

6.3 ASTHMA IN CHILDREN AND YOUNG PEOPLE

Asthma is a very common condition which affects about one in 10 children.

Children and young people with asthma have airways (bronchi, or breathing tubes) which are 'twitchy' and are very easily made to narrow when exposed to specific stimuli. Specific triggers include breathing allergens which are in the air, such as house dust mite, grass and tree pollens; and also respiratory viral infections (e.g. 'the simple head cold'). When exposed to a trigger the airways become swollen and inflamed causing 'obstruction' and making it hard to breathe. In addition, the airway inflammation and excessive mucous production cause increased coughing.

The hall mark symptoms of asthma include wheezing (a whistling noise made when breathing out through narrowed airways), shortness of breath and coughing. The symptoms typically come and go.

During an asthma attack the inflammation and swelling causes the airways to become very narrow and children become very breathless and such attacks can be life threatening.

Recently it has been observed that while the inflammation becomes less intense in between asthma attacks it never fully is switched off. It is thought that this ongoing low grade inflammation may account for why many children experience symptoms in between attacks, such as when they exercise in cold air, at night, or if exposed to a smoky environment.

The airways narrowing, which causes great difficulty in breathing air out of the lungs, can be measured and monitored in children older than 5-6 years using lung function equipment called a spirometer. The narrowing can be measured as the largest volume that a child can blow out in one second (Forced Expiratory Volume in 1 second, FEV1).

Many children with asthma have also an allergic tendency and may also suffer from hay fever (allergic rhinitis) and eczema.

There is no cure for asthma. The aim of treatment is to reduce the frequency and severity of asthma symptoms. Therefore it is important that children and young people and their families know how to manage the asthma.

There are three aspects of treatment:

1] Primary prevention

There is evidence that smoking when pregnant is related to the onset of asthma in children (Standard 5.2) so it is important that women are advised at antenatal clinics.

It is impossible to prevent children getting asthma attacks triggered by viral head colds.

Exposure to environmental tobacco smoke (passive smoking) can make asthma worse and families should be advised about this.

Some children have allergies as significant triggers of their asthma and continuing exposures to allergens may keep the airways inflammation on-going. A detailed allergy history is important to identify specific triggers that might be removed.

2] Management of acute attacks

The child/family needs to know how to identify and manage an acute attack. In more severe attacks which cannot be managed at home the family needs to know where to get help rapidly (services or hospital emergency departments). The out of hours services and hospital emergency departments need to be able to accurately assess severity and provide appropriate urgent treatment for acute asthma. It is very important that children who have attended out of hours services have a review of their asthma control.

Anaphylaxis

If a child has experienced an anaphylactic reaction to a food (e.g. peanuts) with very rapid onset of severe wheezing (which can be fatal) there should be an urgent assessment and investigation by a suitably trained team. It is important that an attempt is made to identify the offending food allergen so that it is removed from the diet and that the child/family are instructed in what to do if the child is accidentally re-exposed to the offending food.

3] Prevention and control of chronic asthma

Children with asthma should have a 'reliever' (usually a blue inhaler) which contains medicine that helps to open up the airways. Reliever inhalers are used 'when required'.

Those with more chronic asthma with day-to-day symptoms or frequent asthma attacks are prescribed 'preventer' therapy (usually an inhaled steroid) which needs to be taken regularly and aims to damp down the inflammatory response.

It is important that the child/family is offered education and ongoing support to understand:

- what triggers the asthma and if possible how to avoid the triggers;
- how to assess the severity of an attack and have a written action plan; and,
- understand the roles of their preventer and reliever medication, when to use each, and how to use the medication devices

Overarching Standard 21

Diagnosis of asthma:

All children and young people, in whom there is a clinical suspicion of asthma, should have an accurate assessment and access to diagnostic tests.

Rationale:

Asthma in childhood, especially those < 5 years, can be difficult to diagnose. It can be difficult to know if parental reported wheeze is true wheezing and whether children and young people with recurrent cough have asthma. Objective measures are therefore required to establish an accurate diagnosis. If a 'trial of asthma medication' is used to confirm the diagnosis in younger children a clear record of the outcome should be recorded.

Allergic rhinitis affects 10-25% of the population and has a direct relationship with asthma. Good rhinitis control contributes positively to asthma control.

Evidence:

National Institute for Health and Clinical Excellence (NICE) (2008)
Corticosteroids for the treatment of chronic asthma in adults and children aged 12 years and over <http://guidance.nice.org.uk/TA138>

British Thoracic Society/Scottish Intercollegiate Guidelines Network (2008)
British Guideline on the Management of Asthma
<http://www.sign.ac.uk/pdf/sign101.pdf>

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. *Allergy* 2008; 63: 5–34.
<http://www.ingentaconnect.com/content/mksg/all/2008/00000063/00000001/art00002;jsessionid=1gj9l62maqza3.victoria>

Bousquet J, Van Cauwenberge P, Khaltaev N, *et al.* Allergic Rhinitis and its Impact on Asthma (ARIA) in collaboration with the World Health Organization (WHO). *J Allergy Clin Immunol* 2001; 108 (Suppl):S147-S336.
<http://linkinghub.elsevier.com/retrieve/pii/S0091674901624886>

Brand PLP, Baraldi E, Bisgaard H, *et al.* Definition, assessment and treatment of wheezing disorders in preschool children: an evidence-based approach. *Eur Resp J* 2008; 32: 1096-1110.
<http://erj.ersjournals.com/cgi/content/abstract/32/4/1096>

Responsibility for delivery / implementation

HSC Board
Public Health Agency
Primary Care (including community pharmacy)
HSC Trusts

Quality Dimension

1. All children and young people with a diagnosis of asthma, where possible, should have a documented record of an objective test to confirm the diagnosis (which may be a 'therapeutic trial' with a documented outcome) and demonstrate variability in airways obstruction (spirometry, outcome) PEFR diary card variability can be useful supportive evidence of an asthma diagnosis, but is not useful for subsequent asthma management and, as it is a measure of very large airway calibre, can be normal in children and young people with reduced FEV1.
2. All staff performing and interpreting spirometry should have undergone training and should be competent in the interpretation of the results.
3. All staff assessing and diagnosing asthma should be trained to the agreed standards set by the Regional Respiratory Forum.

Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Percentage of children and young people (aged 8 and over) diagnosed as having asthma who have had their diagnosis confirmed as per BTS/SIGN guidelines	QOF	70% 90%	March 2011 March 2012
Percentage of children and young people (aged 8 and over) diagnosed as having asthma who have had an assessment of symptoms and signs of allergic rhinitis at diagnosis and review	LTC DES (to be revised)	40% 80%	March 2011 March 2012

Overarching standard 22:

Self management

All children and young people diagnosed with asthma should receive individualised evidence based management.

Rationale:

Non pharmacological interventions such as reduction in allergen exposure may reduce the requirement for medication, including higher doses of inhaled steroids. In the GINA guidelines there are 4 components of therapy

- Develop patient/family/doctor partnership
- Identify and reduce exposure to risk factors
- Assess, treat and monitor asthma
- Manage exacerbations.

There is evidence to show that children and young people with asthma have their condition exacerbated by the effects of passive smoking.

Evidence:

British Thoracic Society/Scottish Intercollegiate Guidelines Network (2008)

British Guideline on the Management of Asthma

<http://www.sign.ac.uk/pdf/sign101.pdf>

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. Allergy 2008; 63:5–34

<http://www.ingentaconnect.com/content/mksg/all/2008/00000063/00000001/art00002;jsessionid=1gj9l62maqza3.victoria>

Global Strategy for Asthma Management and Prevention. Global initiative for asthma (GINA 2007) <http://www.ginasthma.org>

Action on Smoking and Health (May 2004) Passive Smoking: A summary of the Evidence <http://www.ash.org.uk>

Responsibility for delivery / implementation

HSC Board

Public Health Agency

HSC Trusts

Primary Care (including community pharmacy)

Quality Dimension

1. Children and young people and their families should be offered the opportunity to jointly agree, with the health care professional, an asthma self management plan and be taught to:
 - identify and avoid risk factors
 - take medications correctly
 - understand the difference between preventing and relieving inhalers
 - recognise signs that their asthma is worsening
 - know when and how to take action.
2. Each child should be taught and should demonstrate that they can use an age-appropriate inhaler device effectively.
3. Children and young people should be seen 1 month after an initial visit confirming an asthma diagnosis and if stable 6-12 monthly thereafter.
4. Children and young people with allergic rhinitis should be treated according to guidelines.
5. The parents/carers of children and young people with asthma should be advised of the effects of passive smoking on the condition.
6. Schools should be supported by the school nursing service to develop and implement action plans for asthma and anaphylaxis.

Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Percentage of children and young people step 2 and above and their carers that have individualised face to face information and self management action plan	LTC DES (to be revised) Regional difficult asthma database Asthma UK/CHS Survey	60% 80%	March 2011 March 2012
Percentage of children and young people/carers (under 14) with a diagnosis of asthma that attended and has been asked to demonstrate their inhaler technique at asthma review	LTC DES (to be revised)	90%	March 2011

Percentage of schools supported to develop action plans for asthma and anaphylaxis	HSC Trust report	Establish baseline Performance level to be determined once baseline established	March 2011
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Overarching standard 23:

Management of acute exacerbations

All children and young people with asthma who have an acute exacerbation should receive a timely high quality assessment of severity and evidence based management and review.

Rationale:

Acute asthma can be a life threatening illness requiring rapid access to emergency services.

If a child requires emergency management for an acute exacerbation of asthma, it is important that they are reviewed to consider their ongoing management.

Evidence:

British Thoracic Society/Scottish Intercollegiate Guidelines Network (2008)
British Guideline on the Management of Asthma
<http://www.sign.ac.uk/pdf/sign101.pdf>

Global Strategy for Asthma Management and Prevention. Global initiative for asthma (GINA 2007) <http://www.ginasthma.org>

Responsibility for delivery / implementation

HSC Trusts
Primary Care (including community pharmacy)
Out of hours providers

Quality Dimension

1. Children and young people with severe or life threatening asthma should have an agreed plan for access to emergency care.
2. An assessment of severity (as per BTS guidelines) should be made and documented along with documentation of the response to treatment.
3. Each child should receive evidence based management during acute exacerbations.
4. Safe transfer (supervised by suitably trained staff) should be available to PICU for those with life threatening asthma.
5. On discharge children's management plans should be reviewed to try and prevent readmission. Children and young people discharged from hospital (admission or A&E) or from out of hours services should be seen within 10 days in primary care.

Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Percentage of children and young people who have presented to GP out of hours services or A&E with an acute exacerbation of asthma that is managed according to current acute asthma guidelines	Regional GAIN audit	Establish baseline Performance level to be determined once baseline established	March 2011 March 2012
Percentage of children and young people reviewed in primary care within 10 working days after attendance at GP out of hours services or A&E with an acute exacerbation of asthma	LTC DES (to be revised) Regional GAIN audit	Establish baseline Performance level to be determined once baseline established	March 2011 March 2012

Overarching standard 24:**Management of acute anaphylaxis**

No child or young person should have a second unmanaged anaphylactic event.

Rationale:

Deaths from acute anaphylaxis in young people are usually due to a respiratory cause and typically occur in those with asthma. Children and young people with asthma, with a history of previous acute anaphylaxis (usually to nuts) are at greatest risk. A detailed history from an appropriately trained specialist is important to confirm the trigger event. Education is required including avoidance and instruction in management.

Evidence:

The management of anaphylaxis in childhood: position paper of the European Academy Allergology and Clinical Immunology. Allergy 2007; 62(8): 857-71
<http://www.ingentaconnect.com/content/mksg/all/2007/00000062/00000008/art00005>

Responsibility for delivery / implementation

HSC Board
Public Health Agency
HSC Trusts

Quality Dimension

1. All children and young people with acute anaphylaxis should be assessed and investigated by a suitably trained team within 2 weeks of the episode. The team should include a paediatrician with an interest in asthma/allergy, dietician, and an asthma/allergy nurse.
2. All children and young people with acute anaphylaxis should receive an educational package to empower them and/or their family to avoid or self-manage further episodes. This should include information/demonstration of an adrenaline autoinjector device, where indicated.
3. Schools should be supported by the school nursing service to develop and implement action plans for asthma and anaphylaxis.
4. Children with asthma and anaphylaxis should have one multidisciplinary team responsible for their both conditions

Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Percentage of children and young people with acute anaphylaxis who are assessed and receive an educational package (including use of an adrenaline auto injector device, where indicated) within 2 weeks of the primary episode	Audit HSC Trust records	Develop care pathway for Accident and Emergency	March 2011
	Asthma UK	100%	March 2012

Overarching standard 25:

Management of ongoing chronic asthma in secondary and tertiary care

All children and young people with asthma should be managed according to evidence based guidelines.

Rationale:

Ongoing monitoring is essential to maintain control and establish the lowest step and dose of treatment. Proactive intervention can prevent acute exacerbations of asthma and reduce patients' need for medication and hospital admission.

The BTS/SIGN guidelines recommend that children and young people above a certain level of treatment or where there is a diagnostic uncertainty should be referred to secondary care.

A small number of children and young people have more difficult and severe asthma and require high doses of inhaled and oral steroids. In these circumstances secondary care needs to have access to specialist tertiary care services which will also have an important role in assessing new therapies.

Steroid alert cards should be given to children and young people who are on beclometasone dipropionate or budesonide 800 mg/day (or fluticasone propionate 400 mcg/day)

Evidence:

British Thoracic Society/Scottish Intercollegiate Guidelines Network (2008)
British Guideline on the Management of Asthma
<http://www.sign.ac.uk/pdf/sign101.pdf>

Global Strategy for Asthma Management and Prevention. Global initiative for asthma (GINA 2007) <http://www.ginasthma.org>

Diagnosis and treatment of asthma in childhood: a PRACTALL consensus report. Allergy 2008; 63:5-34.
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Responsibility for delivery / implementation

HSC Trusts
Primary Care

Quality Dimensions

1. A steroid alert card should be given to children and young people who are on beclometasone dipropionate or budesonide 800 mg/day (or fluticasone propionate 400 mcg/day) or more.
2. There should be clear criteria for referral from primary to secondary care to tertiary care.
3. Secondary care asthma/allergy teams should have a lead paediatrician with expertise in asthma/allergy and a trained asthma/allergy nurse.
4. A multidisciplinary tertiary specialist service should be able to respond to referrals in a timely fashion (within 4-6 weeks).

Performance Indicator	Data source	Anticipated Performance Level	Date to be achieved by
Establish a system to ensure that children and young people on beclometasone dipropionate or budesonide 800 mg/day (or fluticasone propionate 400 mcg/day) or more have been given a steroid alert card	HSC Trust report	All HSC Trusts	March 2012
	Belfast HSC Trust Regional Difficult Asthma database (to be developed)	Establish baseline	March 2011
		Performance level to be determined once baseline established	March 2012
Establish a system to ensure all children and young people are appropriately referred to and managed in secondary care according to the Difficult Asthma Guidelines	HSC Trust report	All HSC Trusts	March 2012

<p>Percentage of children and young people appropriately referred to and appropriately managed in tertiary care according to the Difficult Asthma Guidelines</p>	<p>Belfast HSC Trust Regional Difficult Asthma database (to be developed)</p>	<p>Establish baseline Performance level to be determined once baseline established</p>	<p>March 2012 March 2013</p>
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