NHS
Birmingham Women's and Children's
NHS Foundation Trust

Management and Referral Guidelines

Top 20 Paediatric Outpatient conditions

December 2018

Contents

This guideline has been developed to assist primary care professionals in the management and referral of common outpatient paediatric conditions to secondary care. It is intended to support the decision-making process and is not a substitute for sound clinical judgement. While every effort has been taken to incorporate up to date information to determine appropriate care, professionals must ensure that they apply the guideline in the context of the individual child/young person and family.

Refer to BNFc and APC formulary (birminghamandsurroundsformulary.nhs.uk) for prescribing guidelines and dosages.

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Gastro-oesophageal reflux

What is it?

Gastro-oesophageal reflux (GOR)

- is a normal, physiological process which occurs in healthy infants, manifesting as effortless regurgitation of small quantities of feed. (Occult/Silent reflux refers to regurgitation which does not enter the mouth and hence is not visible to the observer other than as discomfort in the infant)
- Symptoms peak at 4 months of age, improve around 6-7 months of age and resolve by 1 year of age in 90% of infants.

Gastro-oesophageal reflux disease (GORD)

- is the condition when infants display additional symptoms or complications of GOR.
- Symptoms can include severe pain and discomfort, vomiting, refusal to feed, faltering growth, Sandifer's syndrome (episodic torticollis with dystonic posturing, back arching and stiffening), cough, wheeze (indicates aspiration), apnoea and brief, resolved unexplained events.
- Premature infants and children with severe neuro-disability can suffer from persistent GORD.

What should I do?

GOR:

Advice and reassurance to carers that GOR in well infants:

- is very common (affects at least 40% of infants)
- usually begins before the infant is 8 weeks old
- may be frequent (5% of those affected have 6 or more episodes each day)
- usually becomes less frequent with time (resolves in 90% of affected infants before they are 1year old)
- does not usually require further investigations or treatment.

GORD:

1. Breastfed infants: Breast feeding assessment and support as required.
2. Formula fed infants: Review the feeding history and optimise feed volumes, especially if excessive for the infant's weight.
3. Feed thickeners (refer to APC nutrition formulary): If no improvement after 2 weeks, STOP and commence Alginates. (Using thickeners and alginates together can make feeds overly thick).
4. Alginates (Gaviscon): If no improvement after 2 weeks, commence H_2 receptor antagonist (H_2RA), while continuing Gaviscon.
5. H_2 Receptor Antagonist (Ranitidine)*: Reassess after 4 weeks, and if beneficial, continue. Treatment can be discontinued based on symptom resolution, usually by 1 year of age.

*Follow local APC recommendations - if unlicensed, refer if no improvement after 2 weeks of Gaviscon.

Remember: Certain symptoms of non-IgE-mediated Cows' milk allergy can mimic GORD, especially in infants with atopic features. If that is suspected, manage as per Cow's milk allergy guideline on Page 5.

When should I refer?

- No improvement after 4 weeks of H_2RA (see* above)
- Marked pain and distress
- Food aversion/refusal
- Faltering growth
- Persistent respiratory symptoms
- Symptoms continue beyond first year of life.

Red Flags

- Bile-stained (green or yellow-green) vomiting: Intestinal obstruction
- Persistent, projectile, non-bilious vomiting: Pyloric stenosis

Resources:

NICE guideline [NG1] January 2015: Gastro-oesophageal reflux disease in children and young people: diagnosis and management

Parent Information leaflet - Gastro-oesophageal reflux

What is Gastro-oesophageal reflux (GOR)?

GOR is the condition when food in the stomach is regurgitated. It happens spontaneously, and unlike vomiting, is effortless. GOR is very common in babies and usually gets better around one year of age. Babies with reflux may cry and be hard to comfort, arch their back and regurgitate feeds. Occasionally, they have troublesome symptoms including severe pain and distress, cough, wheeze and refusal to feed. GOR does not harm your baby or cause problems later in life.

What can I do?

In most babies, GOR causes only mild symptoms and will resolve by itself. You can try offering smaller volume, more frequent feeds. Changing formulas or changing from breastfeeding to formula feeding should not be done unless recommended by health professionals.

See your GP if your baby:

- has blood or bile (bile is a green or yellow-green fluid) in their vomit
- finds it difficult to swallow or is choking easily
- is losing weight or is not gaining weight
- is not interested in feeding
- symptoms are not improving at one year of age

What is the treatment?

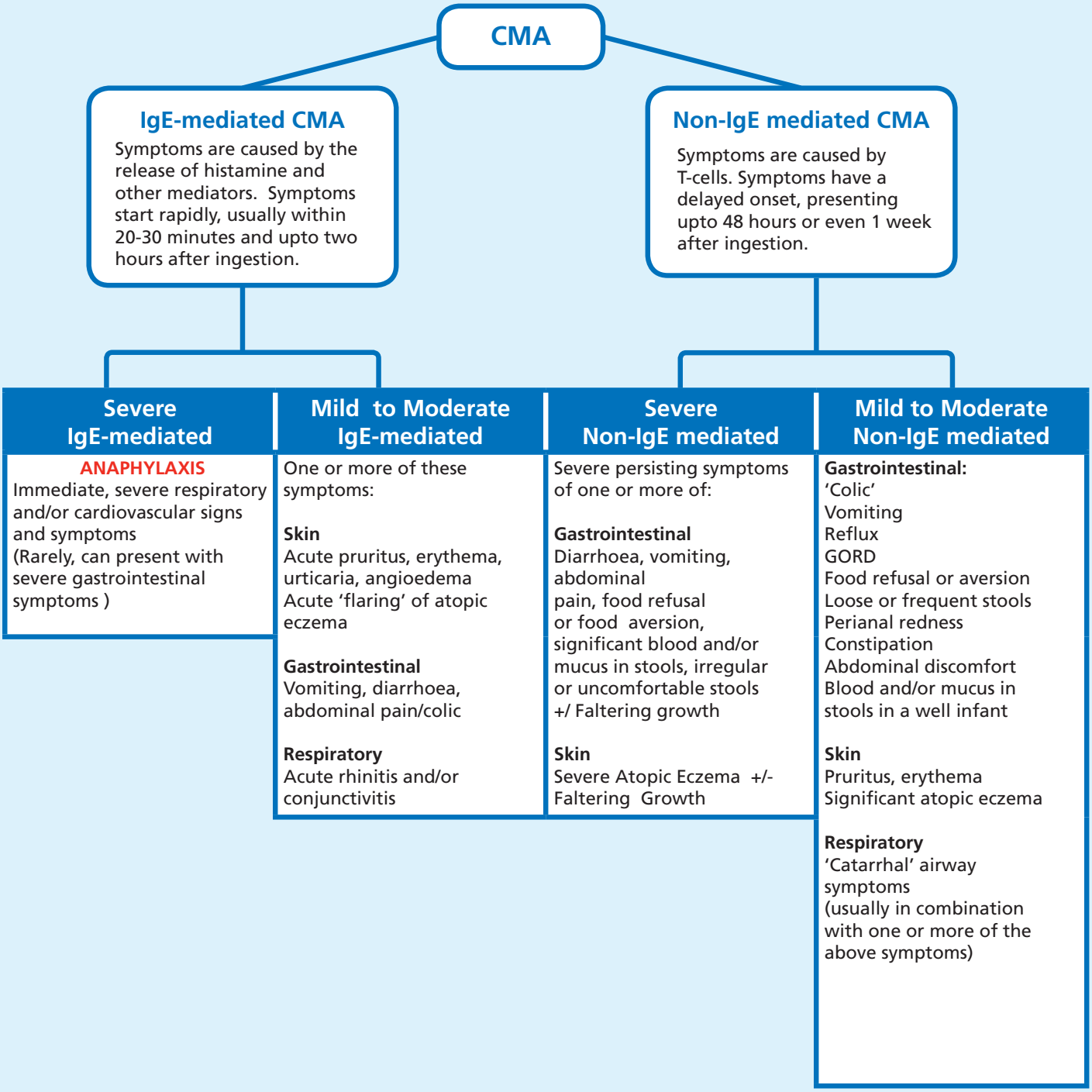
Most babies with reflux do not need any treatment at all. The doctor will check your baby's growth and check for any complications of reflux. They may suggest treatment including thickeners, medications to coat the stomach lining and to reduce acid production. Treatment can usually be stopped by one year of age.

Cow's milk allergy

What is it?

Cows' milk allergy (CMA) is an immune-mediated response to components in cow's milk.
2 -3 % of 1-2 year old children have proven CMA.
Prevalence is higher (7%) in formula or mixed-fed (breast and formula-fed) infants and lower (0.5%) in exclusively breastfed infants.
Children with asthma, eczema and a family history of atopy are at higher risk of developing CMA.

There are 4 clinical types of CMA:



Cows' milk allergy

What should I do?

Undertake an allergy focused history and examination, to classify into one of the 4 clinical types of CMA (See Flow chart on Page 7).

A) HISTORY:

- The age of the child when symptoms first started.
- Who has raised the concern about the suspected food allergy, and what the suspected allergen is.
- Setting of reaction (for example at school or home).
- What food, and how much exposure to it, causes a reaction.
- Speed of onset of symptoms, duration of symptoms, severity of reaction, and frequency.
- Details of any previous treatment, including medication such as antihistamines, and the response.
- Any response to the elimination and reintroduction of foods.
- Reproducibility of symptoms on repeated exposure.
- The child's feeding history, including the age at which they were weaned and whether they were breastfed or formula fed. If the child is currently being breastfed, ask about the mother's diet.
- Details of any foods that are avoided and the reasons why.
- Cultural and religious factors that affect the foods eaten.
- Any history of atopic disease (asthma, eczema, or allergic rhinitis) or food allergy.
- Any family history of atopic disease or food allergy in parents or siblings.

B) EXAMINATION:

- Plot height and weight to identify faltering growth.
- Examine for signs of co-morbidities such as asthma, eczema, chronic constipation.

C) MANAGEMENT

1. **IgE-mediated (Mild to moderate and Severe) CMA:**
   - Refer to secondary care. (More than half of children with IgE-mediated CMA outgrow it by 5 years of age)

2. **Non-IgE mediated CMA (Severe):**
   - Refer to secondary care

3. **Non-IgE mediated CMA (Mild to Moderate):**

- Can be managed in primary care with a balanced dietary elimination under community paediatric dietician supervision.
- Completely exclude cows' milk from the child's diet (or mother's diet if the child is breastfed) for 4 to 6 weeks. (See Page 8 for details of Substitute milks which can be used)
- If symptoms resolve, reintroduce cows' milk: a recurrence of symptoms will help to confirm the diagnosis.
- Continue the dairy elimination diet for a minimum of 6 months, or until the child is 9–12 months old.
- Assess the child every 6 to 12 months to evaluate whether they have developed tolerance, in which case, cows' milk protein is gradually reintroduced.
- Most children with non-IgE-mediated cows' milk allergy will be milk tolerant by 3 years of age.

When should I refer?

1. All children with IgE-mediated CMA
2. All children with Non-IgE mediated (Severe) CMA
3. Faltering growth
4. Any acute systemic reaction
5. Any severe delayed reaction
6. Suspicion of multiple food allergies
7. Severe eczema potentially worsened by food allergies
8. Parental concerns of food allergy despite a lack of supporting history
9. Symptoms not improving despite strict adherence to the elimination diet

Suspected Cow's Milk Allergy (CMA) in the 1st Year of Life

Mild to Moderate Non-IgE mediated CMA 'Delayed' Onset Symptoms

Mostly 2-72 hrs. a/er inges4on of CMP Formula fed, exclusively breast fed or at onset of mixed feeding
One, or often, more than one of these symptoms:

Gastrointestinal
'Colic'
Vomiting - 'Reflux' - GORD
Food refusal or aversion
Loose or frequent stools
Perianal redness
Constipation
Abdominal discomfort, Blood and/or mucus in stools in an otherwise well infant

Skin
Pruritus, erythema
Significant atopic eczema

Respiratory
'Catarrhal' airway symptoms
(usually in combination with one or more of the above symptoms)

Can be managed in Primary Care
See Management Algorithm

Severe Non-IgE mediated CMA 'Delayed' Onset Symptoms

Mostly 2-72 hrs. after ingestion of CMP Formula fed, exclusively breast fed or at onset of mixed feeding

Severe persisting symptoms of one or more of:

Gastrointestinal
Diarrhoea, vomiting, abdominal pain, food refusal or food aversion, significant blood and/or mucus in stools, irregular or uncomfortable stools.
+/- Faltering growth

Skin
Severe Atopic Eczema +/-
Faltering Growth

Severe IgE-mediated CMA ANAPHYLAXIS

Immediate reaction with severe respiratory and/or CVS signs and symptoms. (Rarely a severe gastrointestinal presentation)

Emergency Treatment and Admission

Cow's Milk Free Diet
Amino Acid Formula AAF
Advise breast feeding mother to exclude all CMP from her own diet and to take daily Calcium (1000mg) and Vitamin D (10mcg) supplements

Ensure:
Urgent referral to a paediatrician with an interest in allergy
Urgent dietetic referral

Mild to Moderate IgE-mediated CMA 'Acute' Onset Symptoms

Mostly within minutes of ingestion of CMP
Mostly formula fed or at onset of mixed feeding

One or more of these symptoms:

Skin
Acute pruritus, erythema, urticaria, angioedema
Acute 'flaring' of atopic eczema

Gastrointestinal
Vomiting, diarrhoea, abdominal pain/colic

Respiratory
Acute rhinitis and/or conjunctivitis

Cow's Milk Free Diet
Extensively Hydrolysed Formula - eHF
(Initial choice, but some infants may then need an **Amino Acid Formula - AAF** trial if not settling)

Advise breast feeding mother to exclude all CMP from her own diet and to take daily Calcium (1000mg) and Vit D (10mcg) supplements IgE testing needed.

If diagnosis confirmed (which may require a Supervised Challenge) – Follow--up with serial IgE testing and later planned and Supervised Challenge to test for acquired tolerance

Dietetic referral required

If competencies to arrange and interpret testing are not in place - early referral to a paediatrician with an interest in allergy - advised

Primary Care Management of Mild to Moderate Non-IgE CMA

(No initial IgE Skin Prick Tests or Serum Specific IgE Assays necessary)

Exclusively Breast-Fed

Strict Exclusion of cow's milk containing foods from Maternal Diet
Maternal supplements of Calcium (1000mg) and Vitamin D (10mcg) daily
Refer to dietitian
If CMA - most symptoms will settle well within the agreed 2-4 week Elimination Diet

No Improvement — **Improvement - need to confirm Diagnosis**

CMA still suspected:
Need to consider other maternal foods e.g. egg
Refer to a paediatrician with an interest in allergy

CMA no longer suspected:
Return to usual maternal diet
Consider referral to general paediatricians if symptoms persist

Home Challenge: Mum to revert to normal diet containing cow's milk containing foods over period of one week (to be done between 2-4 weeks of starting Elimination Diet)

No return of Symptoms: NOT CMA

Symptoms return

Symptoms do not settle

Exclude cow's milk containing foods from maternal diet again.
If symptoms settle: CMA NOW CONFIRMED
If top-up formula feeds needed: Use an **AAF**

Formula-Fed or 'Mixed Feeding' (Breast and Formula)

Strict Cow's Milk Protein free Diet

Formula-fed - Trial of an **Extensively Hydrolysed Formula (eHF)** in infant
Mixed feeding - Trial of a cow's milk free Maternal Diet
With **eHF** top-ups for infant if needed
Refer to dietitian
If CMA - most symptoms will settle well within the agreed 2-4 week Elimination Diet

Improvement - need to confirm Diagnosis — **No Improvement**

Perform Home Challenge using cow's milk formula
(to be done between 2-4 weeks of starting Elimination Diet)

Symptoms return

No return of Symptoms: NOT CMA

Return to the **eHF** again.
If symptoms settle: CMA NOW CONFIRMED

Symptoms do not settle

CMA still suspected:
Refer to a paediatrician with an interest in allergy
Consider a trial of **AAF**

CMA no longer suspected:
Unrestricted diet again
Consider referral to general paediatricians if symptoms persist

Cow's milk free diet until 9-12 months of age and for at least 6 months – with support of dietitian
A planned Reintroduction or Supervised Challenge is then needed to determine if tolerance has been achieved
Performing a Reintroduction vs. a Supervised Challenge is dependent on the answer to the question:
Does the child have **Current Eczema** or **ANY history at ANY time of acute onset symptoms ?**

No Current Eczema
And no history at any stage of acute onset symptoms
(No need to check Serum Specific IgE or perform Skin Prick Test)
Reintroduction at Home – using a MILK LADDER
To test for Tolerance

Current Eczema
Check Serum Specific IgE or Skin Prick Test to cow's milk
Negative **Positive**

History of acute onset symptoms at any time
Serum Specific IgE or Skin Prick Test needed
Negative — Liaise with local Allergy Service Re: Challenge
Positive (or tests not available)

And still no history at any stage of acute onset symptoms
Reintroduction at Home - using a MILK LADDER
To test for Tolerance

Refer to a paediatrician with an interest in allergy
(A **Supervised Challenge** may be needed)

Cow's milk allergy

Practice points

Differential diagnoses:

- Lactose intolerance
- Coeliac disease
- Other food allergies

Investigations:

- No investigations are routinely indicated in Non-IgE mediated (mild and moderate) CMA.
- A diagnostic withdrawal diet is the gold standard test in Non-IgE mediated CMA.
- Ensure the family understand that re-exposure after the initial exclusion trial is crucial, to rule out false-positive responses.

Substitute milks to replace cow's milk: (Refer to APC formulary)

A. Children below 6 months of age:

- **Breast milk:** is suitable for almost all children with IgE-mediated (Immediate) CMA and most children with non-IgE mediated (delayed) CMA.
  If the child is symptomatic on breast feeding, most will respond to mother adopting a cow's milk-free diet. (symptoms may take up to four weeks to improve, after mother goes on the elimination diet).
- **Extensively hydrolysed milk formulas (EHFs):** will be effective for almost all children with IgE-mediated (Immediate) CMA and around 90% of children with non-IgE mediated (delayed) CMA.
- **Amino Acid Formulas (AAFs):** will be effective for all forms of milk allergy; but are more expensive and less palatable.

B. Children over 6 months of age

- Soya formula: can be given after six months; but 10-20% of children with milk allergy will be cross-reactive to soya milk. It is not therefore an adequate choice for a diagnostic withdrawal diet.
- Other mammalian milks (goats, sheep, etc): have high rates of cross-reactivity in milk allergy and are best avoided.
- Rice milk: is nutritionally worthless and should be avoided.
- Other vegetable 'milks' (oat, hemp, coconut, almond): are nutritionally inadequate as staple foods. (However, they may have value in cooking family meals, as EHFs and AAFs will render food unpalatable to most adults).

Resources:

- MAP guideline (Milk Allergy in Primary Care) at cowsmilkallergyguidelines.co.uk
- BSACI milk allergy guideline at http://www.bsaci.org/Guidelines/paediatric-guidelines
- www.allergyuk.org: is a patient-orientated website with good resources about allergies in general.
- www.anaphylaxis.org.uk: is specifically aimed at families at risk of severe IgE-mediated (Immediate) allergies.
- British Dietetic Association https://www.bda.uk.com/foodfacts/Allergy.pdf

Lactose intolerance

What is it?

Lactose intolerance is a condition arising from the deficiency of the enzyme lactase, which is required for the digestion of lactose; a disaccharide found exclusively in mammalian milk.

Symptoms: Bloating, flatulence, abdominal pain, nausea and loose stools.

Three types:

- Congenital lactose intolerance: is an extremely rare, autosomal recessive disorder resulting from a complete absence of lactase enzyme. Affects infants in the first days - weeks of life and presents with severe diarrhoea, feeding difficulties and growth faltering.
- Primary lactose intolerance: is an autosomal recessive condition where there is a lack of persistence of lactase after weaning age.This has a higher prevalence in Asian and Afro-Caribbean ethnic groups. It typically presents over the age of five years in Caucasians, but earlier in Asian and Afro-Caribbean children.
- Secondary lactose intolerance: This is the most common type in the UK and is due to transient small intestinal vilous damage classically following an episode of gastroenteritis. Improves after a few weeks to 3 months.

What should I do?

- Congenital lactose intolerance: Refer to secondary care
- Primary and Secondary lactose intolerance:
  - Children who are systemically well and have mild-moderate symptoms do not usually require any investigations. If the diagnosis is in doubt, send a fresh, liquid stool sample which will demonstrate the presence of faecal reducing substances.
  - Introduce a lactose-free diet. If breast fed, continue - may benefit from lactase substitute drops to digest the lactose in breast milk *(see Birmingham Community Dietetics link in Resources section below).*
  - If bottle fed, use a lactose free formula (SMA LF, Aptamil Lactose free). Symptoms should improve within 48 hours.
  - Reintroduce normal diet after 2 months. If symptoms recur and a long-term lactose free diet is required, refer to a community paediatric dietician.

Practice point: Lactose intolerance should be distinguished from Non-IgE mediated (delayed) cow's milk allergy as below:

	Non-IgE-mediated milk allergy	Lactose intolerance
Mechanism	Immune reaction to milk protein	Non-immune, deficiency of lactase enzyme
Symptoms	Gastrointestinal, skin, or respiratory symptoms -Abdominal pain, diarrhoea, eczema, wheeze can all co-exist	Gastro intestinal symptoms only - Abdominal pain, flatulence, diarrhoea
Management	Exclusion diet avoiding milk protein followed by reintroduction. May take 4–6 weeks after elimination diet, for symptoms to improve. Condition usually resolves by 6 months to a few years.	Exclusion diet avoiding lactose, followed by reintroduction. Symptoms usually improve within 48 hours of elimination diet Condition usually resolves by 6 weeks

When should I refer?

- Severe diarrhoea
- Faltering growth
- Symptoms do not improve with lactose-free diet

Resources:

Link: Bham Community

Colic

What is it?

- Infantile colic is a self-limiting condition, characterised by repeated episodes of excessive and inconsolable crying, lasting more than 3 hours per day, occurring more than 3 days per week, in an otherwise healthy infant.
- The aetiology is thought to be a combination of abnormal gastrointestinal motility, changes in intestinal microflora and psychosocial factors.
- Symptoms usually start as early as week one of life and typically persist until the third or fourth month.
- Features include crying in the late afternoon and early evening, drawing up of knees and arching of the back.

What should I do?

A) HISTORY:

Evaluate the crying episodes, feeding, sleeping and bowel patterns, any features to suggest gastrooesophageal reflux disease and cow's milk allergy. (see relevant sections in this document)

B) EXAMINATION:

Evaluate growth, appropriateness of clothing to maintain optimum body temperature, any oral pathology causing feeding problems, corneal abrasion from baby's finger nails and any signs of serious pathology including sepsis and child abuse.

C) MANAGEMENT:

- Reassure carers that infantile colic is a common and benign problem that should resolve by 4 months of age.
- Advice on identifying symptoms which may suggest a more serious underlying cause.
- Advice to parents on responses to crying, coping strategies and support available.
- Advice on feeding, including positioning, fast-flow teats, ensuring optimal winding techniques and soothing strategies such as holding, rocking, or bathing the infant.
- Identify and manage parental anxiety and post-natal depression, if identified.
- There is insufficient good-quality evidence for: use of Simeticone (Infacol) or lactase (Colief) drops, changing the milk formula or diet modification of breastfeeding mothers.
- Support from health visitor and breast-feeding advisor, as required.
- Signpost to support groups such as Cry-sis (www.cry-sis.org.uk), which runs a national telephone helpline (0845 122 8669)

When should I refer?

- When there is a suspected alternative underlying cause for the symptoms
- Infant is not thriving
- Symptoms are not starting to improve or are worsening after 4 months of age.
- Parents/carers feel unable to cope with the infant's symptoms despite reassurance and advice in primary care.

RED FLAGS:

Persistent vomiting:
Gastro oesophageal reflux disease, Pyloric stenosis

Bilious vomiting:
Surgical causes like malrotation, volvulus

Fever, lethargy, sleepiness, fits:
Sepsis, Meningitis, Non-accidental injury,
Seizure disorder

Weight loss/poor weight gain:
Feeding problems, underlying systemic illness.

Parent Information leaflet - Colic

What is colic?

Colic is excessive, frequent crying in a baby who otherwise appears to be healthy. It is a common problem that affects upto one in five babies. Colic tends to begin when a baby is a few weeks old and usually stops by four months of age. The cause of colic is suggested to be indigestion, trapped wind, or a temporary gut sensitivity to breast and formula milk. Colic occurs equally in boys and girls, and in babies who are breastfed or bottle-fed.

Features:

- intense crying bouts that can last several hours
- crying in the late afternoon or evening
- your baby's face being red and flushed, when they cry
- your baby clenching their fists, drawing their knees up to their tummy, or arching their back while crying

What can I do?

While there is no proven remedy for colic, there are several measures that may help:

- holding your baby during a crying episode
- preventing your baby swallowing air by sitting or holding them upright during feeding
- burping your baby after feeds
- gently rocking your baby over your shoulder
- bathing your baby in a warm bath
- gently massaging your baby's tummy

Remember that although your baby appears to be in distress, the crying outbursts are not harmful, and your baby will continue to grow and develop normally.

Do I need to see my GP?

See your GP if you are concerned about your baby, or if nothing seems to be working and you are struggling to cope.

Get medical help immediately if your baby:

- has a weak, high-pitched, or continuous cry
- seems floppy when you pick them up
- is not feeding
- vomits bile (green or greenish-yellow fluid)
- has blood in their poo
- has a fever
- has a bulging fontanelle (the soft spot at the top of a baby's head)
- has a fit (seizure)
- turns blue, blotchy, or very pale
- has breathing problems, such as breathing quickly or grunting while breathing

Key points to remember:

- Caring for a baby with colic can be very difficult for parents, particularly first-time parents.
- It is important to remember that:
  - › your baby's colic is not your fault – it doesn't mean your baby is unwell, you are doing something wrong, or your baby is rejecting you.
  - › your baby will get better eventually – colic normally improves by four months of age.
  - › you should look after your own wellbeing – if possible, ask friends and family for support as it's important to take regular breaks and get enough rest.
  - › Support groups, such as Cry-sis (www.cry-sis.org.uk), can also offer help and advice if you need it. You can contact their helpline for advice on 0845 122 8669 (9am-10pm, seven days a week).

Faltering growth

What is it?

Faltering growth in children is defined as a slower rate of weight gain than expected for their age and gender.

NICE recommended thresholds for concern about faltering growth (using UK WHO growth charts) are:

- a fall across 1 or more weight centile spaces, if birthweight was below the 9th centile
- a fall across 2 or more weight centile spaces, if birthweight was between the 9th and 91st centiles
- a fall across 3 or more weight centile spaces, if birthweight was above the 91st centile
- current weight is below the 2nd centile for age, regardless of the birthweight.

Causes:

Inadequate intake or calorie loss	Malabsorption or Poor absorption	Increased metabolic demands	Inherited causes
• Inadequate nutrition (breastmilk, formula and/or food) • Restricted diet (e.g. low fat, vegan) • Structural causes affecting feeding eg. cleft palate • Persistent vomiting • Severe gastro-oesophageal reflux • Delayed introduction of solids • Psychosocial: poverty/parenting ability/neglect	• Coeliac disease • Chronic liver disease • Cystic fibrosis • Chronic diarrhoea • Cow's milk protein intolerance • Lactose intolerance	• Chronic illnesses • Chronic respiratory disease like Cystic fibrosis • Chronic renal disease • Congenital heart disease • Diabetes Mellitus • Hyperthyroidism	• Genetic syndromes • Inborn errors of metabolism

Faltering growth

What should I do?

A) HISTORY:

- Dietary history to assess adequacy of calorie intake.
- Information on breast feeding, formula feeding, weaning foods and meal time routines.
- History of vomiting, diarrhoea, symptoms of food intolerance, gastro-oesophageal reflux disease and systemic illnesses which result in calorie loss.

B) EXAMINATION:

- Plot height and weight on appropriate growth charts. (Remember that weighing children very frequently causes unnecessary anxiety).
- Look for signs of chronic illnesses such as coeliac disease (protuberant abdomen, muscle wasting), respiratory disease (clubbing, moist cough) and cardiac pathology (cyanosis, tachypnoea, hepatomegaly).

C) INVESTIGATIONS:

- Investigations are guided by history and examination findings.
- First line investigations for a child where there are no pointers towards a specific diagnosis:
  - Full blood count
  - Renal function tests
  - Liver function tests
  - Coeliac screen
  - Thyroid function
  - Blood glucose
  - Urine for microscopy and culture

D) MANAGEMENT:

- Refer to a community paediatric dietician for nutritional management *(See Birmingham Community link in Resource section below)*
- Identify and treat any underlying cause

When should I refer?

- Failure to gain weight despite adequate calorie intake/other interventions in primary care
- Symptoms or signs that indicate an underlying disorder
- Slow linear growth or unexplained short stature
- Rapid weight loss or severe under-nutrition
- Features that cause safeguarding concerns

When to consider safeguarding?

- The infant or child fails to gain weight and the parent is not engaging/is hostile to professional concerns
- Fabricated and Induced Illness concerns
- Learning difficulties in parents
- Parental mental health issues
- Exhibits risky behaviours (exposure to domestic violence, substance misuse, alcoholism)
- The infant has a chronic illness or disability and the parent is not co-operative with medical treatment

Resources:

- Faltering growth: recognition and management of faltering growth in children. NICE guideline [NG75] September 2017
- http://www.bhamcommunity.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=28980
- http://www.bhamcommunity.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=28957

Food allergy

What is it?

Food allergy is common, affecting 2-4% of the paediatric population.

Types: IgE-mediated (Immediate) and Non-IgE-mediated (Delayed) food allergy.

1) IgE-mediated (Immediate):

- Affects 3-6% of children.
- The most common triggers are milk, egg, peanuts, tree nuts, sesame, kiwi fruit, fish, shellfish, wheat and soy.
- Other common triggers in the UK are mustard, celery and lentils.
- Symptoms start within minutes - 1 hour.
  - Mild to moderate reactions: Urticaria/angioedema, pruritus, vomiting, abdominal pain, tingling of lips, tongue and throat, rhinitis and conjunctivitis
  - Severe reactions: Anaphylaxis - Hypotension, stridor, shortness of breath/severe wheeze, circulatory collapse

2) Non IgE-mediated (Delayed):

- Symptoms arise more than an hour (hours – 3 days), after exposure to food.
- Predominant symptoms are eczema and GI dysfunction.
- The most common delayed onset food allergy in children is cow's milk allergy (See page 5).

Systemic symptoms	Cutaneous symptoms	Respiratory symptoms	Gastrointestinal symptoms	Feeding symptoms
Pallor Sweating Irritability Hypotension Collapse	Dryness Eczema Erythema Urticarial Angioedema	Cough Rhinitis Conjunctivitis Wheeze Stridor	Reflux Vomiting Colic Bloating Diarrhoea Constipation	Fussiness Food Refusal Distress During Feeds Pallor Sweating

Remember to consider food allergy as a contributory/causative factor if children with the following conditions do not respond adequately to treatment:

- atopic eczema
- gastro-oesophageal reflux disease
- chronic gastrointestinal symptoms, including chronic constipation.

Idiopathic urticaria: might not be allergic in nature!

Recurrent urticaria and angioedema arising with no history of exposure to a suspected allergen, particularly if persisting for days or weeks, are unlikely to be allergic in nature. Idiopathic urticaria may be triggered by minor infections (teeth/gums/ nails, etc), thyroid disease, vitamin deficiencies and anaemia.

See http://www.bsaci.org/guidelines/chronic- urticaria-and-angioedema for more details.

Food allergy

What should I do?

Undertake an an allergy-focused history and examination to distinguish Ibetween the 4 clinical types of food allergy (see flow chart on Page 15).

A) HISTORY:

- an assessment of presenting symptoms, including
  - the age of the child or young person when symptoms first started
  - speed of onset of symptoms following food contact
  - duration of symptoms
  - severity of reaction
  - frequency of occurrence
  - setting of reaction (for example, at school or home)
  - reproducibility of symptoms on repeated exposure
  - what food and how much exposure to it causes a reaction
- what the suspected allergen is
- the child or young person's feeding history, weaning, whether they were breastfed or formula-fed – if the child is currently being breastfed, consider the mother's diet
- details of any foods that are avoided and the reasons why
- details of any previous treatment, including medication.
- any response to the elimination and reintroduction of foods.
- cultural and religious factors that affect the foods they eat
- any personal history of atopic disease (asthma, eczema or allergic rhinitis)
- any individual and family history of atopic disease or food allergy in parents or siblings

B) EXAMINATION:

- Monitor growth
- Assess for signs of allergy-related comorbidities (atopic eczema, asthma and allergic rhinitis).

C) MANAGEMENT:

1. IgE-mediated (Mild to Moderate and Severe) food allergy:

- Refer to secondary care

2. Non-IgE mediated (Severe) food allergy:

- Refer to secondary care

3. Non-IgE mediated (Mild to Moderate) food allergy:

- Can be managed in primary care.
- A trial elimination of the suspected food allergen for 6 weeks, followed by reintroduction, with community paediatric dietician input.

When should I refer?

- IgE-mediated (Mild to Moderate and Severe) food allergy
- Non-IgE mediated (Severe) food allergy
- Any child who has had an episode of anaphylaxis
- Confirmed IgE-mediated food allergy and concurrent asthma
- Significant atopic eczema
- Persisting parental suspicion of food allergy despite a lack of supporting history
- Strong clinical suspicion of IgE-mediated food allergy, but allergy test results are negative
- Clinical suspicion of multiple food allergies.

Resources

- www.allergyuk.org: is a patient-orientated website with good resources about allergies.
- www.anaphylaxis.org.uk: is specifically aimed at families at risk of severe IgE-mediated allergies.
- NICE guideline on food allergy in under-19s: https://www.nice.org.uk/guidance/cg116
- RCPCH allergy pathway for food allergy: http://www.rcpch.ac.uk/allergy/foodallergy
- British Dietetic Association https://www.bda.uk.com/foodfacts/Allergy.pdf

Constipation

What is it?

Constipation is the inability to pass stools regularly or empty the bowels completely.
It is referred to as idiopathic, if there are no underlying anatomical or physiological abnormalities.
The prevalence of idiopathic constipation is 5%- 30%.
Factors which contribute to idiopathic constipation include inadequate dietary fibre and fluid intake, toileting habits and psychological factors.

What should I do?

History: Rome IV Diagnostic criteria for functional constipation:
In children upto 4 years of age: Must include 2 or more criteria for at least 1 month

1. Less than 2 stools/week
2. History of retentive posturing or excessive volitional stool retention
3. History of painful or hard bowel movements
4. History of large-diameter stools
5. Presence of a large faecal mass in the rectum

In toilet-trained children the following additional criteria may be used:

6. At least 1 episode per week of soiling/incontinence
7. History of large-diameter stools that may obstruct the toilet

History and Examination	Diagnostic features of Idiopathic constipation vs Non-idiopathic constipation	NOT Idiopathic constipation 'Red flag' findings that indicate an underlying condition
Time of onset and potential precipitating factors	Starts after a few weeks of life Obvious precipitating factors: change of diet, timing of potty/toilet training or acute events such as infections, fissure, moving house, starting nursery/school, fears and phobias, major change in family.	Reported from birth or within first few weeks of life
Passage of meconium	Normal (within 48 hours after birth in term baby)	Failure/ delay to pass meconium (more than 48 hours after birth in term baby)
Stool patterns	Fewer than three complete stools per week Hard large stool 'Rabbit droppings' Overflow soiling	'Ribbon stools' (more likely in a child younger than 1 year)
Growth and wellbeing	Generally well, weight and height within normal limits, normal physical activity	Growth faltering, tiredness, frequent falling
Diet and fluid intake	History of poor diet and/or insufficient fluid intake	Vomiting
Inspection of perianal area	Normal appearance of anus and surrounding area	Abnormal appearance/position/patency of anus: fistulae, bruising, multiple fissures, tight or patulous anus, anteriorly placed anus, absent anal wink
Abdominal examination	Soft, non-distended abdomen.	Gross abdominal distension
Spine/lumbosacral region/gluteal examination	Normal appearance of the skin and anatomical structures of lumbosacral/gluteal regions	Abnormal: asymmetry or flattening of the gluteal muscles, evidence of sacral agenesis, discoloured skin, naevi or sinus, hairy patch, lipoma, central pit (dimple that you can't see the bottom of), scoliosis
Lower limb neurology	Normal gait, normal tone, power and reflexes in lower limbs,	Deformity in lower limbs such as talipes Abnormal neuromuscular signs unexplained by co-existing conditions like cerebral palsy

Constipation

C) INVESTIGATIONS: not routinely indicated.

- Coeliac screen and thyroid function tests: In refractory constipation, not responsive to medical management.
- X ray abdomen and Ultrasound abdomen are not indicated in idiopathic constipation.

D) MANAGEMENT:

- 3 key interventions are:
  - Laxatives
  - Dietary optimisation of fibre and fluid intake *(see Birmingham Community dietetics link below)*
  - Behavioural interventions including scheduled toileting and use of rewards systems.
- Provide tailored follow-up, verbal and written information and signposting to **www.eric.org.uk.**
- Early diagnosis and treatment are important to prevent chronic constipation with continence problems (including soiling), which can have a significant emotional impact on children and young people and carers.

LAXATIVE TREATMENT:

A) <u>MAINTENANCE REGIME:</u> is used in children without faecal loading or soiling and after successful disimpaction

1) First-line treatment: Macrogols (Movicol)

(Substitute with a stimulant laxative (Senna or Sodium Picosulfate or Docusate) if Macrogol is not tolerated)

2) Second line treatment: Add a stimulant laxative (Senna or Sodium Picosulfate or Docusate).

3) Third line treatment: Add another osmotic laxative such as lactulose

Continue medication at maintenance dose for several weeks after regular bowel habit is established. Do not stop medication abruptly: gradually reduce the dose over a period of months in response to stool consistency and frequency. Some children may require laxative therapy for several years. Reassure parents and carers that laxatives do not lead to a 'lazy' bowel. Children who are toilet training should remain on laxatives until toilet training is well established.

B. <u>DISIMPACTION REGIME:</u> is used in Faecal impaction
Movicol or alternative Macrogol

When should I refer?

- Symptoms from birth or first few weeks of life
- Failure/delay to pass meconium (more than 48 hours after birth in a term baby)
- Abnormal perianal examination
- Abnormal lower limb neurology
- Abnormal lumbo-sacral spine examination
- Severe abdominal distension
- Faltering growth
- Lower limb weakness or motor delay
- Significant concern about a possible underlying cause such as coeliac disease
- Infant under 1 year failing to respond to treatment within 1 month*
- Children over 1 year failing to respond after 3 months of treatment*
- Failure to respond after 2 weeks of disimpaction treatment*

*** poor compliance is the most common reason for treatment failure**

Resources:

- NICE Clinical guideline updated July 2017: Constipation in children and young people: diagnosis and management (CG99)
- www.eric.org.uk: excellent resource for parents and young people
- www.bhamcommunity.nhs.uk/patients-public/adults/nutrition/links-and-resources/#paediatric-leaflets

Abdominal pain in children (Non-acute)

What is it?

Abdominal pain is a common symptom and can be caused by a wide range of surgical and non- surgical conditions. An underlying cause will be found only in a small proportion of children, and a significant number of children will be diagnosed to have non-specific abdominal pain.

A. Common causes:

1. Constipation

- Crampy abdominal pain, often relieved by opening bowels
- Faecal mass or palpable bowel loop with soft stool
- History of reduced stool frequency, hard stools, soiling and straining

2. Non-specific abdominal pain / Functional abdominal pain

- 3 or more episodes of abdominal pain
- Symptoms of more than 3 months duration
- Child older than 3 years of age
- Symptoms affecting daily activities like schooling and play
- Child is active and thriving

B. Less common causes

- Coeliac disease
- Food intolerance (Lactose intolerance)
- Irritable bowel syndrome (usually above 10 years of age)
- Gastro-oesophageal reflux disease
- Gynaecological causes: pelvic inflammatory disease, endometriosis, polycystic ovaries, simple ovarian cyst
- Helicobacter pylori related or NSAID induced gastritis
- Psychological: school phobia or bullying
- Child abuse

What should I do?

Parents are often worried that there may be a sinister underlying cause and should be reassured that this is extremely unlikely in the absence of additional worrying symptoms.

- History and examination to establish cause
- Reassurance and education about functional abdominal pain
- Management of constipation (see page 16)
- Investigations (only if indicated by history and examination):
  - Coeliac screen, FBC, CRP, LFT, Amylase
  - Stool sample for H. Pylori (fresh sample)
  - Ultrasound abdomen
- Consider psychology input, in discussion with child and carers.

When should I refer?

- Recent weight loss or faltering growth
- Fresh blood in stools/melaena
- Persistent diarrhoea
- Vomiting
- Pain waking child from sleep
- Haematemesis
- Jaundice
- Unexplained fever
- Family history of inflammatory bowel disease
- Significant school absences

Chronic diarrhoea

What is it?

Chronic diarrhoea is defined as the daily passage of watery stools for more than 4 weeks.

Common causes	Less common causes
• Infections • Functional gastrointestinal disorders • Food allergies and intolerances • Inflammatory bowel disease	• Immuno-deficiency • Microvillus inclusion disease • Cystic fibrosis • Neoplasms such as neuroblastoma, carcinoid tumour.

COMMON CAUSES:
1. Infections: Viral or bacterial gut infections leading to secondary lactose intolerance is a common cause of chronic diarrhoea. Usually resolves by 6 weeks to 3 months.

2. Functional gastrointestinal disorders: Caused by gut motility problems, with no underlying structural gut pathology. Two common presentations are toddler's diarrhoea and irritable bowel syndrome (IBS).

A. Toddler diarrhoea:

- Presents in the latter part of the first year and may continue till the age of 3 years.
- Food such as peas and carrots may appear unchanged in the stools.
- There is no faltering of growth, and the child is otherwise well.
- The cause is unknown, but there is often gut motility symptoms in members of the family.
- Avoid excess intake of fluid particularly sugar containing squashes
- Increasing fat content in the diet is often helpful.

B. IBS (Irritable Bowel Syndrome):

- Presents in school-age children and adolescents.
- Symptoms are cramping abdominal pain or discomfort, along with changes in bowel habits, such as diarrhoea.
- The pain or discomfort typically gets better with the passage of stool or gas.
- IBS does not cause symptoms such as weight loss, vomiting or blood in stools.
- Possible causes are neurohumoral influence on gut motility, food sensitivity, and hypersensitivity to pain. Psychological problems, such as anxiety and depression, may also play a role.

3. Food Allergy and Intolerance:

A. Food allergy (Immune mediated):

- Cow's milk and soy allergies are the most common food allergies affecting the gut.
- Food allergies usually appear in the first year of life.
- Most children outgrow cow's milk and soy allergies by 3 years of age.
- Allergies to other foods, such as cereals, eggs, or seafood, may also affect the GI tract.
- Symptoms of food allergies include diarrhoea, vomiting, and poor weight gain.

B. Food intolerance (Non-immune mediated): Includes lactose intolerance (see page 9)

C. Coeliac disease: Gluten (protein found in wheat, rye, and barley) induced autoimmune destruction ofof small intestinal villi, causing malabsorption.
Presents at any age with a range of intestinal and extra intestinal symptoms:

- chronic diarrhoea
- abdominal bloating
- abdominal pain
- pale, foul-smelling, or fatty stools
- vomiting
- constipation
- irritability or mood changes
- delayed puberty
- dental enamel defects
- faltering growth
- short stature
- anaemia

4. Inflammatory bowel disease (IBD):

- IBD is classified into Crohn's disease (CD) and Ulcerative colitis (UC).
- Peak onset is in adolescence. Only 4% of children present before 5 years of age and 18% before 10 years of age.
- Presenting symptoms can be
  - Intestinal: Abdominal pain, diarrhoea, rectal bleeding, nausea/vomiting, constipation, perianal disease and mouth ulcers
  - Extra intestinal: 22% of children present with growth failure, anaemia, arthritis, hepatitis, uveitis etc as the only initial feature.

When should I refer?

Consider secondary care referral in all children with chronic diarrhoea (unless clinical assessment suggests secondary lactose intolerance or toddler diarrhoea, where the child is thriving and is systemically well).

Nocturnal enuresis

What is it?

- Nocturnal enuresis or bedwetting is a common symptom in young children.
- Symptoms improve with time, with the prevalence falling from 2 in 10 children bedwetting at 5 years of age to less than 1 in 10 children bedwetting at 16 years of age.

Two types:

- Primary: when the child has never been dry at night.
- Secondary: when the child was previously dry at night for more than 6 months.

Physiological reasons for primary nocturnal enuresis in childhood are:

- High urine production: due to reduced ADH production
- Small bladder capacity
- Deep sleep

What should I do?

A) HISTORY:

- Previously dry
- Any daytime symptoms
- Difficulty passing urine
- Continuous wetting
- Previous urinary infections
- Constipation or soiling
- Family history of enuresis
- Motor delay
- Psychological: Behavioural concerns? Learning difficulties? Emotional wellbeing?
- Consider safeguarding - can be a symptom of abuse

B) EXAMINATION:

- Growth: plot height and weight
- Blood pressure
- Abdomen: features of constipation
- Lumbar spine: features of spina bifida, sacral agenesis and occult spinal dysraphism, including sacral dimple, tuft of hair, naevus, lipoma, asymmetrical gluteal creases.
- Neurologic examination: assessment of motor strength, deep tendon reflexes, perineal sensation, gait, and coordination.
- Genitalia: look for labial adhesions in girls, meatal stenosis in boys and other anatomical abnormalities

C) INVESTIGATIONS:

- Urine analysis
- Renal tract ultrasound

D) MANAGEMENT

General measures:

- Reassure child and carers that majority of children will become asymptomatic over time.
- Increase fluid intake to at least 1.5L per day
- Regular voiding during daytime
- Avoid bladder irritants (tea, coffee, fruit squash, fizzy drinks)
- Avoid drinking 1-2 hours before bedtime
- Lifting to toilet during the night does not help to keep children dry in the long term. (This should be used only as a short-term management strategy. Young people may find self-instigated waking (using a mobile phone alarm or alarm clock) useful).
- Star charts / reward systems
- Identify and treat co-existing constipation
- Signpost to www.eric.org.uk for further information

Nocturnal enuresis

Specific measures:
Choice of initial treatment will depend on the child's age, frequency of bedwetting and the motivation and needs of the child and carers.

1.First line:

- **Pad & Alarm:**
  - Has a high long-term success rate.
  - Assess the response at 4 weeks and continue if there are early signs of response, until a minimum of 2 weeks of uninterrupted dry nights has been achieved.
  - If no signs of good response after 3 months, move to second line treatment.

(Desmopressin can be used as first line, if an alarm is undesirable or inappropriate, or if the priority is to achieve a rapid short-term improvement).

2. Second line: If bedwetting does not respond to initial Pad & Alarm treatment:

- **a. Pad & Alarm and Desmopressin or**
- **b. Desmopressin alone**: if using the alarm is no longer acceptable to the child or carers.
  - Should be taken at bedtime,
  - Fluid restrict 1 hour before until 8 hours after taking desmopressin,
  - Dose can be increased if there is an inadequate response to the starting dose. Continue treatment with desmopressin for 3 months. Repeated courses of desmopressin can be used.

A) Response: Complete response is achieved when the child has had 14 consecutive dry nights or a 90% improvement in the number of wet nights per week. Partial response is common initially, improving with time. Gradually withdraw desmopressin treatment at regular intervals (for 1 week every 3 months) to check if dryness continues and then discontinue treatment.

B) Relapse: If recurrence of bed wetting occurs on discontinuation of treatment, reinitiate the most appropriate intervention above, pad and alarm or desmopressin on their own or in combination.

When should I refer?

- Most children with enuresis do not require referral to a paediatrician.
- Refer to School nurse services or the local paediatric Continence service (where available) if: there is no improvement after 3 months of the above management.
- Refer to a paediatrician if:
  - Abnormal lower limb neurology – suggests spinal pathology
  - Continuous wetting/dribbling – suggests bladder pathology
  - Difficulty passing urine – suggests obstructive problem
  - Severe daytime symptoms
  - Recurrent urinary infections

When to consider safeguarding?

- a child or young person is reported to be deliberately bedwetting.
- parents or carers are seen or reported to punish a child or young person for bedwetting, despite professional advice that the symptom is involuntary.
- a child or young person has secondary daytime or night time wetting that persists despite adequate management and no associated medical cause or clearly identified non-abusive stressful situation.

Resources:

- https://cks.nice.org.uk/bedwetting-enuresis
- www.eric.org.uk: excellent resource for parents and young people

Urinary incontinence

What is it?

Urinary incontinence is defined as day wetting in a child over 5 years of age that occurs more than once per month for more than 3 months. It is common and affects 1 in 7 children aged 4 years and 1 in 20 children aged 9 years. Symptoms can range from damp patches to full wetting in the pants.
Most children do not have an underlying structural or neurological cause.

Most common functional causes include:

- Voiding postponement- habitually delayed urination, with overfilling and leakage.
- Over active bladder (OAB)- urgency being the most important feature.
- Underactive bladder- infrequent urination and overfilling leading to overflow incontinence. A large post-void residual is common.
- Dysfunctional voiding (non-neurogenic)- an inability to relax the urethral sphincter and/or pelvic floor musculature during voiding, resulting in an interrupted urinary flow and prolonged voiding time.

If the child's voiding pattern is otherwise normal, symptoms usually improve when an increased effort is made toward scheduled voiding.

What should I do?

A) HISTORY:

- Details of urinary symptoms - If there has never been a period of dryness, or child has continuous incontinence/dribbling, strongly consider anatomical abnormalities
- Any night time symptoms
- Voiding patterns
- History of constipation

B) EXAMINATION:

- Growth: plot height and weight - Excessive tiredness or loss of weight; consider an underlying chronic illness or renal impairment.
- Blood pressure
- Abdomen: features of constipation
- Lumbar spine: features of spina bifida, sacral agenesis and occult spinal dysraphism, including sacral dimple, tuft of hair, naevus, lipoma, asymmetrical gluteal creases.
- Neurologic examination: assessment of motor strength, deep tendon reflexes, perineal sensation, gait, and coordination.
- Genitalia: look for labial adhesions in girls, meatal stenosis in boys and other anatomical abnormalities

C) INVESTIGATIONS:

- Urine analysis (Urinary tract infections, Diabetes)
- Renal tract ultrasound

D) MANAGEMENT:

1. Behavioural modification: Increase fluid intake to at least 1.5L per day, recommend a drink with each meal and snack, spread over the day, avoid bladder irritants (tea, coffee, fizzy drinks)
2. Identify and treat co-existing Constipation and/or soiling, Urinary tract infection and Enuresis (treat daytime symptoms first for children with combined day-night wetting).
3. Bladder training: timed voiding (voiding every 2-3 hrs while awake), avoidance of holding manoeuvers, optimal voiding posture.
4. Signpost parents to sources of information and support: www.eric.org.uk

When should I refer?

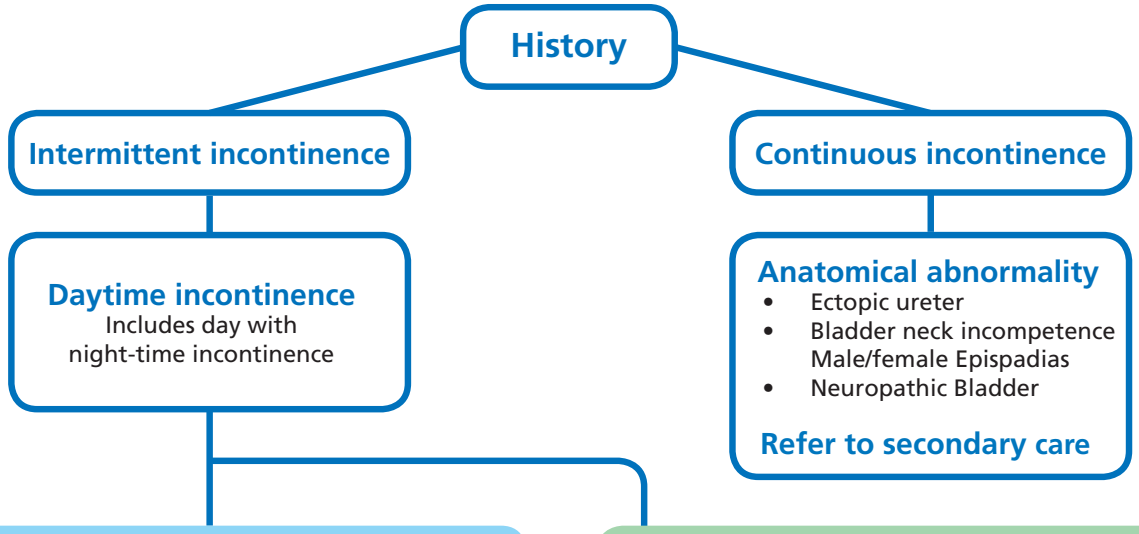
See Flow chart on page 24 for referral criteria.

1. If anatomical abnormality suspected (e.g. continuous wetting)
2. Urine analysis abnormal
3. No improvement after 3 months of conservative management (as above).

Resources:

NICE Quality standard [QS70] Bedwetting in children and young people: Updated Sep 2017

Daytime urinary incontinence



Common causes

OVERACTIVE BLADDER
Due to Detrusor overactivity.
Symptoms: urgency, frequency, urge incontinence, holding behaviours.

What should I do?
- Voiding training: emptying bladder every 2-3 hours when awake
- Oxybutynin

DYSFUNCTIONAL VOIDING

Incomplete bladder emptying due to pelvic floor dysfunction.
Symptoms: urinary incontinence, recurrent urinary tract infections (UTIs), and constipation.

What should I do?
- Voiding training: emptying bladder every 2-3 hours when awake
- Treat urinary infections

UNDERACTIVE BLADDER

Large capacity, poor emptying & sensation
Symptoms: Child voids 3 or fewer times in 24 hours or does not void for 12 hours. Often do not void first thing in the morning. Voiding may be accomplished by abdominal straining Association with UTIs and constipation.

What should I do?
- Voiding training: emptying bladder every 2-3 hours when awake
- Aggressive treatment of constipation

Refer to paediatric continence service / secondary care if not improving in 3 months.

Less common causes

OUTFLOW OBSTRUCTION

Symptoms: Straining, dribbling, weak stream

What should I do?

Refer to secondary care

GIGGLE INCONTINENCE:

Symptoms: involuntary complete bladder emptying while laughing. Symptoms appear at 5-7 years of age, and usually improves or disappears with age.

What should I do?

Refer to paediatric continence service if symptoms not improving with age

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LABIAL ADHESIONS:

Symptoms: cause daytime wetting as a result of the pooling of urine in the vagina.

What should I do?

Treatment of labial adhesions with topical oestrogen, if significant voiding symptoms

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VAGINAL REFLUX

Symptoms: Post-micturition wetting

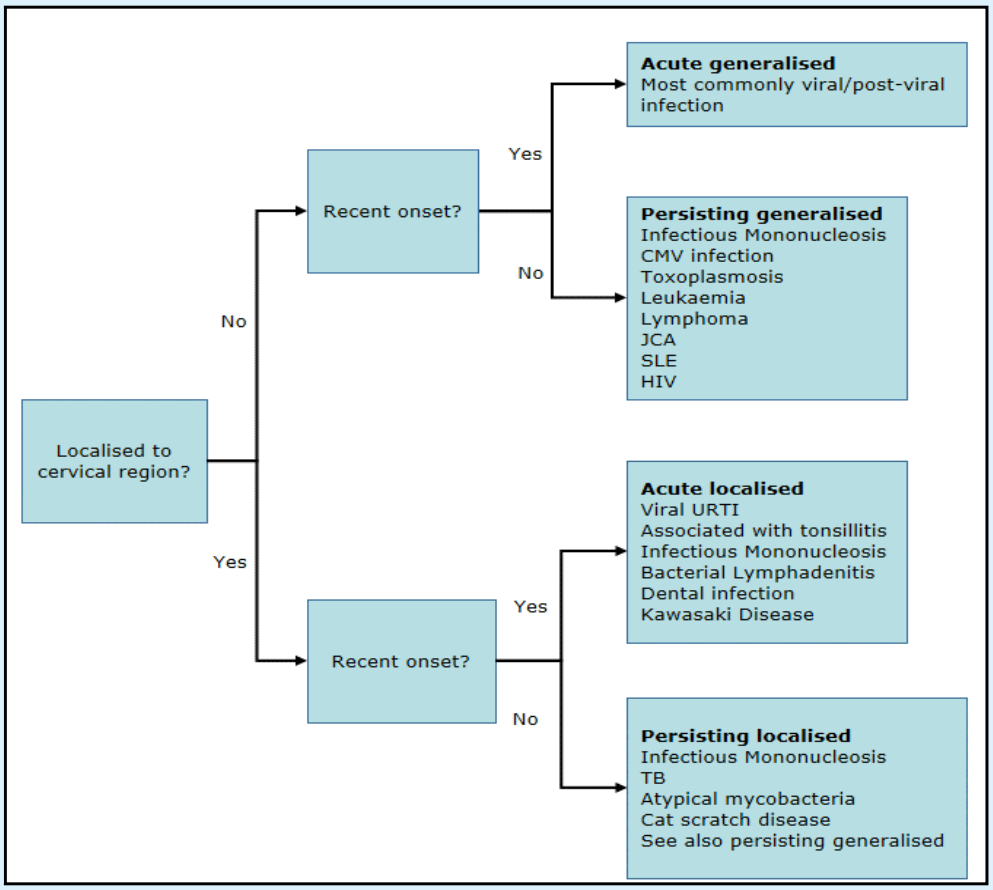
What should I do?

Techniques to aid complete bladder emptying - sitting on toilet back to front with wide stance & cough at the end of voiding.

Cervical lymphadenopathy

What is it?

- Cervical lymphadenopathy is seen very frequently in childhood.
- The commonest cause is reactive lymph node enlargement following upper respiratory infections or eczema.
- Tuberculosis, atypical mycobacterium infections, cat scratch disease, leukaemia and lymphoma are less common causes of persistent cervical lymphadenopathy.



What should I do?

A) HISTORY

Concerning features: include persistent fever, weight loss, night sweats, lethargy, easy bruising. Enquire about contact with tuberculosis.

B) EXAMINATION

Cervical lymph nodes which are mobile, tender and < 1.5 cm in size with no concerning history or examination, is likely to be reactive lymphadenopathy.

concerning features: Generalised lymphadenopathy, hepatosplenomegaly, weight loss.

C) INVESTIGATIONS

If no concerns on history and examination, investigations are not necessary. Full blood count and blood film can be undertaken if any clinical concerns.

When should I refer?

- Cervical lymph nodes which are non-tender, firm/hard, immobile, persistent and > 2 cm in size.
- Progressive increase in size of lymph nodes
- Axillary or supraclavicular lymph node enlargement
- History of persistent fever, weight loss, night sweats, lethargy and easy bruising
- Generalised lymphadenopathy
- Hepatosplenomegaly

Chronic headache

What is it?

Headache is common in children, increasing in incidence from early childhood to adolescence. Chronic daily headache is headache experienced for more than 15 days per month for at least 3 consecutive months.

Two types:
Primary: Headache has no specific underlying cause. These are the most common causes of chronic headaches in children. e.g.: Tension-type headache, Migraine and Cluster headache.

Secondary: Headache due to underlying causes such as sinusitis, raised intracranial pressure, medication overuse, hypertension, giant cell arteritis. Less commonly seen in children, with the likelihood of a potential serious secondary cause for chronic headache being less than 3 per 1000 children.

Headache feature	Tension type headache		Migraine (with or without aura)		Cluster headache	
Pain location	Bilateral		Unilateral or bilateral		Unilateral (around the eye, above the eye and along the side of the head/face)	
Pain quality	Pressing/tightening band (non pulsating)		Pulsating (throbbing or banging in young people aged 12–17 years)		Variable (can be sharp, boring, burning, throbbing or tightening)	
Pain intensity	Mild or moderate		Moderate or severe		Severe or very severe	
Effect on activities	Not aggravated by routine activities of daily living		Aggravated by, or causes avoidance of, routine activities of daily living		Restlessness or agitation	
Other symptoms	None		Unusual sensitivity to light and/or sound or nausea and/or vomiting Aura Typical aura symptoms include visual symptoms such as flickering lights, spots or lines and/or partial loss of vision; sensory symptoms such as numbness and/or pins and needles; and/or speech disturbance. Aura symptoms can occur with or without headache and: • are fully reversible • develop over at least 5 minutes • last 5–60 minutes		On the same side as the headache: • red and/or watery eye • nasal congestion and/or runny nose • swollen eyelid • forehead and facial sweating • constricted pupil and/or drooping eyelid	
Duration of headache	30 minutes – continuous		1–72 hours in young people aged 12–17 years		15–180 minutes	
Frequency of headache	less than 15 days per month	more than 15 days per month for more than 3 months	less than 15 days per month	more than15 days per month for more than 3 months	1 every other day to 8 per day, with remission for more than 1 month	1 every other day to 8 per day, with a continuous remission less than 1 month in a 12 month period
Diagnosis	Episodic tension type headache	Chronic tension type headache	Episodic migraine (with or without aura)	Chronic migraine (with or without aura)	Episodic cluster headache	Chronic cluster headache

Chronic headache

What should I do?

A) HISTORY

- Details of the headache: onset, timing, location, associated symptoms, exacerbating and relieving factors
- Medication history, School absences, Sleep habits, Stress, Screen time
- Family history of headaches

B) EXAMINATION:

- Weight and height: Plot on growth chart
- Check blood pressure
- Local pathology: Check for dental, eye and ENT pathology
- Neurological examination

C) INVESTIGATIONS:

- Not routinely indicated
- Cranial imaging only if clinically indicated

D) MANAGEMENT:

1. **General measures: (Tension type headaches generally improve with these measures)**
   - Reassure that a sinister underlying cause is unlikely, if clinical assessment is normal.
   - Headache diary (for 2-3 weeks) to identify patterns and precipitants
   - Lifestyle advice: Good fluid intake, sleep hygiene, reducing screen time, regular exercise, avoiding possible triggers
   - Rest, relaxation, distraction to manage headache non-pharmacologically
   - Simple analgesia: **use sparingly, with warning about risk of medication overuse headache**
   - Cognitive Behavioural therapy (CBT) and behavioural support, where indicated

2. Migraine treatment :

a. Acute episode:

- Sumatriptan or zolmitriptan: not licensed in children but recommended by NICE for children above 12 years. (Follow local APC recommendations on prescription licensing)
- Migraleve
- Paracetamol, Ibuprofen

b. Prophylaxis:

- Propranolol (licensed) or Topiramate (unlicensed but recommended by NICE)
- Pizotifen (licensed but not recommended by NICE)
- Review the need for continuing migraine prophylaxis 6 months after starting treatment.

When should I refer?

Any of the features below should lead to an urgent referral; if there is high level of concern about possible brain tumour, immediate referral to acute paediatric services.

RED FLAGS:

- Age < 4 years
- Headache waking child from sleep
- Persistent vomiting
- Focal neurological signs
- Co-ordination problems
- Non-acute visual problems
- Headache with cough/strain/activity/ postural change
- Change in personality/behaviour/activity level
- Deteriorating cognitive function
- Growth/pubertal failure
- Progressively severe headaches

Resources:

NICE Clinical guideline updated July 2017: Headache in children and young people: diagnosis and management (CG99)

Cough

What is it?

Cough is the most common symptom with which children present to primary care.
Prevalence of cough not associated with colds is reported to be 28% in boys and 30% in girls.

Classification: 4 main types, based on duration:

	Acute cough (A recent onset cough lasting less than 3 weeks)	Prolonged Acute/ Subacute cough (A cough lasting 3 – 8 weeks)	Recurrent cough (more than 2 episodes/ year, each lasting 1-2 weeks)	Chronic cough (A cough lasting more than 8 weeks)
What is it?	• Commonest cause is viral upper/lower respiratory infection. • 7–10 incidents per year in school age children. • In the majority, the cough will resolve by 14 days; however, a small minority of healthy children with no underlying pathology, will continue to cough for 3–4 weeks after a viral infection. • In infants, post-bronchiolitis cough can persist for up to 1 month. **Exceptions:** If there is a preceding history of choking, think of retained foreign body. If accompanied by undernutrition, clubbing and systemic features - think of first presentation of chronic respiratory disease.	Two types: • Cough which slowly resolves over the 3–8 week period. Causes: Pertussis, Mycoplasma or Post-viral cough. • Cough which does not wane by the third week and gets worse.	• Child is asymptomatic between episodes. • Episodes tend to • cluster through winter and are less frequent through summer. • Recurrent viral infections is the most likely cause in a child who is thriving and has no systemic signs or symptoms. • If the interval between episodes is short, recurrent cough will be difficult to distinguish from chronic cough.	A. Common causes: • Recurrent viral infections: This is the most likely cause in a child who is thriving and has no systemic signs or symptoms. • Post-infectious cough: Viral infections, mycoplasma are common causes. B. Less common causes: • Asthma: Isolated cough in the absence of wheeze or shortness of breath and other atopic features is usually not asthma. • Post-nasal drip & Gastro-oesophageal reflux: C. Uncommon causes: • Serious pathology: In any child with chronic moist cough and/or systemic signs and symptoms such as fever, weight loss, clubbing, consider underlying pathology such as: • cystic fibrosis, tuberculosis, immunodeficiency, Ccliary dyskinesia, recurrent aspiration, anatomical abnormalities, protracted bacterial bronchitis, retained foreign body.
What should I do?	• Reassuring parents of the viral aetiology. • Advice on seeking medical attention for ongoing fever, work of breathing or becoming systemically unwell.	• If the cough is settling and the child is otherwise well, no further intervention. • Treatment with macrolides is indicated in pertussis, but it only reduces the period of infectivity and does not alter the duration of cough. • If the cough is not waning by the third week: Refer to secondary care.	• Assess for other underlying pathology. • If no concerns and child well, reassure parents. • Refer to secondary care if concerns on clinical assessment, very frequent episodes or significant parental anxiety	Refer to secondary care

Cough

Other types of cough:

Non-organic cough:
Although the nature of cough can be quite characteristic, this should be a diagnosis of exclusion
Non-organic cough requires reassurance and may benefit from referral for distraction therapies and /or psychological support.

Two types:

1. **Psychogenic cough**: unusual, honking disruptive coughing; can be very persistent through the day, increases with attention and decreases when concentrating, and disappears in sleep..
2. **Habit coughs:** generally, less disruptive, typically starts in association with a cold, but persists long after the cold has resolved as a dry non-irritative repetitive coughing, often. Can be seen in boys aged 7-10 years, related to common transient tic disorder.

What should I do?

A) HISTORY:

- How and when did the cough start?
- What is the nature and quality of the cough?
- Is the cough an isolated symptom?
- What triggers the cough?
- Is there a family history of respiratory symptoms, disorders and atopy?
- What treatments has the child had for the cough and what is the response?
- Does the cough disappear when asleep (suggests psychogenic or habit cough)?
- Is the child exposed to cigarette smoke or other environmental pollutants?

B) EXAMINATION:

- Assessment of the child's growth
- Signs of underlying ENT, respiratory (digital clubbing, shape of chest, asymmetrical auscultatory signs) and other systemic pathology.

C) INVESTIGATIONS:

- Chest X ray is indicated for most children with chronic cough.
- Additional investigations are usually undertaken in secondary care, if an underlying serious organic pathology is suspected.

D) MANAGEMENT:

- Avoid exposure to environmental irritants such as cigarette smoke and home pollutants.
- Treat Allergic rhinitis: Allergen avoidance, oral antihistamines and intranasal corticosteroids.
- Reassessment and reassurance: In well children, isolated cough is most commonly due to recurrent viral infections or a post-infectious cough.

Cough

Is it asthma?

- Anti-asthma therapy has not been shown to be effective for children with isolated, non-specific, persistent cough.
- However, if there are atopic features and associated wheeze, a trial of anti-asthma therapy can be used to diagnose **whether it is cough-variant asthm**a.
  - › Bronchodilators and Inhaled corticosteroids (ICS) for 8 weeks (ensure effective delivery of appropriate doses as per BNFc).
  - › After 8 weeks, stop treatment and reassess.
  - › If symptoms did not resolve with above treatment, it is not asthma, stop treatment.
  - › If symptoms resolved during treatment and then reoccurred within 4 weeks of stopping treatment (stopping treatment is necessary to exclude natural resolution of symptoms), restart and continue the treatment, using low dose ICS.
  - › If symptoms resolved during treatment and then reoccurred beyond 4 weeks of stopping treatment, restart treatment, using moderate dose of ICS.

When should I refer?

- Neonatal onset cough
- Cough with feeding
- Sudden onset cough
- Chronic moist cough with phlegm production
- Associated night sweats/weight loss
- Continuous unremitting or worsening cough
- Signs of chronic lung disease such as finger clubbing
- Persistent fever
- Dyspnoea
- Poor weight gain/weight loss
- Haemoptysis
- Habit/psychogenic cough lasting for > 3 months

Parent Information leaflet - Cough

Why do children cough?

Cough is a very common problem in children. The most common cause for cough in children is a respiratory infection, such as a cold. Young children usually have 6 to 12 respiratory infections per year, usually caused by viruses.
Antibiotics do not help with this type of cough. Sometimes, children may cough for many weeks after a viral infection (for example, after bronchiolitis). Here too, antibiotics are usually no help.
Cough may also be caused by a bacterial infection in the throat or chest; antibiotics may be prescribed by your doctor to treat this.

What should I do if my child is coughing frequently?

If your child is otherwise well, it is unlikely that there will be a serious cause for the cough.
Cigarette smoke will make the cough worse, so it is essential that you do not expose your child to cigarette smoke.

Cough medicines are not useful in treating cough in children; in fact, recent studies suggest that some cough medicines may be harmful to younger children. Honey and other throat soothing preparations might be helpful in children older than 1 year.

When should I see my GP?

Seek medical attention if your child becomes unwell (e.g high fever with poor feeding/drinking, decreased wet nappies, difficulty breathing) or has persistent cough for more than a week.

Key points to remember

- Cough is a very common problem for children.
- Most young children get a cough and/or cold 6 to 12 times a year.
- Most coughs are caused by viruses and will not respond to antibiotics.

Pre-school wheeze

What is it?

Preschool wheeze or wheezing in children 1-5 years of age is very common in UK.
One third of children under 3 years of age and almost half of children under 6 years of age, have had at least one reported episode of wheeze.

Two types - Primary and Secondary:

Primary wheeze	Secondary wheeze
Two clinical categories. **1. Episodic (viral) wheeze (ETW):** • Wheeze only during viral infections • Child otherwise well • Usually no personal or family history of atopic disorders. **2. Multiple-trigger wheeze (MTW):** • Wheeze with multiple triggers including viruses, pollen, animals, and other allergens. • Interval symptoms are present between exacerbations(wheeze/cough with activity, excitement, cold weather.) • Often a personal or family history of atopic disorders.	**Due to underlying conditions which cause wheezing:** • Cystic fibrosis, • Immune deficiency • Ciliary dyskinesia • Inhaled foreign body • Gastro-oesophageal reflux disease • Anatomical airway problems. History : Symptoms from first day of life, chronic wet cough, sudden onset of symptoms, continuous unremitting symptoms, systemic illness; physical examination shows digital clubbing, unusually severe chest deformity, stridor, fixed wheeze, or asymmetric signs on auscultation, features of systemic disease

What should I do?

A) HISTORY:

- Confirm the presence of wheeze (Studies show less than 50% agreement between carers and professionals on reported wheeze)
- Rule out underlying contributory or secondary causative factors.

B) EXAMINATION:

- Signs and symptoms of serious underlying conditions (See Table 1 overleaf).

Table 1 Clinical clues to alternative diagnoses in children with wheezy children

Clinical clue	Possible diagnosis
Perinatal and family history	
Symptoms present from birth or perinatal lung problem	Cystic fibrosis, chronic lung disease of prematurity, ciliary dyskinesia, developmental lung anomaly
Family history of unusual chest disease	Cystic fibrosis, neuromuscular disorder
Severe upper respiratory tract disease	Defect of host defence, ciliary dyskinesia
Symptoms and signs	
Persistent moist cough	Cystic fibrosis, bronchiectasis, protracted bacterial bronchitis, recurrent aspiration, host defence disorder, ciliary dyskinesia
Excessive vomiting	Gastro-oesophageal reflux (with or without aspiration)
Paroxysmal coughing bouts leading to vomiting	Pertussis
Dysphagia	Swallowing problems (with or without aspiration)
Breathlessness with light headedness and peripheral tingling	Dysfunctional breathing, panic attacks
Inspiratory stridor	Tracheal or laryngeal disorder
Abnormal voice or cry	Laryngeal problem
Focal signs in chest	Developmental anomaly, post-infective syndrome, bronchiectasis, tuberculosis
Finger clubbing	Cystic fibrosis, bronchiectasis
Failure to thrive	Cystic fibrosis, host defence disorder, gastro-oesophageal reflux
Investigations	
Focal or persistent radiological changes	Developmental lung anomaly; cystic fibrosis; post-infective disorder; recurrent aspiration; inhaled foreign body; bronchiectasis; tuberculosis

C) INVESTIGATIONS

- Chest X-ray for persistent and/or severe wheeze
- Additional investigations are usually undertaken in secondary care, if an underlying diagnosis is a possibility.

Pre-school wheeze

D) MANAGEMENT

General measures: Prevent exposure to tobacco smoke - parental smoking "not in front of the children" does not protect them from harm!

	Reliever	Preventer
Mild , infrequent virus induced wheeze	Salbutamol or Ipratropium inhaled treatment	Not indicated
Moderate, frequent virus induced wheeze	Salbutamol or Ipratropium inhaled treatment	**Intermittent** Montelukast or Inhaled corticosteroids (ICS) at start of a cold. Stop after a few days, when clinically better. No indication for **regular** preventer treatment
1. Severe virus induced wheeze (frequent and /or severe episodes) **2. Multi-trigger wheeze**	Salbutamol or Ipratropium inhaled treatment	A. Inhaled corticosteroids (ICS) regularly, ensuring effective delivery of appropriate doses for 8 weeks. B. Keep a symptom diary pre and post treatment for objective assessment. C. After 8 weeks, stop ICS treatment (stopping ICS treatment is necessary to exclude natural resolution of symptoms), and continue to monitor symptoms: • If symptoms did not resolve with ICS treatment, review whether an alternative diagnosis is likely • If symptoms resolved during ICS treatment and then reoccurred within 4 weeks of stopping ICS treatment restart and continue ICS at low does and monitor in primary care. • If symptoms resolved during treatment and then reoccurred beyond 4 weeks after stopping ICS treatment, restart ICS at moderate dose and continue regular monitoring in primary care. Refer if no improvement.

Ensure the use of appropriate inhaler device for age and check inhaler technique regularly.
Ensure education, wheeze information leaflet and a written, individualised management plan.

When should I refer?

1. Symptoms or signs of underlying serious respiratory pathology
2. Severe frequent wheeze with numerous hospital attendances/admissions
3. No improvement after 8 week trial of Inhaled corticosteroids

Resources:

- Asthma UK: www.asthma.org.uk/advice-children-and-asthma
- NHS Choices - Asthma in Children: www.nhs.uk/conditions/Asthma-in-children/Pages/Introduction.aspx

Asthma

What is it?

- Asthma remains one of the most common chronic disease of childhood.
- UK has one of the highest worldwide childhod asthma prevalence rates, with 1.1 million children (one in 11 children in UK) currently receiving asthma treatment.
- Every year 44,000 children are admitted to hospital, with an average of 40 childhood asthma deaths per year, which is one of the highest in Europe.
- Asthma is predominantly a clinical diagnosis in children, based on the characteristic pattern of symptoms and signs and the absence of an alternative explanation; due to the limitations in obtaining accurate lung function tests in childhood.

What should I do?

A) HISTORY:

3 key diagnostic pointers in history are:

1. Episodic symptoms of wheeze, cough, breathlessness and chest tightness, which vary over time (wheeze confirmed by a healthcare professional)
2. Personal/family history of other atopic conditions (atopic eczema/dermatitis, allergic rhinitis)
3. No symptoms/signs to suggest alternative diagnoses

B) EXAMINATION:

Rule out underlying chronic respiratory conditions (table below)

Clinical clue	Possible diagnosis
Perinatal and family history	
Symptoms present from birth or perinatal lung problem	Cystic fibrosis, chronic lung disease of prematurity, ciliary dyskinesia, developmental lung anomaly
Family history of unusual chest disease	Cystic fibrosis, neuromuscular disorder
Severe upper respiratory tract disease	Defect of host defence,ciliary dyskinesia
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Abnormal voice or cry	Laryngeal problem
Focal signs in chest	Developmental anomaly, post-infective syndrome,bronchiectasis, tuberculosis
Finger clubbing	Cystic fibrosis, bronchiectasis
Failure to thrive	Cystic fibrosis, host defence disorder, gastro-oesophageal reflux
Investigations	
Focal or persistent radiological changes	Developmental lung anomaly, cystic fibrosis, post-infective disorder, recurrent aspiration, inhaled foreign body, bronchiectasis, tuberculosis

C) INVESTIGATIONS:

1. Chest X-ray is not routinely indicated. (undertake if diagnosis of asthma is in doubt).

2. Spirometry **(It is recognised that lung function testing is not always possible in children in primary care and where it is not possible, the recommendation would be to initiate treatment or adopt watchful waiting; based on clinical assessment)**

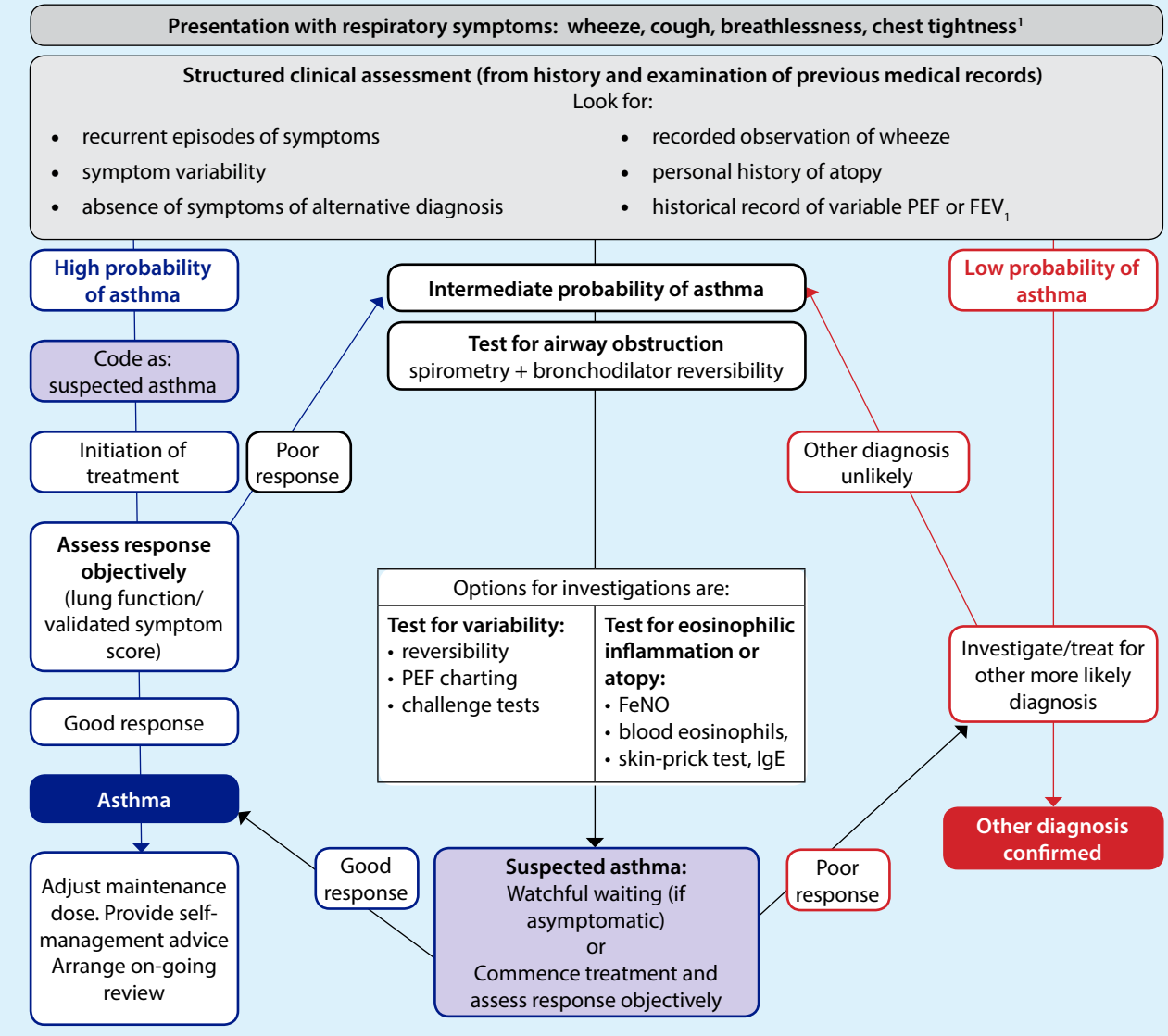
Positive spirometry results for obstructive airways diseases including asthma are:

- Forced expiratory volume in 1 second/ Forced vital capacity (FEV1/FVC) ratio: less than 70%
- Bronchodilator reversibility (BDR) test: FEV1 reversibility of 12% or more

3. Peak expiratory flow (PEF): No good evidence to support the routine use of peak flow monitoring in the diagnosis of asthma in children. But, if spirometry is equivocal, monitor peak flow for 2 to 4 weeks with twice daily PEF recordings, with greater than 20% diurnal variability regarded as a positive test.

In children under 5 years and others unable to undertake spirometry in whom there is a high or intermediate probability of asthma, the options in primary care are monitored initiation of treatment or watchful waiting according to the assessed probabilityof asthma.

DIAGNOSTIC ALGORITHM

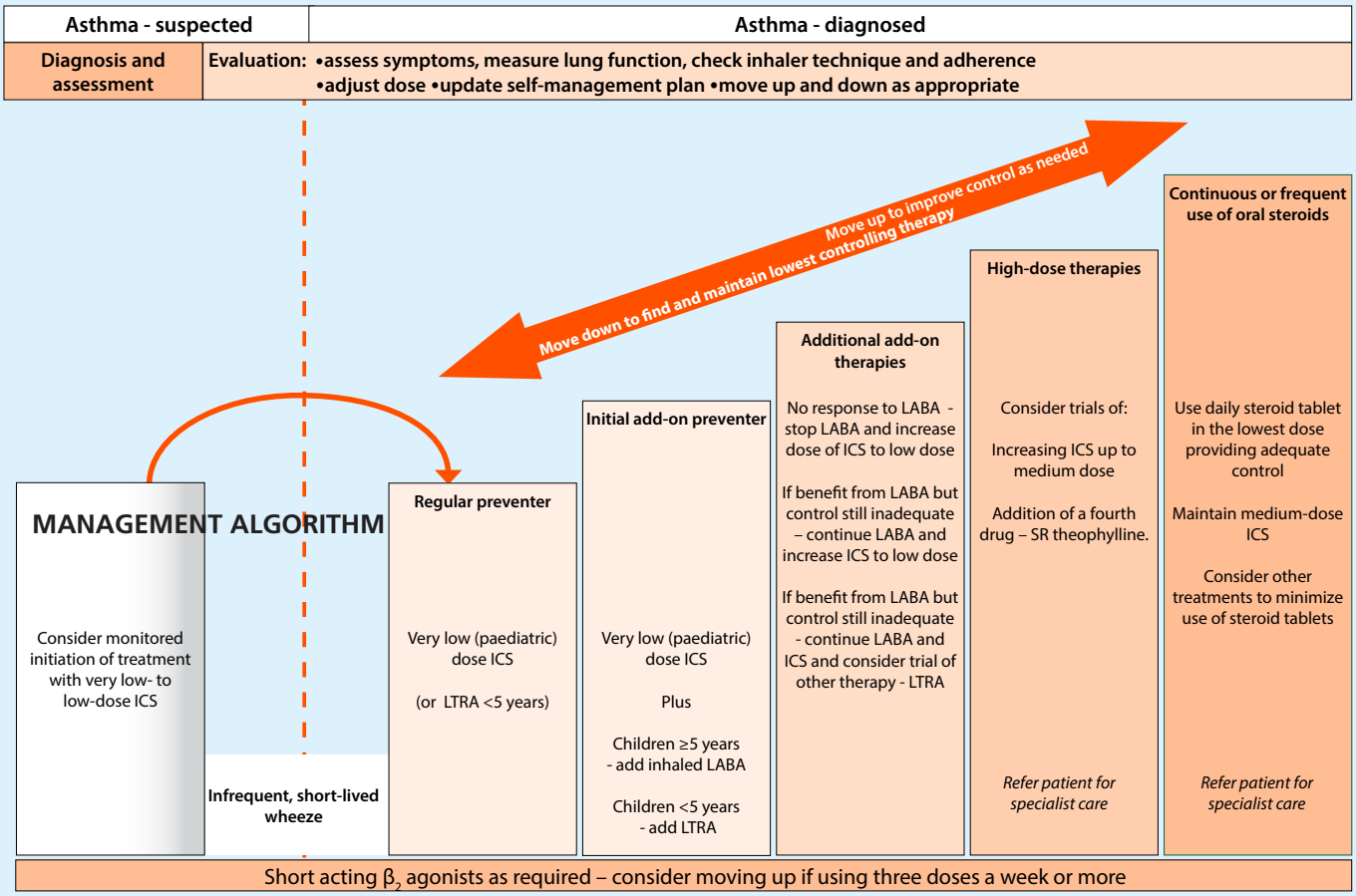


D) MANAGEMENT:

1. General measures:

- Identifying and avoiding exposure to triggers such as house dust mite, cigarette smoke and other environmental pollutants.
- Remember, parental smoking "not in front of the children" does not protect them from smoke exposure.
- Education: Asthma information leaflet, written, personalised asthma self-management plan.

2. Specific measures:



- **ICS: Inhaled Corticosteroids**
- **LTRA: Leukotriene Receptor Antagonist**
- **SABA: Short Acting Beta Agonist**
- **LABA: Long Acting Beta Agonist**

Asthma

Treatment monitoring:

- Pharmacological management (BTS/SIGN guidelines) is aimed at optimal asthma control -
  - no daytime symptoms
  - no night-time awakening due to asthma
  - no need for rescue medication
  - no asthma attacks
  - no limitations on activity including exercise
  - normal lung function (FEV1 and/or PEF>80% predicted or best)
  - minimal sideeffects from medication.

- Growth (plot height and weight on centile charts)
- Assess control using Asthma Control Test/other asthma questionnaires
- Advice on identifying triggers and avoidance
- Check inhaler technique at every visit and prescribe appropriate inhaler based on patient preference and effective technique.
- In children, a pMDI (pressurised Metered Dose Inhaler) and spacer are preferred for delivery of inhaled treatment. A face mask is required until the child can breathe reproducibly using the spacer mouthpiece. Spacers should be cleaned monthly, washed in detergent and allowed to dry in air. Plastic spacers should be replaced at least every 12 months but some may need changing at six months.
- Check medication adherence
- Re-evaluate treatment and maintain at the lowest possible dose of inhaled corticosteroid.
- Reinforce the management plan at every visit.

NRAD (National Review of Asthma Deaths) identified preventable factors including over-reliance on bronchodilators, underuse of inhaled corticosteroids, lack of regular medical reviews and written management plans as common themes in asthma deaths.

Asthma

Medications	Indications	Practice points
INTERMITTENT RELIEVER THERAPY: Short-acting bronchodilators(SABA): Inhaled short-acting ß2 agonists Inhaled ipratropium bromide	Infrequent short-lived wheeze	Any child prescribed more than one short-acting bronchodilator inhaler device a month should be identified and have their asthma assessed urgently.
REGULAR PREVENTER THERAPY: 1. Inhaled corticosteroids (ICS) Beclomethasone di propionate Fluticasone propionate Very low dose 2. Leukotriene receptor antagonists (LTRA)(Montelukast) (In children < 5 years of age)	Using inhaled ß2 agonists three times a week or more. Symptomatic three times a week or more waking one night a week.	Titrate the dose of inhaled corticosteroid to the lowest dose at which effective control of asthma is maintained. Monitor height and weight at every asthma review
INITIAL ADD-ON THERAPY: Inhaled long-acting ß2 agonist (LABA) (Serevent) **OR** (Leukotriene receptor antagonist (LTRA) (Montelukast) (In children < 5 years)	Poor control on above therapy	Before moving up to this stage, recheck adherence, inhaler technique and eliminate trigger factors. LABA should only be started in patients who are already on ICS and the ICS should be continued. Prescribe combination inhalers to aid adherence and as it guarantees that the LABA is always taken with the ICS.
ADDITIONAL ADD-ON THERAPY Increase from very low to low dose of Inhaled corticosteroids **PLUS** LABA **OR** LTRA **OR** Theophylline	Poor control on above therapy	Before moving up to this stage, recheck adherence, inhaler technique and eliminate trigger factors
HIGH DOSE THERAPY: Increase to medium dose of ICS **PLUS** LABA **OR** LTRA	Poor control on above therapy	Refer to secondary care
ORAL STEROIDS: Daily or frequent oral steroids	Poor control on above therapy	Only under specialist care

When should I refer?

- Concern about alternative diagnosis
- Diagnosis unclear
- Poor response to asthma treatment
- Requiring high dose inhaled corticosteroids and /or 3 drug combination of preventer therapy (see BTS guidelines)
- Severe/life-threatening asthma attack
- Patient or parental anxiety or need for reassurance
- Family history of unusual chest disease
- Nasal polyps

Vitamin D deficiency

What is it?

- Low Vitamin D levels are common in UK due to limited availability of sunshine, which is the main source of Vitamin D.
- Less than 10% of our Vitamin D requirement is obtained from our diet as only a few natural foods such as oily fish and eggs (20 – 40 units per egg) contain significant amounts of Vitamin D.
- All formula milks are fortified with Vitamin D as are margarine and some breakfast cereals, but plain cow's milk is not fortified in the UK.
- Breast milk generally contains little Vitamin D.
- Routine Vitamin D screening is not recommended.

Primary prevention:

1. Advice about safe sunlight exposure, dietary sources of Vitamin D and multivitamin supplements.
2. Indications for receiving Vitamin D supplements through Healthy Start scheme:
   - all children between 6 months and 5 years (unless they take over 500ml of formula milk daily)
   - breast-fed infants 1 month of age, if mother was not receiving Vitamin D supplements during pregnancy *(for more information see Birmingham Community link in Resources section on page 41)*
3. Consider supplementation in the following high-risk groups:
   - children with diets insufficient in calcium
   - exclusively breast-fed babies from the age of 6 months, especially if the mother is also at risk of Vitamin D deficiency or the infant has not started to take a good range of solid foods
   - exclusively breast-fed babies from 1 month if the mother has not taken Vitamin D supplements in pregnancy, or if she is known to be Vitamin D deficient or insufficient
   - children with limited sun exposure (e.g. veiled and photosensitive patients)
   - disabled children if they spend very little time outdoors
   - children who have darker skin, e.g. of African, African-Caribbean or South Asian origin
   - children taking anticonvulsants such as phenytoin, carbamazepine, primidone or phenobarbitone, that induce liver enzymes
   - children with family members with proven Vitamin D deficiency.

When should you check Vitamin D levels?

Children with features of rickets	• progressive bowing of legs • progressive knock knees • wrist swelling • rachitic rosary (swelling of the costochondral junctions) • craniotabes (skull softening with frontal bossing and delayed fontanelle closure) • delayed tooth eruption and enamel hypoplasia.
Children with symptoms attributable to Vitamin D deficiency	• long-standing (> 3 months), unexplained bone pain • muscular weakness (difficulty climbing stairs, waddling gait or delayed walking) • tetany due to low serum calcium • seizures due to low serum calcium (usually in infancy) • infantile cardiomyopathy.
Abnormal investigations	• low serum calcium or phosphate, high alkaline phosphatase • radiographs – showing osteopenia, rickets or pathological fractures
Chronic disease that may increase risk of Vitamin D deficiency	• chronic renal disease, chronic liver disease • malabsorption syndromes (e.g. coeliac disease, Crohn's disease, cystic fibrosis).
Bone diseases where correcting Vitamin D deficiency is indicated, prior to commencing specific treatment	• osteogenesis imperfecta • idiopathic juvenile osteoporosis • osteoporosis secondary to glucocorticoids, inflammatory disorders, immobility and other metabolic bone conditions.

Vitamin D deficiency

What should I do?

Serum 25-hydroxy D levels	Status	Treatment	Monitoring
< 25 nmol/L	Vit.D Deficiency	1. **Vitamin D3 or Vitamin D2 (Colecalciferol or Ergocalciferol)** • Age 1–6 months: 3,000 IU orally daily for 8 weeks • Age 6 months to 12 years: 6,000 IU orally daily for 8 weeks • Age 12–18 years: 10,000 IU orally daily for 8 weeks • (Consider a single/divided oral dose of 300,000 units if compliance is a concern). 2. If calcium levels low, calcium supplementation should be commenced. 3. Give advice on safe sun exposure and diet.	Repeat Vitamin D and bone profile levels at the end of treatment: • If Vit D level above 50nmol/L and bone profile is normal: Continue vitamin D 400–600 IU/ day, unless there is a significant lifestyle change to improve vitamin D status. • If Vit D levels below 50nmol/L: Refer to secondary care
25–50 nmol/L	Vit D Insufficiency	1. **Oral vitamin D 400–600 IU/ day.** 2. Continue unless there is a significant lifestyle change to improve vitamin D status. 3. Give advice on safe sun exposure and diet 4. Ensure dietary calcium intake is adequate.	Repeat testing is not normally required if the individual is asymptomatic and compliant with multivitamin supplements.
> 50 nmol/L	Sufficient	1. Reassurance 2. Advice on maintaining adequate Vitamin D status through safe sunlight exposure and diet.	

When should I refer?

- Low serum calcium concentration
  - ✓ If symptomatic (irritability, brisk reflexes, tetany, seizures or other neurological abnormalities): immediate referral for urgent care
  - ✓ If asymptomatic: discuss treatment with paediatrician
- Underlying complex medical disorders (e.g. liver disease, intestinal malabsorption)
- Deformities or abnormalities probably related to rickets
- Poor response to treatment despite good adherence (defined as a level of 25(OH)D below 50 nmol/L after 8 -12 weeks of adherent therapy)
- Persisting low serum phosphate or low/high alkaline phosphatase.

Resources:

- http://www.bhamcommunity.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=24919

Positional plagiocephaly

What is it?

Positional plagiocephaly or Asymmetrical head shape is quite common, affecting about one in five babies. It results from prolonged adoption of a particular head position. This is seen in oligohydramnios, multiple pregnancies, sternocleidomastoid tethering (can cause torticollis), prematurity and babies with neuro-muscular disorders.
In most cases, the head shape will spontaneously improve over time. Mild flattening of the head will usually improve in a couple of months using simple positioning measures and any flattening will be barely noticeable by 1- 2 years of age. More severe cases will also improve over time, and any flattening which remains, becomes less noticeable with hair growth. There is no evidence that it will cause neurological or developmental deficits.

A variation of this is Positional Brachcephaly where the occiput is largely symmetrically flattened becoming much broader, sometimes with a taller head sloping down from the occiput toward the forehead.

Differential diagnosis:
Synostotic plagiocephaly: Results from premature sutural fusion of the lambdoid suture of the skull – Lambdoid craniosynostosis. It is very rare with a frequency of around 1 in 10,000 live births.

Feature	Positional plagiocephaly	Synostotic plagiocephaly
Incidence	Common (1 in 100)	Rare (1 in 100,000)
Palpate skull sutures	Sutural ridge not palpable	Sutural ridge palpable.
Check ear position	**Ear pushed forward** on the side of occipital flattening.	**Ear placed backwards** on the side of occipital flattening.
Assess facial symmetry	**Forehead is protuberant** on the side of the occipital flattening	**Forehead is symmetrical**
Inspect Aerial view	Parallelogram-shaped head	Trapezoid -shaped head
Assess hair growth pattern	A unilateral bald spot on the side of occipital flattening	Absent
Management	Can be managed in Primary care	Refer to Secondary care

What should I do?

Positional plagiocephaly can be managed in primary care as below:

- Positioning advice: Encourage parents to place baby in different positions including supervised tummy time during the day, to take pressure off the flattened part of baby's head.
- Physiotherapy referral if sternomastoid tethering is present.

(Use of commercially produced helmets is not widely supported by UK specialists in Craniofacial disorders. There have been very few good quality studies of the efficacy of helmets in comparison to conservative management; and those which have been performed suggest no significant variation in the ultimate normalisation of the head shape.)

When should I refer?

- Craniosynostosis is suspected
- Head circumference falling outside normal centiles (below the 0.4th or above the 99.6th or crossing two centiles)
- Developmental delay
- Severe skull flattening

Pre-pubertal Gynaecological problems

What is it?

Common presentations:

1. Vaginal discharge

- Newborn: Most newborn girls have small amounts of mucoid white vaginal discharge. This is normal and usually disappears by 3 months of age.
- 3 months of age until puberty: Physiological vaginal discharge is minimal in this age group.

2. Vulvovaginitis

- Extremely common due to thin vaginal mucosa in the prepubescent girl and contact with moisture and irritants (soap, bubble baths, wet wipes)
- Symptoms are itching, discharge, redness, and sometimes dysuria.
- Occasionally itching, soreness and discharge can be severe and persistent.
- In mild cases, no investigations are necessary, if discharge is profuse / offensive take a swab from the introitus.

What should I do?

› Explanation / reassurance
› Avoid contributory factors such as tight and synthetic underwear, bubble baths
› Soothing creams (eg soft paraffin, nappy rash creams) may help as a short-term measure.
› If introital swab grows organisms (group A Streptococcus, Haemophilus, Gardnerella) – treat with appropriate antibiotics
› If perianal / vulval itch /irritation is a major symptom, consider threadworms. and treat accordingly.
› If discharge is bloody, or offensive and persistent, consider a foreign body.
› If there is skin disease elsewhere, consider eczema and psoriasis as possible causes.
› Refer if severe and /or persistent symptoms
› Remember: Sexual abuse can present as vulvovaginitis

3. Lichen sclerosus (Hypotrophic dystrophy of the vulva)

- A chronic skin disorder of presumed auto immune origin
- Commonly seen in postmenopausal women, but also seen in prepubertal girls.
- It usually presents with severe vulval pain and itching.
- On examination, the classical appearance is of white plaques over the vulva and perianal area, and in more severe cases bleeding, erosions and ulcerations can occur.

What should I do?

› If symptoms are mild, no treatment other than an emollient is needed.
› In more severe cases, refer to secondary care, for use of a topical corticoid steroid such as Clobetasol propionate 0.05%, twice daily for 3 months.
› Unlike in postmenopausal women, there is no association with progression to carcinoma of vulva.
› Tends to resolve with the onset of puberty.

Pre-pubertal Gynaecological problems

4. Vaginal bleeding

Newborn:

- Common to have slight vaginal bleeding in the first week of life, due to withdrawal of maternal oestrogens
- Requires no investigation or treatment.

Older girls:

Blood stained discharge in an older girl, consider:

- Onset of first menstruation. (Consider as precocious puberty, if occuring before 8 years of age).
- Urethral prolapse (an inflamed "doughnut" of tissue is visible at the urethral meatus)
- Vaginal foreign body
- Severe vulvovaginitis,
- Trauma (including straddle injury and sexual abuse)
- Excoriation associated with threadworms
- Haematuria

5. Labial adhesions

- Adherence of the medial edges of the labia minora, due to a combination of thin vaginal mucosa and minor irritation.
- This is a normal variant and will resolve spontaneously in late childhood.
- Infrequently it can cause urinary dribbling, vulval irritation and soreness.
- Provided the child is able to void easily, no treatment is needed other than reassurance.
- In symptomatic cases, topical oestrogen creams can be used, although there is a risk of recurrence.

Common surgical problems in infancy:
Hydrocele

What is it?

Hydrocele is a collection of fluid within the tunica vaginalis that surrounds the testes. (Rarely, females can develop similar fluid collections along the canal of Nuck).

Hydrocele is common and is seen in around 5% of newborn boys. Premature babies have a higher risk of having a hydrocele.

Most hydroceles disappear spontaneously by 2 years of age.
(Inguinal hernia occurs when abdominal organs descend down the processus vaginalis into the inguinal canal or scrotum. Inguinal hernia and hydrocele share a similar aetiology and pathophysiology and may coexist).

What should I do?

A) HISTORY:

Presence of a scrotal swelling which is asymptomatic and painless, that is usually noticed by carers. Pain is not a symptom, and if present, the possibility of an incarcerated or strangulated inguinal hernia must be considered. Sudden distension of a hydrocele can also cause pain.

B) EXAMINATION:

Physical examination is normally sufficient to distinguish a hydrocele from an inguinal hernia.
Use index finger and thumb to palpate the lump superiorly.
You will be able to get above a hydrocele (spermatic cord can be felt above the hydrocele), while a hernia is continuous with the patent processus vaginalis.

Transillumination: Hydroceles will trans-illuminate. Remember: This does not fully exclude an inguinal hernia, since an inguinal hernia in premature infants can also trans-illuminate.

C) INVESTIGATIONS:

Most cases of paediatric hydroceles can be diagnosed with a good history and adequate physical examination alone. A minority of patients require Ultrasound to confirm the diagnosis.

D) MANAGEMENT:

Reassure parents that the hydrocele is likely to resolve without treatment by 2 years of age.
When should I refer?

When should I refer?

Refer to a paediatric surgeon if:

- Hydrocele is still present after 1 year of age.
- Concomitant inguinal hernia is suspected
- Hydrocele is localised to the spermatic cord.

Resources:

- European Association of Paediatric Urology guideline Hydrocele [EAU, 2016b]
- British Medical Journal (BMJ) best practice guideline Hydrocele [BMJ, 2016e].

Common surgical problems in infancy:
Inguinal hernia

What is it?

About 1-5% of healthy, full-term babies may be born with an inguinal hernia.

Two types: **Indirect and Direct**
Indirect inguinal hernias occur when bowel enters the inguinal canal through a patent processus vaginalis. This is the most common type seen in children. Right sided hernias are more common than left.

Direct inguinal hernias emerge directly through the floor of the inguinal canal. These are rare in children.

Predisposing factors: Male gender, prematurity, low birthweight (<1 kg), conditions which raise intra-abdominal pressure (e.g. ascites, cystic fibrosis), connective tissue disorders, familial predisposition.

What should I do?

A) HISTORY:
A hernia will be reported as a swelling or bulge, seen in the inguinoscrotal region in boys and inguinolabial region in girls. In many cases the swelling may only be seen intermittently, during crying or straining. Commonly, no pain is associated with a simple inguinal hernia in an infant, although parents may perceive the bulge as being painful. If there is pain, suspect an incarcerated inguinal hernia and refer urgently.

B) EXAMINATION:
- Examine the patient in both supine and standing positions.
- Typically reveals a palpable smooth mass originating from the external ring lateral to the pubic tubercle.
- The mass may only be noticeable after coughing or performing a Valsalva manoeuvre, and it should be easily reducible.
- Occasionally, loops of bowel can be felt within the hernia sac. In girls, feeling the ovary in the hernia sac is not unusual and can be confused with an inguinal lymph node.
- In boys, palpation of both testes is important to rule out undescended or retractile testes.

When should I refer?

Refer at diagnosis to paediatric surgeon as semi-urgent surgery is usually performed, to prevent the theoretical risk of incarceration. (Risk of incarceration is high in premature infants and females)

Common surgical problems in infancy:
Undescended testes

What is it?

Undescended testes or Cryptorchidism is the most common genital problem encountered in paediatrics. 3% of full-term male newborns have cryptorchidism, many of which subsequently descend, so that prevalence of cryptorchidism decreases to 1% by 6 months - 1 year of age.
Spontaneous descent after the first year of life is uncommon.
Predisposing factors:
Prematurity (30% prevalence), low birth weight, small size for gestational age and familial predisposition.

Testes may be palpable or non-palpable.

Palpable testes: undescended, ectopic, or retractile.
Non-palpable testes: either intra-abdominal or absent.

- Approximately 80% of undescended testes are palpable and 20% are nonpalpable.
- Ectopic testes: exit the external inguinal ring and are then misdirected along the normal course of the testis.
- Retractile testes: may be palpated anywhere along the natural course of the testis, although most are inguinal. These testes can be manipulated into the scrotum, where they remain without tension.

What should I do?

A) EXAMINATION:

- The child is placed supine, in a frog-legged position, and the examiner uses a gentle palpation technique with warm hands.
- A bimanual technique is used, with the nondominant hand gently milking or sweeping down the testis along the inguinal canal and the other hand palpating the scrotum and groin to identify the testis.
- An undescended testis cannot be manipulated into the scrotum despite gentle traction or milking of the gonad during examination of a relaxed child.
- In contrast, a retractile testis can be brought down to the scrotum in a relaxed baby by gentle traction and it usually stays in the scrotum for a short duration once released.
- Hemiscrotum on the side of the undescended testis appears poorly developed and has fewer rugae than a hemiscrotum with a descended testis.

B) INVESTIGATIONS:

Clinical examination remains the key diagnostic tool. Ultrasonography is not recommended, as it lacks sufficient sensitivity and specificity.

When should I refer?

- Refer if testes have not descended at 6 months of age.
- Boys with an undescended testis should undergo orchidopexy by 12 -18 months of age, to maximize fertility potential and to prevent loss of germ cells.
- Boys with a retractile testis can be followed up without surgical intervention, with an annual physical examination at least until puberty, to establish whether the testis remains retractile or that it has descended or that it has secondarily become an undescended testis.

Common surgical problems in infancy:
Umbilical hernia

What is it?

- Umbilical hernia is one of the most common paediatric surgical conditions, affecting 1 in 5 babies. It affects boys more than girls and is more commonly seen in in premature infants, infants of African/ Caribbean ethnicity and in infants with Down's syndrome.
- 80-90% of umbilical hernias will have closed by the time the child is 3 years of age.
- The time taken to close probably depends on the size of the defect, with 95% of umbilical hernias less than 0.5 cm in diameter, closing by the age of 2 years, but the larger hernias may persist until 11 years of age, before finally closing.
- Infantile umbilical hernias do not usually cause pain and complications such as obstruction and strangulation are extremely rare.

What should I do?

Parental reassurance about the high probability of spontaneous closure.

When should I refer?

Refer to paediatric surgeon if umbilical hernia is still present at 3 years of age.

Common surgical problems in infancy:
Tongue-tie

What is it?

- Tongue-tie or Ankyloglossia, is a congenital anomaly characterised by an abnormally short lingual frenulum, leading to restricted tongue movement and inability to protrude the tongue beyond the lower gum margin.
- Tongue tie affects 4-11% of newborn babies and is more common in boys than girls.
- It varies in severity, from a mild form in which the tongue is tethered by a thin mucous membrane to a severe form where the tongue is completely fused to the floor of the mouth.
- Many tongue-ties are asymptomatic and do not require treatment; some may resolve spontaneously over time. Occasionally, breastfeeding difficulties may arise because of the inability to suck effectively and may lead to sore nipples, poor infant weight gain and sometimes, a decision to switch from breast feeding to artificial feeding.

What should I do?

- If tongue-tie is causing problems with feeding, initially try conservative measures including breastfeeding advice and support, massaging the frenulum, and tongue exercises.
- NICE guideline (2005) states that there is some evidence that if tongue-tie causes difficulty in breastfeeding, surgical division can be beneficial and that there are no significant risks associated with the procedure.
- In older children and adults, untreated tongue-tie usually causes no problems as any tightness will resolve naturally as the mouth develops with age.

When should I refer?

Refer for tongue-tie division to Paediatric surgeons, only if:

1. In an infant: Tongue-tie is continuing to cause feeding problems, despite conservative measures including feeding support.

2. In an older child: Cosmetic reasons.

Parent Information leaflet - Tongue-tie

What is tongue-tie?

Tongue tie is the condition where the strip of skin that attaches the tongue to the floor of the mouth (frenulum) is shorter than usual. It occurs in about 1 in 10 babies. Many babies are not affected by it, whereas sometimes it causes difficulty in breast feeding

If your baby is breastfeeding and they have a tongue-tie, you may notice that they:

- have difficulty attaching to the breast or can't seem to stay attached for a full feed
- feed for a long time, have a short break, then feed again
- are unsettled and seem to be hungry all the time
- are not gaining weight as quickly as they should be
- make a "clicking" noise as they feed

Tongue-tie can also cause problems for breastfeeding mothers, including:

- sore or cracked nipples
- low milk supply
- recurrent mastitis (inflammation of the breast)

Talk to your midwife, health visitor or GP if you're worried about how well your baby is feeding or suspect they have a tongue-tie.

How is tongue-tie treated?

If your baby's feeding is affected and does not improve after feeding support measures, your doctor might recommend tongue-tie division.

Younger babies do not usually need a general anaesthetic for the treatment. Older babies may need a general anaesthetic because they are less likely to stay still.

The skin in the mouth heals quickly, and babies can carry on breastfeeding immediately after the procedure.

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