NATIONAL INSTITUTE FOR HEALTH AND CARE 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 year of life.

b) Bronchiolitis usually presents with cough with increased work of breathing and it often affects a child'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 can put children with bronchiolitis at increased risk of severe illness.

These include premature birth, passive smoke exposure, living conditions, congenital heart disease, cystic fibrosis, immunodeficiency and chronic lung disease.

e) Although bronchiolitis can usually be managed at home, approximately 3% of affected children 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 in England, there were 72 recorded deaths of children within 90 days of hospital admission for bronchiolitis.

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

3.2 Current practice

a) Most children with bronchiolitis present in primary care to a GP. The diagnosis of bronchiolitis is based on clinical assessment showing the presence of various characteristic symptoms and signs.

b) In some locations children with risk factors for severe bronchiolitis may be offered immunoprophylaxis with intramuscular pavilizumab.

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

d) Children with severe bronchiolitis are immediately referred to hospital for specialist assessment and treatment. The following indications prompt referral for specialist care:

- moderate or severe respiratory distress
- poor feeding

- lethargy
- apnoeic episodes (stop breathing)
- reduced oxygen saturation (SpO_2)
- diagnostic uncertainty.

e) In mild or moderate cases treatments that improve feeding and reduce the work of breathing could be beneficial. A range of treatments have been trialled, including:

- inhaled bronchodilators
- inhaled corticosteroids
- systemic corticosteroids
- antibiotics.

f) In children admitted to hospital with severe illness, treatment focuses primarily on supportive measures such as preventing dehydration (for example, using nasogastric or intravenous fluids), providing nutrition (for example, nasogastric feeds) and using oxygen supplementation if necessary.

g) 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 a troublesome cough that can persist for months.

h) Given the very high prevalence of bronchiolitis and its potentially serious impact on a child's health, guidance on diagnosis and management is needed.

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) Children with bronchiolitis.

b) Patient subgroups will be identified based on the available evidence – for example, premature birth, congenital heart disease, cystic fibrosis, immunodeficiency and chronic lung disease.

4.1.2 Groups that will not be covered

a) Children with other respiratory conditions, such as recurrent viral induced wheeze or asthma.

4.2 Healthcare setting

a) All settings in which NHS care is received or commissioned (including community care and information for home management).

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, oxygen saturation (SpO_2) and feeding difficulty.

b) Investigations:

- Indications for oxygen saturation (SpO_2) measurement using pulse oximetry
- indications for chest radiography
- indications for capillary blood gas testing.

c) Treatments:

- chest physiotherapy
- antibiotic treatment
- inhaled therapies (including epinephrine [adrenaline], salbutamol, corticosteroids, ipratropium bromide)
- systemic corticosteroids
- nebulised hypertonic saline
- heliox (combined helium and oxygen)
- combined bronchodilator and corticosteroid therapy
- Montelukast (leukotriene receptor antagonist).

d) Supportive measures to maintain SpO_2 or ventilation, including:

- oxygen supplementation (including humidified oxygen)
- humidified high-flow oxygen
- continuous positive airway pressure (CPAP).

e) Indication for fluids and nutrition support.

f) Use of nasal suction.

g) Criteria for discharge from hospital.

Note that guideline recommendations for treatments 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) Viral testing in hospital to prevent transmission.

c) Complementary and alternative treatments.

d) Ribavirin.

e) Surfactant.

f) Normal saline.

g) Prevention of bronchiolitis by the use of palivizumab for immunoprophylaxis of RSV.

h) Supportive treatments other than those specified in section 4.3.1. For example invasive ventilation will not be covered in the guideline.

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)
- SpO_2
- long-term morbidity
- Adverse events
- 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 in bronchiolitis

a) What characteristics, symptoms, signs and clinical progression are typical of bronchiolitis, and allow differentiation from other respiratory conditions?

b) What are the risk factors for severe bronchiolitis?

c) At the time of assessment, what predicts the likelihood of deterioration?

d) What are the indications for capillary blood gas testing?

e) What are the indications for fluids and nutritional support?

f) Based on indications for investigation and treatment what are the criteria for i) referral to secondary care, ii) hospital admission for observation or treatment, and iii) discharge from hospital?

g) What are the indications for SpO_2 monitoring?

h) What are the indications for chest radiography?

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?

c) What is the efficacy of inhaled bronchodilators (adrenaline, salbutamol, ipratropium bromide)?

d) What is the efficacy of inhaled corticosteroids?

e) What is the efficacy of systemic corticosteroids?

f) What is the efficacy of nebulised hypertonic saline?

g) What is the efficacy of heliox?

h) What is the efficacy of combined bronchodilator and corticosteroid therapy?

i) What is the efficacy of Montelukast?

4.5.3 Supportive treatment of bronchiolitis

a) What is the efficacy of oxygen supplementation, including humidified oxygen, CPAP or humidified high-flow oxygen?

b) What is the efficacy of nasal suction?

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 final scope.

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).
- Prevention and control of healthcare-associated infections. NICE public health guidance 36 (2011).
- Bacterial meningitis and meningococcal septicaemia. NICE clinical guideline 102 (2010).
- Respiratory tract infections – antibiotic prescribing. NICE clinical guideline 69 (2008).
- Omalizumab for severe persistent allergic asthma. NICE technology appraisal guidance 133 (2007).
- Inhaled corticosteroids for the treatment of chronic asthma in children under the age of 12 years. NICE technology appraisal guidance 131 (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).

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.