Peer reviewed

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Managing childhood asthma in primary care

Key learning points:

- Vital importance of providing a written asthma action plan
- Consider factors that might trigger or worsen asthma
- Meticulous attention to asthma guidelines will save lives

Asthma continues to be the most common long-term illness affecting children with one-in-11 children (below 18 years of age) having the condition.[1] On average there are three children in each classroom with asthma and a child is admitted every 20 minutes because of an asthma attack. When a child is admitted often that's due to improper care as an Asthma UK report showed that 75% of admissions are avoidable. The UK has the highest prevalence of asthma in the world despite all the experience and resources in the NHS to manage the condition. We have very high rates of asthma mortality compared to the rest of Europe, which tells us that asthma is not being properly managed in UK.[1]

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The National Review of Asthma Deaths (NRAD) published its report Why asthma kills in 2014.[1] Its main aim was to identify potentially preventable factors that caused deaths in adults and children, which could then be converted into recommendations around how we can improve asthma care. One of the key conclusions from the review was that the chronic management of the 28 children who died was deemed adequate in only 7% of them, compared to 29% of the whole group that died including adults. It is vitally important we don't treat children as 'mini-adults',

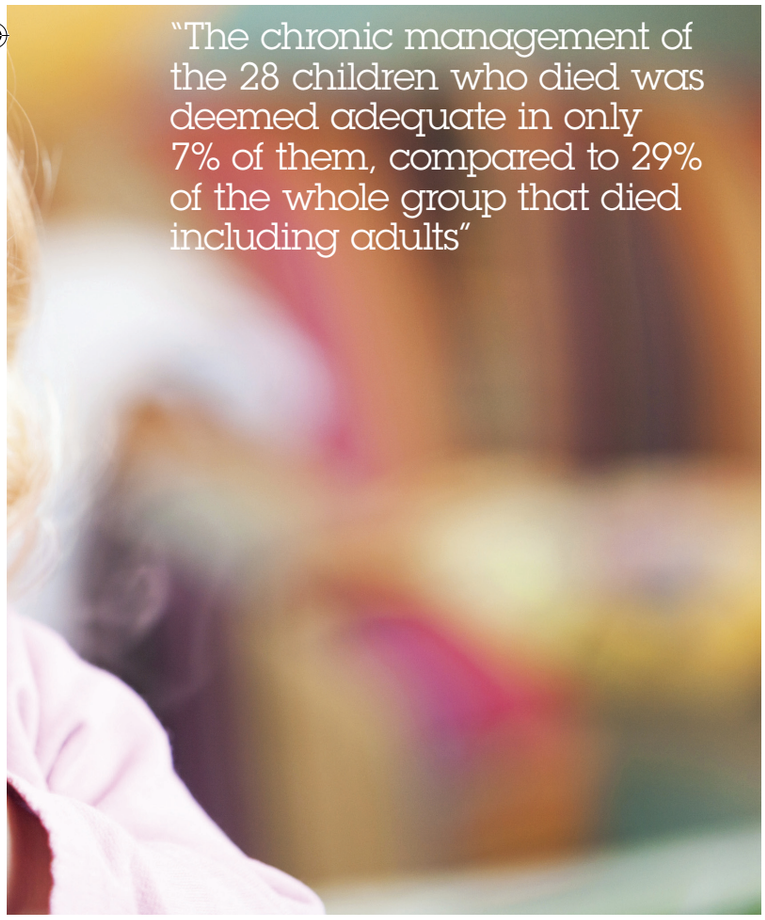
this review highlights key points around management of asthma in children.

DIAGNOSIS OF ASTHMA

The diagnosis of asthma in a child might be the responsibility of the doctor, but for nurses it's important to know the symptoms to check at each review. All children cough at some point, but to diagnose asthma a history of wheeze too is ideally needed.[2] However it needs to be noted that parents often use the term wheeze to describe a rattle in the chest or various upper airway noises. Impersonating the noise in clinic or suggesting the families film a breathing attack with their phone may help. Spirometry in older children can be useful but often initial assessment is based on the history. Primary care nurses should take a good history from the parents. They should also understand the following features that increase the probability of asthma:[3]

- More than one of the following – cough, difficulty breathing, chest tightness and wheeze:
  - Particularly if these are frequent and recurrent.
  - Worse at night/early morning.
  - Occur in response to triggers like exercise, pet exposure, cold air and with emotions.
  - Personal history of atopy like eczema or food allergy.
  - Family history of atopy.
  - Widespread wheeze heard on auscultation.
  - History of symptom improvement with asthma treatment.

The following features lower the probability of asthma:



- Symptoms with colds only, with no interval symptoms.
- Isolated cough with absence of wheeze or breathing difficulty.
- Moist cough.
- Normal peak flow or spirometry.
- No response to trial of asthma therapy.

From the history and examination, how high the probability of asthma is can be determined. If it's high, start treatment and review response before three months. If probability is low, consider alternative diagnoses or seek another opinion. The group that fall into intermediate probability is more of a challenge and further management might either be a trial of medication (perhaps initially only inhaled B2-agonist) and watchful waiting with a regular review of symptoms. Then, if things change/deteriorate, treatment can be reassessed. Of course there are children who are wrongly diagnosed with asthma, and there are children who have outgrown it, so asking about symptoms is important at every asthma review in case the diagnosis needs changing or medications need altering.

TREATING ASTHMA IN THE CLINIC

In primary care all asthmatics should be seen at least once a year for their asthma review. However, we know patients often don't attend for these appointments – in the NRAD report 43% of those who died had no record of a review in the previous 12 months.[1] When patients do attend it is most likely during an attack and the acute management of an asthma attack is nicely summarised in the National Institute for Health and Care Excellence (NICE) quality standard Asthma QS25 explained below. What's important when managing a child presenting with an acute attack is to take advantage of their attendance and perform an "asthma review" while treating their exacerbation. That review should include the following numbered approach, as explained by NICE:

1. History and physical examination

Take a detailed history in line with questions above to review asthma diagnosis. Ask about past history, regarding previous attacks and previous hospitalisations. NRAD recommend all asthmatics that had the following history should be referred to secondary care:

- Children who have needed more than two courses of systemic steroids.
- Any child who has needed admission to hospital with an asthma attack.
- Any child who has attended A&E two or more times in the last 12 months.

Physical examination is important to listen for wheeze, and then if acutely wheezy to allocate a grade of severity for this asthma attack. NICE outlines how you assign a grade that determines further management in their guidance,[4] see Resources for more information.

2. Review asthma control

It is vital children with asthma are asked about their control at every appointment.[1] This involves four questions and takes around 1-2 minutes to assess. These questions include:[5]

- Daytime symptoms more than twice a week?
- Any night waking due to asthma?
- Ventolin needed more than twice a week?
- Any activity limitation due to asthma? (see Resources for more information on these four questions).

If the child answers yes to two or more questions then their control is poor and needs addressing in clinic. If the child presents with an acute exacerbation, then it's important to ask about control for the month before that attack first began. The point of this is to get more of an accurate impression about how their asthma has been recently. Asking these questions is also an opportunity to educate the family about what "well-controlled" is, and when a parent should be worried their asthma is not right. Asking: "how has your asthma has been" is not an adequate enough assessment since many sufferers/parents don't know the signs of poor control so they may not be aware that their asthma is a problem. Poorly controlled asthma means the preventer treatment may need to be increased but only consider this after addressing the following points.

3. Review potential triggers

Ask if anything in the environment appears to trigger the child's asthma. NRAD found that 36% of children who died were exposed to passive smoking. Persistent exposure to smoke will aggravate symptoms, worsen control and may lead to steroid resistance.[6] This is an ideal opportunity to 'make every contact count' and smoking cessation should be offered to smoker. Common triggers in the air include house dust mite, pets, pollens and food. Does the child have hayfever? If so, ensure appropriate treatment.[7]

Blood (IgE) testing for specific triggers suggested in the history might be an option to confirm what the history is telling you, however further input from secondary care should be sought if parents are not acting to reduce exposure to avoidable triggers.

Exercise is one of the commonest trigger. Asthmatic children should achieve normal exercise tolerance, those who can't should be under a specialist. To reduce symptoms with exercise, children can take 6-10 puffs of ventolin through spacer 10 minutes before they do exercise, but regular use suggests they need to increase preventer once everything else is checked as outlined.

> "When a child is admitted often that's due to improper care of that child as an Asthma UK report showed that 75% of admissions are avoidable"

4. Review treatment/adherence

In primary care nurses have access to what drugs the child has ordered on repeat prescription, so they should always check this at each consultation. Adherence is key, with good asthma control being associated with adherence of >80% of treatment.[8]

Ask the family if they are taking it, who watches them take it (is the child really old enough to be relied upon to take it alone?) and compare that with their prescription history. A nice approach is to ask: "How many times might your child forget to take their preventer each week." Anything more then one or two times needs addressing. How often are they requesting repeat ventolin inhalers? A child well controlled throughout the year should only need two to three ventolins each year so higher prescription rates suggests poor control that needs addressing. In fact, GP practices should look at developing a system whereby high ventolin prescription rates should trigger an alert and a request for the patient to attend for a review. NRAD identified 39% of all who died had requested >12 ventolin inhalers in the previous 12 months.

If adherence to the preventer (ie steroids) is poor ask why and address any concerns the parent/child might have about them. A common (but normal) issue is that a child will feel no benefit after taking a steroid inhaler but feel better and less wheezy when taking ventolin. As a result the child relies on only ventolin, which increases their risk of having an exacerbation. Healthcare professionals need to reassure and explain that a preventer will reduce the risk of serious flare ups of asthma and it is normal to not get instant relief. Steroids are safe if used appropriately, which is why regular review is needed. Nurses should perhaps remind parent's asthma kills children every year and should not be afraid to push for better adherence.

For more information on what treatments to start and the 'step up/step down' approach to treatment please review The British Thoracic Society guideline updated 2015.[3]

5. Review inhaler technique

Every review of an asthmatic child should assess inhaler technique. No inhaled medication will have an effect unless it's taken appropriately. Pressurised metered-dose inhalers (pMDI) when activated comes out so quickly that it's impossible to get much medication in the lungs if taken directly in the mouth. Children should always use a spacer device with pMDIs, especially with the preventer inhaler, which is potentially easier since it's taken at home. There are two techniques with a spacer; tidal breathing (three to five normal breaths per puff) or slow inhalation and hold for 10 seconds per puff. The best choice is the one the child is best at. Note if a child is using a blue spacer and the whistling sound can be heard on forced inspiration – it should not be heard and means the child is breathing in too quickly.

In a child over the age of six a breath-activated device might be more appropriate, however technique should be checked. Take time to ensure you are happy with the technique needed to use common asthmatic devices, videos on the Asthma UK website can be helpful for this; see Resources.

6. Education and personal asthma action plan

Addressing the first five points provides lots of opportunities to educate a family around asthma, control and treatment. For each asthma consultation nurses may not have time to go into detail with each point, but certainly a few minutes should be spent checking each one and then addressing those that raise an issue. Repeated concerns around any one point should trigger a referral for help because all are important to ensure good control.

The last thing to address is to ensure the family have a personal asthma action plan (PAAP) in place. Parents need guidance on what to do when a child is having an attack, when to worry and when to call for help/an ambulance.

CHILDREN ARE NOT SMALL ADULTS

The National Review of Asthma Deaths provides evidence for significant gaps in knowledge of those seeing children therefore asthma training and awareness of childhood guidelines is vital for all nurses.

The role of the nurse in managing children with asthma is crucial and to work in partnership with the parents is key to ensuring the child reaches their full potential in life. As children grow they might start feeling they can take control. Therefore it's important the nurse supports the parents in 'letting go' while at the same time ensuring the child is educated and through regular reviews, check control doesn't drift when the child is becoming more autonomous.

When it comes to children safeguarding issues must always be considered. Adults have the right to refuse treatment, but parents don't have the right to refuse life-saving treatment for their child – this must be detected and acted upon. Similarly adults have the right to not attend clinic for their check-ups, but children can't be held responsible for their parent not bringing them. Children should never be classified as 'did not attend' (DNA) or 'was not brought' (WNB)[9]. If a nurse has concerns about a child's wellbeing they should act upon this by sharing their thoughts with other professionals, such as GPs, school nurses, social workers and health visitors.

RESOURCES

NICE QS25 Quality standard for asthma – nice.org.uk/Guidance/QS25

Global Initiative for Asthma. Global strategy for asthma management and prevention – ginasthma.org

Asthma UK technique videos – asthma.org.uk/advice/inhalers-medicines-treatments/using-inhalers/#Videos

Asthma UK – asthma.org.uk

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