronchiolitis at home
- confidence in being able to spot red flag symptoms (see [recommendation 1.6.1](#))
- distance to healthcare in case of deterioration. [2015]

1.5.3 Provide parents or carers with key safety information (see [recommendation 1.6.1](#)) when the baby or child is discharged. [2015]

For a short explanation of why the committee made the 2021 recommendation and how it might affect practice, see the [rationale and impact section on when to discharge](#).

Full details of the evidence and the committee's discussion are in [evidence review A: criteria for referral, admission, oxygen supplementation and discharge](#).

## 1.6 Key safety information for looking after a baby or child at home

1.6.1 Provide key safety information for parents and carers to take away for reference for babies and children who will be looked after at home. This should cover:

- how to recognise developing 'red flag' symptoms:
  - worsening work of breathing (for example grunting, nasal flaring, marked chest recession)
  - fluid intake is 50% to 75% of normal or no wet nappy for 12 hours
  - apnoea or cyanosis
  - exhaustion (for example, not responding normally to social cues, wakes only with prolonged stimulation).
- that people should not smoke in the baby or child's home because it increases the risk of more severe symptoms in bronchiolitis

- how to get immediate help from an appropriate professional if any red flag symptoms develop
- arrangements for follow-up if necessary. [2015]

## 2 Research recommendations

The 2015 guideline committee made the following recommendations for research.

### 2.1 Oxygen saturation measurement in primary care

What is the clinical and cost effectiveness of oxygen saturation (SpO<sub>2</sub>) measurement in primary care in babies and children with bronchiolitis?

#### Why this is important

There are no studies to inform the use of SpO<sub>2</sub> measurement in primary care. SpO<sub>2</sub> is used routinely in secondary care to help decide on the need for admission to hospital. The clinical and cost effectiveness of SpO<sub>2</sub> measurement in primary care is also important. SpO<sub>2</sub> is not routinely measured in infants and young children with bronchiolitis in primary care. The value of SpO<sub>2</sub> measurement to help identify those who need admission to hospital should be assessed. Possible outcomes might be fewer or more infants being referred to hospital, or admitted.

### 2.2 Paediatric early warning score (PEWS) as a predictor of deterioration

In babies and children with bronchiolitis can paediatric early warning score (PEWS) predict deterioration?

#### Why this is important

In babies and children with bronchiolitis there is clinical uncertainty about the prediction of deterioration. There are a number of clinical scores for bronchiolitis that include objective and subjective measures. No bronchiolitis score is currently in widespread use in clinical practice. Increasingly, PEWS is being employed generically in paediatric practice in the UK. The effectiveness of PEWS in predicting deterioration for infants with bronchiolitis needs to be assessed.

### 2.3 Combined bronchodilator and corticosteroid therapy for bronchiolitis

What is the efficacy of combined bronchodilator and corticosteroid therapy?

## Why this is important

There are no effective therapies for the treatment of bronchiolitis. One study reported that infants provided with both nebulised adrenaline and systemic steroids had improved clinical outcomes. This was a subgroup analysis, so was not anticipated in the trial design and consequently the analysis was not adequately powered to answer this question. A multicentre randomised controlled trial (RCT) that assesses the clinical and cost effectiveness of combined adrenaline and corticosteroids treatment for bronchiolitis is needed.

## 2.4 High-flow humidified oxygen and oxygen

What is the clinical and cost effectiveness of high-flow humidified oxygen versus standard supplemental oxygen?

### Why this is important

Providing oxygen (typically by nasal cannula) is standard care for bronchiolitis. Newly-developed medical devices can now deliver high-flow humidified oxygen that is thought to provide more comfortable and effective delivery of gases while retaining airway humidity. The use of this medical device is becoming widespread without demonstration of additional efficacy. A multicentre RCT comparing high-flow humidified oxygen and standard supplemental oxygen would be of benefit, as would including weaning strategies for high-flow humidified oxygen.

## 2.5 Nasal suction

What is the clinical and cost effectiveness of suction to remove secretions from the upper respiratory tract compared with minimal handling?

### Why this is important

Suction is a commonly used therapy in bronchiolitis. Infants are obligate nasal breathers, so removal of secretions is thought to relieve respiratory distress. However, suction is distressing to infants and parents. Methods vary and there is no evidence on which approach, if any, is most effective. In some trials it appears that minimal handling is more effective than therapies. A multicentre RCT comparing the clinical and cost effectiveness of suction (also covering different suction strategies, for example superficial versus deep) with minimal handling is needed.



## Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice.

## When to refer

[Recommendations 1.2.1 and 1.2.2](#)

## Why the committee made the recommendations

The committee did not consider any of the evidence on oxygen saturation thresholds that they reviewed to be directly relevant to referral, because the studies focused on admission, management, and discharge. However, they needed to review these recommendations to ensure that they were in line with the changes to the recommendations on admission, management and discharge, and to avoid any contradictions.

For most babies and children, the oxygen saturation threshold has been lowered to 90% for admission, management and discharge, but the committee felt that the original threshold of 92% remained appropriate for referral. They agreed with the rationale in the 2015 guideline that this threshold of 92% enabled a safety margin for babies and children whose condition may be deteriorating, because their oxygen saturation level may drop further.

Although an oxygen saturation level of less than 92% indicates that a baby or child needs further clinical assessment, the committee did not feel that this criterion alone was enough to justify immediate transfer to hospital (as specified in the 2015 guideline). Oxygen saturation measurement may be less accurate in primary care than in hospital (for example, because paediatric oximeters are often not available in primary care). As a result, the committee removed the oxygen saturation threshold as a criterion that requires immediate referral to hospital and instead included it as a criterion that requires consideration of referral to hospital. They did not think that this change is likely to mean significant changes in practice, because:

- it is unlikely for a baby or child to have an oxygen saturation level of less than 92% but none of the other criteria for immediate referral, so seriously unwell babies and children will still be immediately referred to hospital

- the oxygen saturation threshold has been moved to recommendation 1.2.2 and can still be used to justify a referral to hospital, based on the clinical judgement of the healthcare professional.

Because the oxygen saturation thresholds are now lower for discharge from hospital than they are for referral to hospital, the committee discussed whether this could lead to babies and children being inappropriately referred straight back to hospital after discharge. The committee agreed that the changes to the referral recommendations would avoid this, because the recommendations now put less emphasis on using oxygen saturation level alone as the reason for referral. They also noted that many babies and children would have a post-discharge management plan, which could give guidance on when re-referral would and would not be needed.

## How the recommendations might affect practice

The recommendations are unlikely to result in a significant change to the number of referrals to hospital. Oxygen saturation level alone can still be used as a reason for referral, but it is no longer a reason for immediate referral (for example by ambulance).

There may be a small increase in the number of babies and children being immediately referred to hospital if they meet one of the other criteria in recommendation 1.2.1. This is because, in the committee's experience, some babies and children who met the other criteria in recommendation 1.2.1 were not referred if they did not also have an oxygen saturation below 92%.

## Other factors the committee took into account

See the [rationale and impact section on when to discharge](#), for the committee's discussion of the variations in pulse oximeter accuracy based on skin tone.

[Return to recommendations](#)

## When to admit

[Recommendation 1.3.2](#)

## Why the committee made the recommendation

The committee reviewed an observational study and a randomised controlled trial. They did not feel that the evidence from the observational study could be used to change the 2015 recommendations. It was assessed as being very low-quality evidence, based on the study design

and a very serious risk of bias. However, the committee believed that the randomised controlled trial could be used to change the 2015 recommendations, because it involved babies and children who were assessed in an emergency department and so was directly relevant to this part of the guideline.

The 2015 recommendation specifies 'persistent' oxygen saturation levels, and the committee felt that this means babies and children would be assessed and monitored for some time in an emergency healthcare setting. This extended assessment and monitoring would allow healthcare professionals to understand the baby or child's overall health and whether it was worsening. In this context, there is very little risk of harm from reducing the oxygen saturation threshold level needed for admission from 92% to 90%. However, the committee acknowledged that some babies and children are at higher risk of severe bronchiolitis (babies under 6 weeks, and children with underlying health conditions). The randomised controlled trial did not include this group, so there was no evidence available for them. Because of this, the committee agreed it would be safer to retain the threshold of 92% for babies and children at higher risk.

Parents and carers of babies and children who are not admitted should receive key safety advice (see [recommendation 1.6.1](#)).

Reducing the oxygen saturation threshold for admission also makes these recommendations consistent with the updated management and discharge recommendations.

## How the recommendation might affect practice

Babies and children assessed for bronchiolitis in hospital often meet multiple admission criteria. For these babies and children, there will be no impact from the updated recommendation, because they will still be admitted based on other criteria. There may be fewer admissions for babies and children whose only indication is persistent decreased oxygen saturation level.

There would be a reduction in NHS costs if the change in threshold led to a substantial reduction in the number of babies and children admitted to hospital, but it is unclear how large the change would be in practice.

## Other factors the committee took into account

See the [rationale and impact section on when to discharge](#), for the committee's discussion of the variations in pulse oximeter accuracy based on skin tone.

[Return to recommendations](#)

## Management of bronchiolitis

### Recommendation 1.4.4

### Why the committee made the recommendation

A randomised controlled trial found that using an oxygen saturation threshold of 90% (compared with a threshold of 94%) for deciding whether to provide supplementary oxygen and discharge from hospital significantly reduced the need for supplemental oxygen and the time to discharge. The trial also showed that readmission rates were not higher with a 90% threshold, compared with a 94% threshold.

The intervention, population and setting of the trial were directly relevant to management and discharge from hospital, so the committee believed it was appropriate to change the oxygen saturation thresholds used in the 2015 guideline. In addition, they noted that the 2015 thresholds were based on the 2015 committee's experience alone, because no direct evidence was available at the time. The trial included babies and children with fewer comorbidities who had less risk of poor outcomes compared with babies and children with bronchiolitis typically seen in hospital, who may have a more varied risk profile. Because there was no evidence for babies and children at higher risk (babies under 6 weeks and children of any age with underlying health conditions), the committee agreed it would be safer to retain the threshold of 92% for this group.

### How the recommendation might affect practice

Reducing the oxygen saturation threshold will mean that fewer babies and children are given supplementary oxygen. All other aspects of bronchiolitis management remain unchanged and healthcare professionals should stay aware of the full clinical picture.

There is likely to be a reduction in NHS costs as a result of this recommendation, due to both a reduced duration of oxygen therapy in hospital, and a reduced length of hospital stay.

### Other factors the committee took into account

See the [rationale and impact section on when to discharge](#), for the committee's discussion of the variations in pulse oximeter accuracy based on skin tone.

[Return to recommendations](#)

## When to discharge

### Recommendation 1.5.1

### Why the committee made the recommendation

A randomised controlled trial found that using an oxygen saturation threshold of 90% (compared with a threshold of 94%) for deciding whether to provide supplementary oxygen and discharge from hospital significantly reduced the need for supplemental oxygen and the time to discharge. The trial also showed that readmission rates were not higher with a 90% threshold, compared with a 94% threshold.

The intervention, population and setting of the trial were directly relevant to management and discharge from hospital, so the committee believed it was appropriate to change the oxygen saturation thresholds used in the 2015 guideline. In addition, they noted that the 2015 thresholds were based on the 2015 committee's experience alone, because no direct evidence was available at the time. The trial included babies and children with fewer comorbidities who had less risk of poor outcomes compared with babies and children with bronchiolitis typically seen in hospital, who may have a more varied risk profile. Because there was no evidence for children at higher risk (babies under 6 weeks and children of any age with underlying health conditions), the committee agreed it would be safer to retain the threshold of 92% for this group.

The committee noted that the decision to discharge should not just be based on oxygen saturation. The guideline includes other recommendations on criteria for discharge, and a recommendation on key safety criteria for parents and carers looking after the baby or child at home ([recommendation 1.6.1](#)), so the committee did not believe there was a significant risk to reducing the oxygen saturation threshold criteria.

### How the recommendation might affect practice

The reduction in oxygen saturation threshold will allow more babies and children to be discharged sooner, without increasing the risk of worse outcomes. Other criteria for discharge have not changed, so the decision to discharge will not be based on oxygen saturation alone.

### Other factors the committee took into account

There are emerging reports in other areas of clinical care that there may be variation in the accuracy of pulse oximetry depending on a person's skin tone. The 2021 update of the guideline did not look at the evidence in this area, so the committee did not make a recommendation to address

the issue or a recommendation for further research.

The [NHS Race and Health Observatory](#) published a [rapid review](#) of the evidence in this area in March 2021. NICE will monitor for formal guidance from NHS England and NHS Improvement in this area, and update this guideline further as needed.

[Return to recommendations](#)

## Context

Bronchiolitis is the most common disease of the lower respiratory tract during the first year of life. It usually presents with cough with increased work of breathing, and it often affects a baby's ability to feed. In primary care, the condition may often be confused with a common cold, though the presence of lower respiratory tract signs (wheeze or crackles on auscultation) in a baby in mid-winter would be consistent with this clinical diagnosis. The symptoms are usually mild and may only last for a few days, but in some cases the disease can cause severe illness.

There are several individual and environmental risk factors that can put babies and children with bronchiolitis at increased risk of severe illness. These include congenital heart disease, neuromuscular disorders, immunodeficiency and chronic lung disease.

The management of bronchiolitis depends on the severity of the illness. In most babies and children bronchiolitis can be managed at home by parents or carers.

Approximately 1 in 3 babies will develop clinical bronchiolitis in the first year of life and 2% to 3% of all babies will need to be admitted to hospital. In 2011/12 in England, there were 30,451 secondary care admissions for the management of bronchiolitis. It is uncommon for bronchiolitis to cause death. In 2009/10 in England, there were 72 recorded deaths of babies and children within 90 days of hospital admission for bronchiolitis.

Bronchiolitis is associated with an increased risk of chronic respiratory conditions, including asthma, but it is not known if it causes these conditions.

The guideline covers babies and children with bronchiolitis but not those with other respiratory conditions, such as recurrent viral induced wheeze or asthma.

## Finding more information and resources

You can see everything NICE says on bronchiolitis in children in the [NICE Pathway on bronchiolitis in children](#).

To find NICE guidance on related topics, including guidance in development, see the [NICE webpage on respiratory infections](#).

For full details of the evidence and the guideline committee's discussions, see the [full version of the guideline and the 2021 evidence review](#). You can also find information about [how the guideline was developed, including details of the committee](#).

NICE has produced [tools and resources to help you put this guideline into practice](#). For general help and advice on putting our guidelines into practice, see [resources to help you put NICE guidance into practice](#).



# Update information

**August 2021:** We have:

- reviewed the evidence on oxygen saturation thresholds for referral to hospital, admission, management and discharge
- updated recommendations 1.2.1, 1.2.2, 1.3.2, 1.4.4 and 1.5.1.

We have also added references to the [December 2018 NHS England Patient Safety Alert on the risk of harm from inappropriate placement of pulse oximeter probes](#).

A patient safety alert has been issued which is relevant to both the recommendations that were changed in the 2021 update and also some that were outside of the scope of the update. Reference to the alert has been added to all recommendations where it is relevant, for consistency across the guideline.

Recommendations are marked [2021] if the evidence has been reviewed.

Recommendations marked [2015] last had an evidence review in 2015. In some cases, minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

## Minor changes since publication

**November 2019:** A link to the [NICE guideline on sepsis and risk stratification tools for sepsis in under 5s](#) was added to recommendation 1.1.6. Recommendations 1.2.3 and 1.3.3 were amended to clarify that any known risk factors for more severe bronchiolitis should be taken into account when deciding on referral or admission.

ISBN: 978-1-4731-1162-2

## Accreditation

