

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

SCOPE

1 Guideline title

Bronchiolitis: diagnosis and management of bronchiolitis in children

1.1 *Short title*

Bronchiolitis in children

2 The remit

The Department of Health has asked NICE: 'To produce a clinical guideline on bronchiolitis: diagnosis and management of bronchiolitis'.

3 Clinical need for the guideline

3.1 *Epidemiology*

- a) Bronchiolitis is the most common disease of the lower respiratory tract during the first 2 years of life.
- b) Bronchiolitis usually presents with cough with an increased work of breathing, and it often affects an infant's ability to feed. Symptoms are usually mild and might only last for a few days, but in some cases the disease can cause severe illness.
- c) Infection follows a seasonal pattern, peaking during the winter months. Respiratory syncytial virus (RSV) causes the majority of cases. Other causes include influenza, parainfluenza, adenovirus and human metapneumovirus.
- d) There are several individual and environmental risk factors that put infected infants at increased risk of severe illness. These include

premature birth, congenital heart disease, cystic fibrosis, and immunodeficiency.

- e) Although bronchiolitis can usually be managed at home, approximately 3% of infants with bronchiolitis are admitted to hospital. In 2011/2012 in England there were 30,451 secondary care admissions for the management of bronchiolitis.
- f) It is uncommon for bronchiolitis to cause death. In 2009/2010 there were 72 deaths within 90 days of hospital admission recorded in England in children up to 14 years of age with an underlying cause of bronchiolitis.
- g) Bronchiolitis is associated with an increased risk of chronic respiratory conditions, including asthma, but it is not known if bronchiolitis causes these conditions.

3.2 Current practice

- a) Most infants with bronchiolitis present in primary care to a GP. The diagnosis of bronchiolitis is based on clinical assessment and the presence of characteristic symptoms and signs. The management of bronchiolitis depends on the severity of symptoms. The majority of children have symptoms that can be managed at home by parents or carers.
- b) Children with severe bronchiolitis will immediately be referred to hospital for specialist assessment and treatment. The following indications prompt referral to specialist care:
 - moderate or severe respiratory distress
 - poor feeding or lethargy
 - reduced oxygen saturation (SpO₂)
 - apnoea
 - diagnostic uncertainty.

- c) In mild to moderate cases treatments that help improve feeding and work of breathing could offer benefit. Therapies that have been trialled include:
- inhaled bronchodilators
 - inhaled or systemic corticosteroids
 - antibiotics.
- d) In cases with severe symptoms where the infant has been hospitalised, treatment focuses primarily on supportive measures such as preventing dehydration (for example, by using nasogastric or intravenous fluids), providing nutrition (for example, nasogastric feeds) and using oxygen supplementation if necessary.
- e) In some locations children with risk factors for severe bronchiolitis may be offered immunoprophylaxis with intramuscular pavilizumab.
- f) Bronchiolitis is usually a self-limiting condition with no long-term treatment or follow-up needed. However, some children develop recurrent post-bronchiolitis symptoms such as problematic cough that may persist for months.
- g) Given the very high prevalence and potentially serious impact of bronchiolitis, guidance is needed to help investigation and management of the condition.

4 The guideline

The guideline development process is described in detail on the NICE website (see section 6, 'Further information').

This scope defines what the guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

The areas that will be addressed by the guideline are described in the following sections.

4.1 Population

4.1.1 Groups that will be covered

- a) Infants and children with bronchiolitis from birth up to the age of 2 years.
- b) The following patient subgroups of infants and children with bronchiolitis have been identified: premature birth, congenital heart disease, cystic fibrosis, and immunodeficiency.

4.1.2 Groups that will not be covered

- a) Infants and children with other respiratory conditions, such as asthma or recurrent viral induced wheeze.
- b) Infants being cared for on neonatal units.
- c) Infants and children admitted to paediatric intensive care units.

4.2 Healthcare setting

- a) All settings in which NHS care is received or commissioned (including community care and advice for home management), but excluding neonatal or paediatric intensive care units.

4.3 Clinical management

4.3.1 Key clinical issues that will be covered

- a) Diagnosis and monitoring:
 - differentiating bronchiolitis from other respiratory conditions
 - criteria for referral to secondary care and for hospital admission, including consideration of heart rate, respiratory rate, respiratory distress and SpO₂.
- b) Investigations:
 - SpO₂ measurement using pulse oximetry
 - chest radiography.

- c) Treatments for bronchiolitis:
- chest physiotherapy
 - antibiotic treatment
 - inhaled therapies (including epinephrine, salbutamol, corticosteroids, ipratropium bromide)
 - systemic corticosteroids
 - combined bronchodilator and corticosteroid therapy
 - nebulised hypertonic saline
 - heliox (combined helium and oxygen).
- d) Supportive measures to maintain SpO₂ and ventilation. For example:
- oxygen supplementation (including humidified oxygen)
 - humidified high-flow oxygen
 - continuous positive airway pressure (CPAP).
- e) Criteria for discharge from hospital.

Note that guideline recommendations will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

4.3.2 Clinical issues that will not be covered

- a) Screening for RSV in primary care.
- b) Prevention of viral transmission in hospital, such as viral testing.
- c) Complementary and alternative treatments.
- d) Montelukast (leukotriene receptor antagonist).
- e) Ribavirin.

- f) Prevention of bronchiolitis by the use of palivizumab for immunoprophylaxis of RSV (there are existing guidelines from Joint Committee on Vaccination and Immunisation on this).

4.4 Main outcomes

- a) Patient and clinical outcomes:
- health-related quality of life (including severity scores)
 - change in clinical status (including resolution of respiratory symptoms, return to adequate feeding, or need for ventilator)
 - SpO₂
 - long-term morbidity
 - mortality.
- b) Health service outcomes:
- need for referral to secondary care
 - admission rates
 - length of treatment
 - readmission rate.
- c) Diagnostic outcomes:
- diagnostic accuracy (for example, sensitivity and specificity) of symptoms and signs.

4.5 Review questions

Review questions guide a systematic review of the literature. They address only the key clinical issues covered in the scope, and usually relate to interventions, diagnosis, prognosis, service delivery or patient experience. Please note that these review questions are draft versions and will be finalised with the Guideline Development Group.

4.5.1 Diagnosis and monitoring

- a) What symptoms, signs and clinical progression is typical of bronchiolitis?

- b) What are the risk factors for severe bronchiolitis?
- c) What predicts the likelihood of deterioration at the time of assessment?
- d) What are the criteria for i) referral to secondary care, ii) hospital admission for observation or treatment, iii) discharge from hospital?
- e) When is SpO₂ monitoring indicated in bronchiolitis?
- f) What are the indications for undertaking chest radiography in bronchiolitis?

4.5.2 Treatment of bronchiolitis

- a) What is the efficacy of chest physiotherapy in the management of bronchiolitis?
- b) What is the efficacy of antibiotic treatment in the management of bronchiolitis?
- c) What is the efficacy of inhaled bronchodilators (adrenaline, salbutamol, ipratropium bromide) in the management of bronchiolitis?
- d) What is the efficacy of inhaled corticosteroids in the management of bronchiolitis?
- e) What is the efficacy of systemic corticosteroids in the management of bronchiolitis?
- f) What is the efficacy of nebulised hypertonic saline in the management of bronchiolitis?
- g) What is the efficacy of heliox in the management of bronchiolitis?
- h) What is the efficacy of Inhaled bronchodilators with systemic corticosteroids?

- i) What is the efficacy of combinations of treatments in the management of bronchiolitis?
- j) Of those treatments that are found to be effective, which is the most effective?

4.5.3 Supportive treatment of bronchiolitis

- f) What is the efficacy of oxygen supplementation, including humidified oxygen or humidified high-flow oxygen, in the management of bronchiolitis?

4.6 *Economic aspects*

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative interventions. A review of the economic evidence will be conducted and analyses will be carried out as appropriate. The preferred unit of effectiveness is the quality-adjusted life year (QALY), and the costs considered will usually be only from an NHS and personal social services (PSS) perspective. Further detail on the methods can be found in 'The guidelines manual' (see 'Further information').

4.7 *Status*

4.7.1 Scope

This is the consultation draft of the scope. The consultation dates are 25th January to 22nd February 2013.

4.7.2 Timing

The development of the guideline recommendations will begin in May 2013.

5 Related NICE guidance

5.1 *Published guidance*

5.1.1 Other related NICE guidance

- [Antibiotics for early-onset neonatal infection](#). NICE clinical guideline 149 (2012).
- [Infection](#). NICE clinical guideline 139 (2012).
- [Bacterial meningitis and meningococcal septicaemia](#). NICE clinical guideline 102 (2010).
- [Respiratory tract infections – antibiotic prescribing](#). NICE clinical guideline 69 (2008).
- [Inhaled corticosteroids for the treatment of chronic asthma in children under the age of 12 years](#). NICE technology appraisal guidance 131 (2007).
- [Omalizumab for severe persistent allergic asthma](#). NICE technology appraisal guidance 133 (2007).
- [Guidance on the use of inhaler systems \(devices\) in children under the age of 5 years with chronic asthma](#). NICE technology appraisal guidance 10 (2000).
- [Prevention and control of healthcare-associated infections](#). NICE public health guidance 36 (2011).

5.2 *Guidance under development*

NICE is currently developing the following related guidance (details available from the NICE website):

Feverish illness in children. NICE clinical guideline (update). Publication expected May 2013.

Asthma. NICE clinical guideline. Publication expected 2015.

Intravenous fluid therapy in children. NICE clinical guideline. Publication expected 2015.

6 Further information

Information on the guideline development process is provided in the following documents, available from the NICE website:

[‘How NICE clinical guidelines are developed: an overview for stakeholders the public and the NHS’](#)

[‘The guidelines manual’](#).

Information on the progress of the guideline will also be available from the [NICE website](#).