DERBYSHIRE JOINT AREA PRESCRIBING COMMITTEE (JAPC)

Gastro-oesophageal reflux disease: recognition, diagnosis and management in children and young people

- This guidance is based on NICE NG1 January 2015 Gastro-oesophageal reflux disease: recognition, diagnosis and management in children and young people

- Gastro-oesophageal reflux (GOR) is a common and normal asymptomatic occurrence seen in infants noticeable by the effortless regurgitation of feeds in young babies. **It does not usually need further investigation or treatment.**
  - it 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 (it **resolves in 90% of affected infants before they are 1 year old**)
  - regurgitation of feeds can be managed by advising and reassuring parents and carers

Only a small proportion will need to be clinically managed as GORD (reflux that causes symptoms (for example, discomfort or pain) severe enough to merit medical treatment, or to gastro oesophageal reflux-associated complications (such as oesophagitis or pulmonary aspiration)

- In infants, children and young people with vomiting or regurgitation, look out for the 'red flags' that may require referral (see table 2), which may suggest disorders other than GOR.

- Do not routinely investigate or treat for GOR if an infant or child without overt regurgitation presents with only 1 of the following:
  - unexplained feeding difficulties (for example, refusing to feed, gagging or choking)
  - distressed behavior
  - faltering growth
  - chronic cough hoarseness
  - a single episode of pneumonia

- Do not offer metoclopramide, domperidone or erythromycin to treat GOR(D) without specialist advice.

- Be aware that some symptoms of a non-IgE-mediated cows' milk protein allergy can be similar to the symptoms of GORD, especially in infants with atopic symptoms, signs and/or a family history. If a non-IgE-mediated cows' milk protein allergy is suspected, see the NICE guideline on food allergy in children and young people and JAPC infant feeding guidelines. Consider referral to access a paediatric dietician.

Initial management of GOR and GORD

When reassuring parents and carers about regurgitation, advise them that they should return for review if any of the following occur:

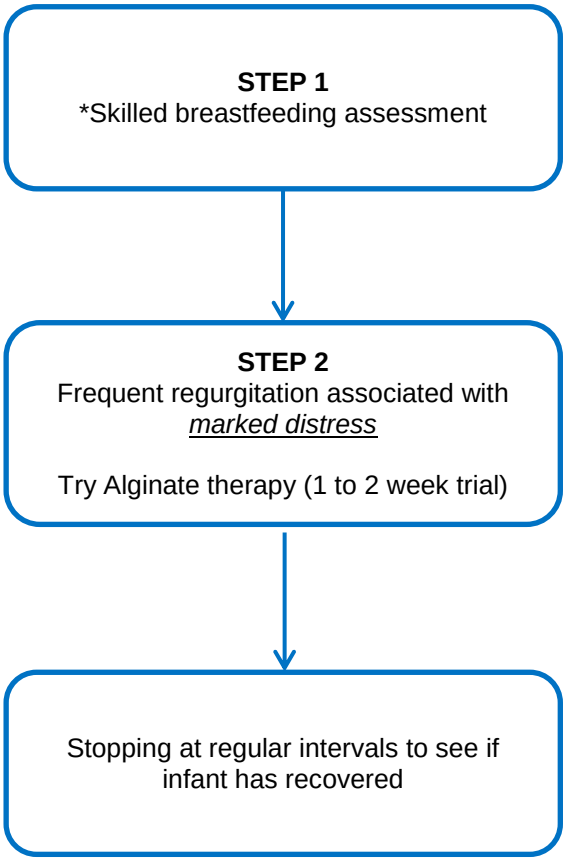
- The regurgitation becomes persistently projectile
- There is bile-stained (green or yellow-green) vomiting or haematemesis (blood in vomit)
- There are new concerns, such as signs of marked distress, feeding difficulties or faltering growth
- There is persistent, frequent regurgitation beyond the first year of life.

Advise patients NOT to use positional management to treat GOR in sleeping infants. Infants should be placed on their back when sleeping.

Gastro-oesophageal reflux (GOR) is the passage of gastric contents into the oesophagus. It is a common physiological event that can happen at all ages from infancy to old age, and is often asymptomatic. It occurs more frequently after feeds/meals. In many infants, GOR is associated with a tendency to 'overt regurgitation' – the visible regurgitation of feeds.

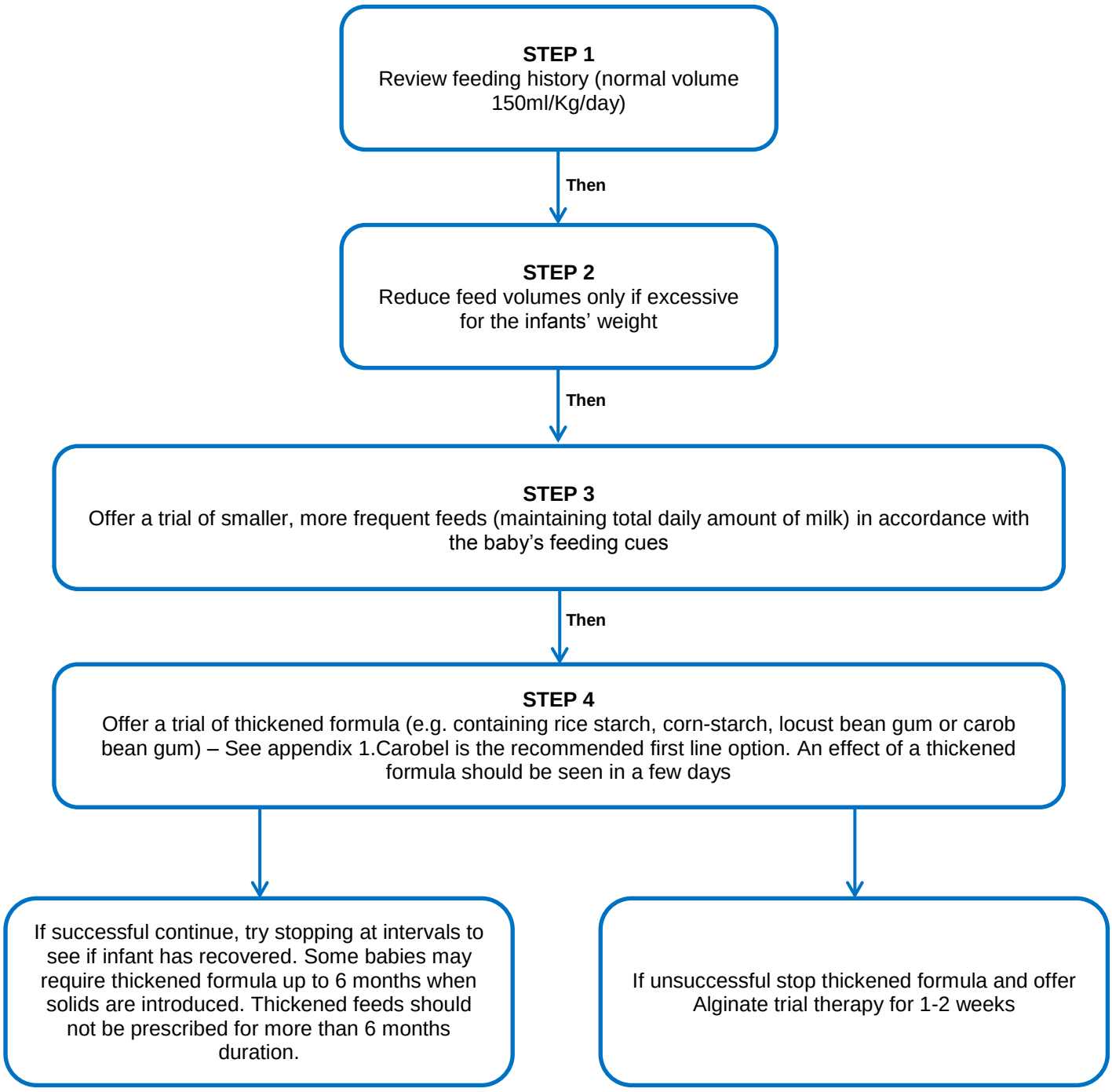
Gastro-oesophageal reflux disease (GORD) refers to gastro-oesophageal reflux that causes symptoms (for example, discomfort or pain) severe enough to merit medical treatment, or to gastro oesophageal reflux-associated complications (such as oesophagitis or pulmonary aspiration). In adults, the term GORD is often used more narrowly, referring specifically to reflux oesophagitis.

1. Breast fed infants with frequent regurgitation



* This could include Derbyshire community services from a health visitor or specialist breastfeeding support from the breastfeeding support team.

2. Formula-fed infants with frequent regurgitation associated <u>with marked distress</u>



Note: Do not offer acid suppressing drugs to treat overt regurgitation in infants and children occurring as an isolated symptom.

3. Pharmacological treatment of GORD

In a small proportion of infants, GOR may be associated with signs of distress or may lead to certain recognised complications that need clinical management. This is known as gastro oesophageal reflux disease (GORD).

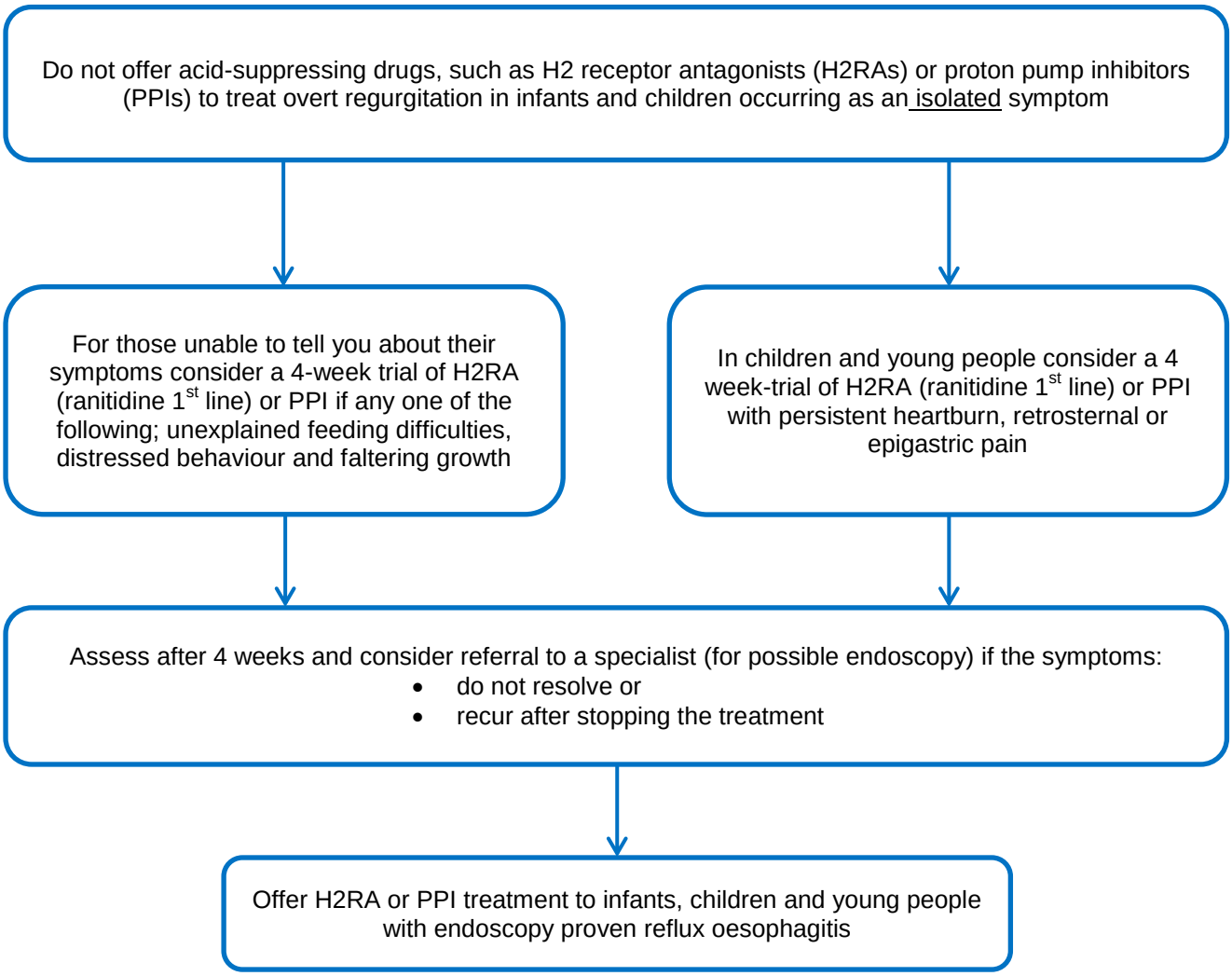


Table 1 Detailed prescribing information

Age/weight	Dosing	Notes
Alginates		
PEPTAC		
Child 6-12 years	5-10mls after meals and at bedtime	Suspension
Child 12-18 years	10-20mls after meals and at bedtime	
GAVISCON INFANT (Dose = one half of dual sachet)		
Neonate body-weight <4.5kg **or** Child 1 month – 2years and <4.5kg	1 'dose' mixed with feeds (or water, for breast fed infants) when required	Max 6 times in 24 hours
Neonate body-weight >4.5kg **or** Child 1 month – 2years and >4.5kg	2 'doses' mixed with feeds (or water, for breast fed infants) when required	Max 6 times in 24 hours
GAVISCON ADVANCE Available as chewable tablets and suspension		
Child 2-12 years	2.5- 5mls after meals and at bed-time	Liquid
Child 12 -18 years	5-10mls after meals and at bedtime	
Child 6-12 years	1 tablet to be chewed after meals and at bedtime	Tablets
Child 12-18 years	1-2 tablets to be chewed after meals and at bedtime	
H2 antagonists		
RANITIDINE Available as a tablet/effervescent tablets and 75mg/5ml licensed oral solution (off-label in children under 3 years but used by CRH & RDH) *N.b. The oral solution contains a small amount of alcohol. If an alcohol free preparation is required for religious reasons rantidine effervescent or omeprazole MUPS tablets could be considered appropriate to the age of the child (and accuracy of dosing)*		
Neonate (absorption unreliable)	2mg/kg 3 times daily. Max 3mg/kg 3 times daily	Oral preparations not licensed for use in children less than 3 years of age
Child 1-6 months	1mg/kg 3 times daily Max 3mg/kg 3 times daily	
Child 6 months-3 years	2-4mg/kg twice daily	
Child 3-12 years	2-4mg/kg (max 150mg) twice daily. Increased up to 5mg/kg (max 300mg) twice daily in severe GORD	
Child 12-18 years	150mg twice daily or 300mg at night, increased if necessary, to 300mg BD or 150mg QDS for up to 12 weeks in moderate to severe GORD	
Proton pump inhibitors 'Special' suspensions are usually more expensive, have a short half-life and questionable stability when compared to licensed medicines		
OMEPRAZOLE Available as capsules or dispersible MUPS tablets (caps and tabs not licensed for use in children except for severe ulcerating reflux oesophagitis in children over 1 year) Doses can be rounded to the nearest quarter tablet e.g. 2.5mg, 5mg, 10mg. The tablet (½ , ¼ or ¾) can be mixed in water, fruit juice, apple sauce or yoghurt on a spoon. The division must be done **before** mixing the tablet as the omeprazole granules do not produce a uniform mixture when dispersed in a liquid). MUPs should not be dispersed in water to draw off a proportion. Try to avoid use of an oral syringe where granules will remain deposited.		
Neonate	700mcg/kg/once daily increased if necessary after 7-14 days to 1.4mg/kg. Some neonates may require up to 2.8mg/kg once daily	Capsules and tablets
Child 1 month- 2 years	700mcg /kg once daily, increased if necessary to 3mg/kg (max 20mg) once daily.	
Child body weight 10-20kg	10mg once daily increased if necessary to 20mg once daily (in severe ulcerating reflux oesophagitis ,	Max 12 weeks at higher dose
Child body weight > 20kg	20mg once daily increased if necessary to 40mg once daily (in severe ulcerating reflux oesophagitis	Max 12 weeks at higher dose
LANSOPRAZOLE Available as capsules, tablets and fast-tabs		
Child body weight under 30kg	0.5mg-1mg/kg (max 15mg) once daily in the morning (Round dose to the nearest quarter tablet)	Not licensed for use in children
Child body weight > 30kg	15-30mg once daily in the morning	

Source BNF for children March 2019 accessed online via medicines complete

Table 2 Red flag' symptoms suggesting disorders other than GOR(D)

Symptoms and signs	Possible diagnostic implications	Suggested actions
Gastrointestinal		
Abdominal distension, tenderness or palpable mass	May suggest intestinal obstruction or another acute surgical condition	Refer for same day assessment
Bile-stained (green or yellow-green) vomit	May suggest intestinal obstruction	Refer for urgent same day assessment
Frequent, forceful (projectile) vomiting	May suggest hypertrophic pyloric stenosis in infants up to 2 months old	Refer for same day assessment if clinically unwell, otherwise to rapid access clinic
Haematemesis (blood in vomit) with the exception of swallowed blood, for example, following a nose bleed or ingested blood from a cracked nipple in some breast-fed infants	May suggest an important and potentially serious bleed from the oesophagus, stomach or upper gut	Refer for same day assessment if clinically unwell otherwise to rapid access clinic
Blood in stool	May suggest a variety of conditions, including bacterial gastroenteritis, infant cows' milk protein allergy (also see the NICE guideline on food allergy in children and young people) or an acute surgical condition	Stool microbiology investigation. Refer same day for assessment if clinically unwell, otherwise to rapid access clinic
Chronic diarrhea	May suggest cows' milk protein allergy (also see the NICE guideline on food allergy in children and young people)	See JAPC infant feeding guidance. Refer as per guidance
Onset of regurgitation and/or vomiting after 6 months old or persisting after 1 year old	Late onset suggests a cause other than reflux, for example a urinary tract infection (also see the NICE Urinary tract infection in children. Persistence suggests an alternative diagnosis	Urine culture investigation and specialist referral as per NICE
Systemic		
Altered responsiveness, for example, lethargy or irritability	May suggest an illness such as meningitis (also see the NICE guideline on bacterial meningitis and meningococcal septicaemia)	Refer for urgent same day assessment. Consider calling 999 ambulance
Bulging fontanelle	May suggest raised intracranial pressure, for example, due to meningitis (also see the NICE guideline on bacterial meningitis and meningococcal septicaemia	Refer for urgent assessment same day assessment. Consider calling 999 ambulance
Rapidly increasing head circumference (more than 1 cm per week) Persistent morning headache, and vomiting worse in the morning	May suggest raised intracranial pressure, for example, due to hydrocephalus or a brain tumour	Refer for urgent same day assessment if clinically unwell, otherwise to rapid access clinic
Appearing unwell Fever	May suggest infection (see NICE guideline on feverish illness in children)	Refer for assessment depending on NICE traffic light features
Dysuria	May suggest urinary tract infection (also see the NICE guideline on urinary tract infection in children)	Clinical assessment and urine culture investigation. Specialist referral depending on NICE UTI guidelines
Infants and children with, or at high risk of atopy	May suggest cows' milk protein allergy (also see the NICE guideline food allergy in children and young people)	See JAPC infant feeding guidance. Referring as per guidance

Appendix 1

Carobel (first line)

The preferred option to commercial anti-regurgitation formulas is the addition of a thickening agent to formula milk. These thicken in the bottle, so need to be given with a wide or variflow teat. If prescribed, feed thickeners must be endorsed ACBS.

Carobel is the first line recommended product for thickened feeds, it is significantly more cost effective than proprietary thickened feeds and enables easy reassessment on ongoing needs as it can be omitted from periodic feeds.

Brand Name	Teat Size Required	Thickening Agent	Preparations	Cost
Instant Carobel	Wide/ variable flow (split)	Carob seed flour	135g carton with 1.7g scoop	£2.91 for 135g pack

Price as per MIMs March 2019

Other thickening agents available contain significant calories and are only ACBS approved in infants <1yr with faltering growth – seek advice from a paediatrician or paediatric dietitian.

Instructions for using Carobel to thicken bottle feeds

- add ½ scoop to 90mls hand-warm feed. Shake well and leave to thicken for 3-4 minutes. Shake again and feed.
- thickness can be increased by using 1 scoop in 60mls
- wide/variflow teat will be required

Powdered 'anti-regurgitation' formulas (second line option)

Parents should be encouraged to buy over the counter powdered 'anti-regurgitation' formulas (containing carob seed flour or corn starch), which thicken on mixing or on contact with stomach acid. Enfamil AR and SMA Staydown are ACBS approved for significant GOR (not to be used for a period >6 months, not to be used in conjunction with any other feed thickener or antacid products). They have special instructions for preparation – advise parents to follow the packet instructions exactly. If prescribed, pre-thickened formulas must be endorsed ACBS.

Brand Name	Teat Size Required	Thickening Agent	Preparations
Enfamil AR	Standard (silicone)	Rice Starch	400g tin
SMA Anti-reflux	Standard (silicone)	Corn Starch	900g tin

Other over the counter powdered anti-regurgitation formulas are available. Examples include Aptamil Anti-reflux or Cow&Gate anti-reflux, which can be purchased from pharmacies or supermarkets.

Reviewing thickened formula use

- when starting a thickened formula or thickening agent, review efficacy after two weeks. If successful, continue for 3 months or until weaning
- do not prescribe a thickened formula for longer than 6 months in total
- do not prescribe Gaviscon concurrently with a thickened feed or thickening agent

Investigations and referrals

Arrange a specialist hospital assessment for infants, children and young people for possible upper GI endoscopy with biopsies if there is:

- haematemesis not caused by swallowed blood (assessment to take place on the same day if clinically indicated; also see table 2)
- melaena; (assessment to take place on the same day if clinically indicated; also see table 2)
- dysphagia (assessment to take place on the same day if clinically indicated)
- no improvement in regurgitation after 1 year old
- persistent, faltering growth associated with overt regurgitation
- unexplained distress in children and young people with communication difficulties
- retrosternal, epigastric or upper abdominal pain that needs ongoing medical therapy or is refractory to medical therapy

- feeding aversion and a history of regurgitation
- unexplained iron-deficiency anaemia
- a suspected diagnosis of Sandifer's syndrome

When deciding whether to investigate or treat, take into account that the following are associated with an increased prevalence of GORD:

- Premature birth
- Parental history of heartburn or acid regurgitation
- Obesity
- Hiatus hernia
- History of congenital diaphragmatic hernia (repaired)
- History of congenital oesophageal atresia (repaired)
- A neurodisability

Other definitions

Marked distress there is very limited evidence, and no objective or widely accepted clinical definition, for what constitutes 'marked distress' in infants and children who are unable to adequately communicate (expressively) their sensory emotions. In this guideline, 'marked distress' refers to an outward demonstration of pain or unhappiness that is outside what is considered to be the normal range by an appropriately trained, competent healthcare professional, based on a thorough assessment. This assessment should include a careful analysis of the description offered by the parents or carers in the clinical context of the individual child

Overt regurgitation refers to the voluntary or involuntary movement of part or all of the stomach contents up the oesophagus at least to the mouth, and often emerging from the mouth.
Regurgitation is in principle clinically observable, so is an overt phenomenon, although lesser degrees of regurgitation into the mouth might be overlooked.

Useful resources

Breast Feeding Network includes useful resources for clinicians and mothers.
http://www.breastfeedingnetwork.org.uk/

References

NICE (NG1) Gastro-oesophageal reflux disease: recognition, diagnosis and management in children and young people | Guidance and guidelines | NICE

NICE CG 54 Urinary tract infection in children: Diagnosis, treatment and long-term management

NICE CG 56 feverish illness in children Assessment and initial management in children younger than 5 years

NICE CG 102 Bacterial meningitis and meningococcal septicaemia Management of bacterial meningitis and meningococcal septicaemia in children and young people younger than 16 years in primary and secondary care

NICE CG116 Food allergy in children and young people: Diagnosis and assessment of food allergy in children and young people in primary care and community settings

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Document update	date