

# Recognition and management of infant feeding difficulties



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# Session outcomes

- What is normal feeding development?
- Recognising feeding difficulties in infants
- Management and guidelines of feeding difficulties.
- What to advice and when for best outcomes

# Critical period for growth and development in the first 1000 days

- What are the first 1000 days? It is the period of life that has a significant impact on later health outcomes.
- Nutrition is a key driver of rate of growth during this critical period of development as well as control of growth.
- The significance of good feeding practices and appropriate nutritional status for children generally and for children with additional needs is paramount.

# What is oral motor development?

- Oral motor development refers to the use and function of the lips, tongue, jaw, teeth, and the hard and soft palates (Logemann, 1999).
- The movement and coordination of these structures is very important in speech production, safe swallowing, and consuming various food textures.
- Normal oral motor development begins prior to birth and continues beyond age three. By age four, most children safely consume solids and liquids without choking.

## Developmental stages from utero

- Non-nutritive suck (non-feeding) sucking is observed in utero as early as 4-6 months gestation.
- Active feeding sucking develops at 34-37 weeks gestation.
- Primitive swallowing of amniotic fluid has been described from 12-14 weeks gestation. Baby will regularly swallow amniotic fluid to control volume of amniotic fluid around them – Polyhydramnios may be sign of swallow difficulty.
- From birth the infants rooting response enables him to locate the nipple or teat. Once the baby latches on he starts to suck and swallow easily and rhythmically.
- The infants early feeding is largely dominated by a number of reflexes and responses that should be considered within the context of the baby's alertness, hunger and neurological state.

# Effective feeding of the newborn

- The intraoral space in the newborn is small and the lower jaw of the is small and slightly retracted. Sucking pads are present in infants but not in adults.
- Due to the sucking pads and the small jaw the tongue takes up more relative space in the newborn oral cavity and restricts tongue movement space - therefore more pump action than anterior/posterior tongue movement.
- This anatomy naturally protects airway initially - Epiglottis and soft palate approximate as the protective mechanisms until 3-4 months then the larynx drops by approximately 3cm. This is when more sophisticated laryngeal closure is needed to protect the airway during swallowing.
- When feeding position, pacing, bolus size and texture needs to be considered as a child grows because they are all paramount to the efficiency and safety of the swallow.

# 4 stages of oral skills

- **Phase 1 – Oral preparatory – voluntary** - Food is taken to mouth by child or care giver. Food is prepared by coordinated movements of tongue, teeth, cheek muscles to form the “bolus”
- **Phase 2 – Oral Phase – Voluntary** - Tongue is drawn upwards and backwards against hard palate to move bolus back. Swallow reflex is triggered
- **Phase 3 –Pharyngeal – Involuntary** - Muscle action aids transfer of bolus into the oesophagus. The airway is protected so that food does not drop into the lungs.
- **Phase 4 – Oesophageal – Involuntary** - Bolus is transferred by waves of muscle action down the oesophagus and into the stomach.

(Logermann, 1999).

## Activity

- Think of some feeding difficulties that you feel could occur at any of the 4 stages of eating
- Taste/texture trial



## Case studies

- How would you manage the following scenarios?

# What is a feeding difficulty?

- Feeding issues can be mild, moderate or severe and can have a significant effect on the family. Even the smallest of feeding difficulty can have a HUGE impact!
- Clinicians need to address concerns about eating and drinking with sensitivity to each families circumstances.
- Complex feeding issues are otherwise known as DYSPHAGIA which is an impairment in feeding that can happen at any stage and may involve one or a combination of stages of the oral skills.
- Positive feeding interactions depend on the capabilities of both infant and care giver.
- Remember!!! Oral skills are only developed over time through positive experience and exposure to different textures.

## Common feeding issues

- Is it colic?
- Is it lactose intolerance?
- Is it reflux?
- Is it cows milk protein allergy?

# Colic & symptoms

- Colic has been defined as “spasmodic contraction of smooth muscle causing pain and discomfort”.
- Repeated episodes of excessive and inconsolable crying in an infant that otherwise appears to be healthy and thriving for 3 hours – 3 days week – for 3 weeks
- Crying most often occurs late afternoon/early evening.
- Prevalence 5-20% of infants. Usually resolves by 3-4 months old.
- Caring for a baby with colic is difficult, exhausting and confusing. Being told that baby’s symptoms are normal may be somewhat reassuring, but may also leave parents feeling helpless.

## Lactose intolerance & symptoms

- Lactose is the sugar in all mammalian milks and lactase is the enzyme that is required to digest lactose. If lactose is not digested and broken down, it cannot be absorbed and gets to the large bowel. It is here that bacteria break it down to make acids and gases.
- Transient nature, usually secondary to GI insult
- The symptoms of lactose intolerance are colic, loose, green, offensive, frothy stools and an irritable baby who may pass wind often. Painful nappy rash from chronic acidic diarrhoea, rumbly gurgly tummy, baby appears constantly hungry.
- Improvement within 2-3 days of starting lactose-free diet - Resolution within two weeks.
  - ❖ **Blood or slime in the stools is not a feature of lactose intolerance.**
  - ❖ **Lactose intolerance does not cause vomiting in babies: this is more likely to be a symptom of a cows' milk protein intolerance.**

## Reflux & symptoms

- Infant reflux is described as “non-forceful regurgitation of milk into the oesophagus”. An estimated 40-50% babies under 3 months regurgitate their feed at least once a day and it is particularly common in preterm infants, younger babies and those with neurodevelopmental disorders or hernias .
- Usually begins before the infant is 8 weeks old. 5% of those affected have 6 or more episodes a day. 90% of affected infants will self resolve before 1 year old. Research is consistent that frequency of regurgitation declines over the first 6 months and dramatically after 12 months (NICE 2015).
- Spectrum – mild – moderate – severe
- Doesn't usually need further investigation or treatment– anatomical resolves as infant grows and develops.

## Reflux & symptoms

- Irritability or excessive crying, Recurrent hiccups, Frequent night waking, Frequent coughing.
- Pulling away/crying during feeds-even though baby is hungry - reduction in volume of milk feeds.
- Baby requiring frequent small feeds cycle. Babies that don't cry or demand feeds or gradually refuse feeds altogether and falter growth.
- Failure to move through stages of weaning-particularly transition from smooth-lumpy textures.
- Gagging/Vomiting extreme when finger foods introduced

# CMPA & symptoms

- 5 -15% of infants show symptoms of adverse reactions to cows milk protein
- Breastfeeding should be promoted as primary prevention of CMPA
- CMPA can present in exclusively breastfed infants - very rare - 0.5%
- Exclusive breastfeeding in the first 4-6 months reduces the risk of CMPA
- Babies require exposure to develop a tolerance - Many infants with CMPA become tolerant over time with approximately 30% at one year, 50% at two years and 70% at three years tolerant to cow's milk challenge.



# Symptoms of CMPA & severity

## Immunoglobulin E (IgE)-mediated CMA

is an immediate allergic reaction (type 1 hypersensitivity) which involves the IgE antibody.

Infants often react on their first known ingestion of milk. Symptoms tend to present within a few minutes after milk exposure. Reactions typically involve rapid onset skin signs, such as urticaria and angioedema, with severe reactions potentially leading rapidly to anaphylaxis.

## Non-IgE-mediated CMA

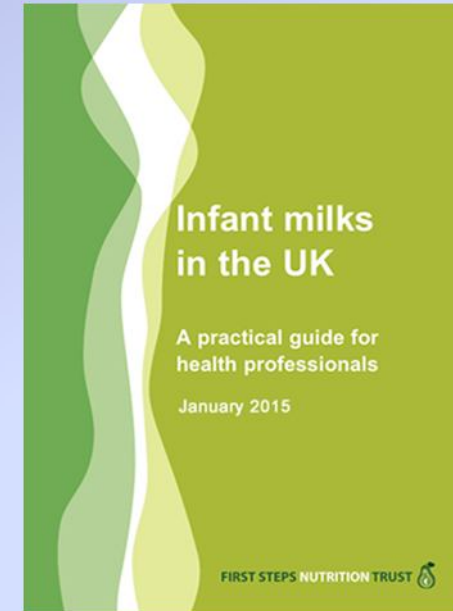
produces delayed symptoms following ingestion, which makes diagnosis more difficult.

Symptoms usually occur within a couple of hours but can occur days after milk exposure and are commonly gastrointestinal (e.g. diarrhoea, reflux, colic) or cutaneous (e.g. chronic eczema) with the respiratory system sometimes involved.

**Anaphylaxis** in up to 15% of cases. ... It can be challenging to identify these non-IgE reactions as there is considerable overlap between these symptoms and other common complaints of infancy.

# Milks

- First stage
- Second stage
- Follow on milks
- Soya milk
- Other mammalian milks
- Milks for special medical purposes:
  - stay down
  - comfort milks
  - lactose-free
- High energy milks
- Extensively hydrolysed formula
- Amino acid formula



## Colic management

- Feed more frequently and respond at the baby's first cues that he/she is hungry – crying is a late sign of hunger and will increase the air swallowed making trapped gas more likely.
- Ensure that baby's feeding position and style, whether breast or bottle, does not result in the baby swallowing air with its milk.
- Keep the baby upright after feeds over the shoulder ideally for at least 30 minutes. Take time to wind baby in an upright position with their head supported.
- Put baby down to sleep flat on their back. The whole of the top of the crib can be raised, avoid use of pillows to raise the head of the baby.
- Ensure that breastfeeding management has been optimised – speak to HV, refer to breastfeeding peer support.
- White noise and motion & reduced stimulation
- Cry-sis online or telephone

## Colic medication

- The use of Simethicone drops (Dentinox©, Infacol©) have not been shown to be effective although they are popularly recommended to mothers. The proposed mechanism of action is to bind bubbles of wind together aiding dispersion.
- The addition of lactase enzymes (Colief©) to breastmilk has been suggested as a treatment for colic, however randomised and blinded controlled studies where formula or expressed breastmilk had lactase or placebo added and was incubated for a period before being given to the baby, have failed to produce evidence for this approach as all families reported reduced crying over the study period.
- However, if baby responds to lactase drops – remember to reassure parents this does not mean baby is lactose intolerant

## Lactose Intolerance management

- Lactose Intolerance – LF milk for 6 week OTC – no need to prescribe
- Most babies will be able to tolerate Lactose in their diet after a transient episode of Lactose Intolerance and should be re-introduced to 'first stage' formula again after a 6 week period
- LF milks carbohydrate source is glucose thus higher risk of dental caries and constipation and flatulence
- If a baby is lactose intolerant, the medical tests ('hydrogen breath test' and tests for 'reducing sugars' in the stools) would be expected to be positive. However they are also positive in most normal breastfed babies under 3 months. Their use in diagnosing lactose intolerance in young babies is therefore open to question.

# Reflux management

- NICE (2015) states that GOR is a normal physiological process in infancy, which is common.
- Parents can be reassured that it does not need any investigation or treatment unless the child presents with symptoms such as unexplained feeding difficulties, distressed behaviour, or faltering growth.
- Overfeeding is a common cause in artificially-fed infants who may benefit from smaller, more frequent bottle feeds. May be beneficial to obtain feed volume diary.
- Conservative management – position, small frequent feed, teat size.
- Over the counter Staydown formulas
- Gaviscon trial 2 weeks and review effect – NB: Gaviscon should not be use with other preparations containing thickening agents!

## Reflux management cont:

- Acid-suppressing drugs, such as proton pump inhibitors (PPIs) eg Omeprazole, or H2 receptor antagonists (H2RAs) eg Ranitidine should not be used to treat overt regurgitation in infants and children occurring as an isolated symptom (NICE, Recommendation 1.3.1).
- If no better with medicine treatment - Consider CMPA
- Referral to paediatrician and/or SALT if faltering growth, not responding to medication, history of chest infections

# CMPA Management

- CMPA mild – EHF –challenge – (if more settled trial back on standard formula and monitor)
- If settled on EHF but symptoms return when challenged keep on EHF and refer to dietician
- If not settled on EHF trial AA formula
- If CMPA severe reaction immediate response – AA – dietician – **DO NOT CHALLENGE** - referral for further test and management
- HV/Dietician - Weaning support .
- Exposure to some protein needed to increase tolerance using the Milk ladder .
- Challenging (when and who?) - 4 week later as per GMMCG
- Vitamins/calcium supplements may be needed.



## Guidance

- <http://gmmmg.nhs.uk/docs/guidance/GMMMG-Prescribing-formula-for-CMPA-final-2-1.pdf>

# Other milks

## Mammalian milks:

- Cows milk is recommended milk from 6 month added to foods and 12 months to drink to supplement established weaning.
- Other animal milks (goat, sheep etc.) are not suitable because children who are unable to tolerate cows milk are at high risk of allergic reactions to other animal milks

## Non animal milks:

- Soya and nut milks
- Rice milk **is not recommended** under 5 due to level of arsenic

# Soya Milks

- Controversy over use in <6 months old – potential allergenic effect in infants at risk and concerns over phyto-oestrogen effect on future reproductive health
- Used to be the only vegetarian alternative (SMA 1st is now suitable for vegetarians). Soya based formulas are not suitable for vegans – there is no infant formula suitable for vegans
- Those with possible CMPA may well be allergic to soya also, therefore should not be used as a first line treatment
- Available OTC - no need to prescribe

## Milk comparison

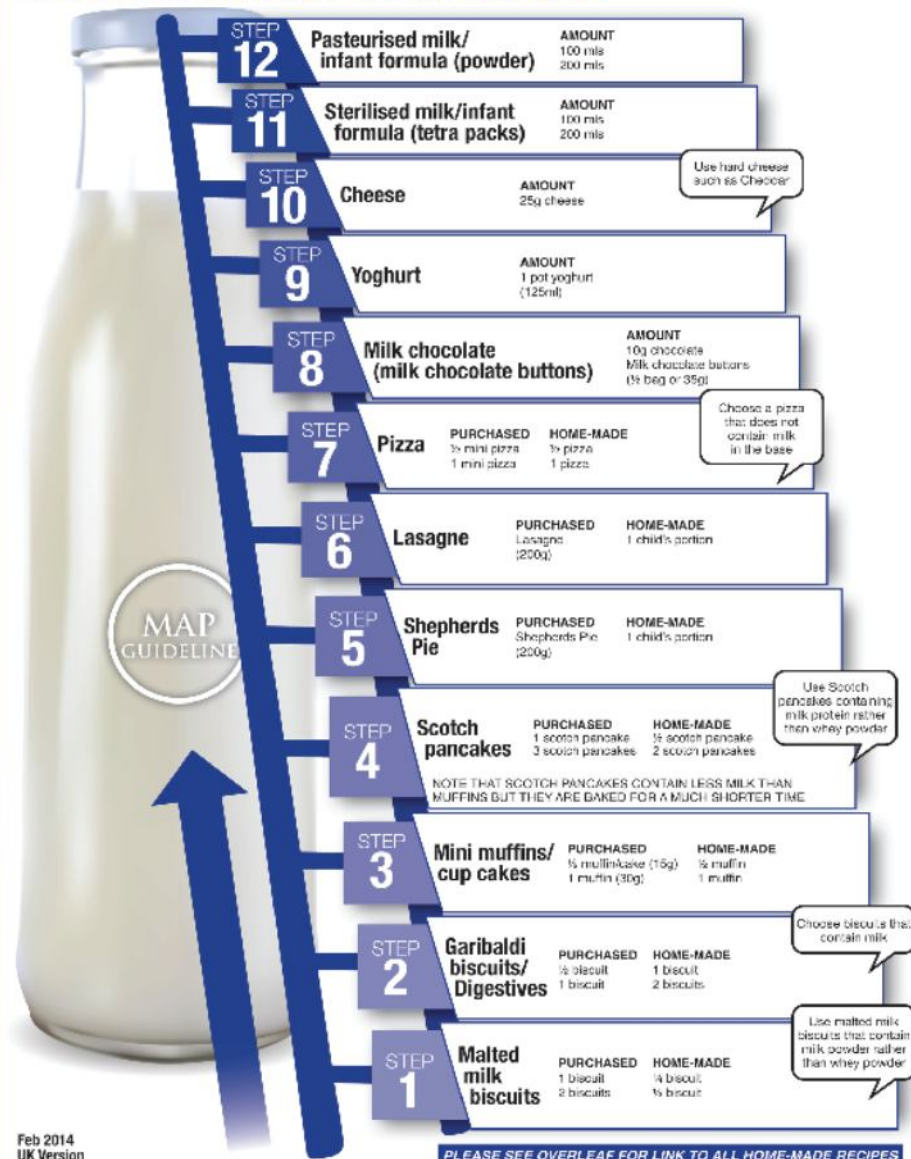
This information gives an idea of milk differences in nutritional value

Product	Kcal/100ml	Protein/100ml	Calcium/100ml
Cows milk	50	3.6	120
Soya milk (alpro)	44	3.2	120
Oat milk	45	1.0	120
Almond milk	24	0.5	120
Coconut milk	27	0.2	120
Rice milk	47	0.2	120

# THE MAP MILK LADDER®



For Children with Mild to Moderate Non-IgE Cow's Milk Allergy  
Under the Supervision of a Health Care Professional, ideally a Dietitian



## Weaning – points to remember

### When?

- 6 months - babies get sufficient nutrition from milk until this age. Anterior/posterior tongue movement as well as lateral tongue movement which is more effective from 6 months – still may have sensitive gag – window of opportunity for taste.
- Babies with feeding issues may benefit from early weaning to enable additional calorie intake and reduce GOR/refusal – needs to be done in caution with guidance from GP/HV and Paediatrician and SALT who can assess development stage.
- Premature babies – at least 3 month corrected and ELBW only if sufficient head control in liaison with neonatologist and dietician.
- 18 months – ‘neophobic stage’ peaks at 22-24months – difficult to introduce new tastes – does reduce as child matures and exposed to other social groups

# Weaning – points to remember

## What?

- Exposure is paramount rather than volume to enable transition through textures – babies still need all textures to aid oral motor development – tongue/sides of mouth need to be desensitized.
- Chewing skills only develop with experience – oral motor skills may not be good enough to separate lumps from smooth.

## Why?

- Good weaning practices and early exposure to tastes predicts better consumption of food acceptance eg. fruit and veg at later age
- 6 months - Opportunity for texture - Transition at appropriate stage of development is needed for texture acceptance and speech

# Case studies review

**Would you do anything  
different now?**



# Take home messages

- Better understanding of the milks and when and what to advise.
- Importance of messages to parents from the beginning to reduce any unnecessary elimination of diet and nutrients.
- Understand the need for vitamin and calcium supplement when needed.
- Better understanding of the need for challenging to ensure correct diagnosis?
- Lets work together better – make sure you utilise the child's HV - they might not know mum and baby are struggling and can ask regarding milk and advise appropriately which will help to reduce further anxiety which will be necessary for better outcomes.

**Thank you for listening - any questions?**



## Additional information

- <http://gmmmg.nhs.uk/docs/guidance/GMMMG-Prescribing-formula-for-CMPA-final-2-1.pdf>
- NICE (2011) – Food allergy in children and young people – diagnosis and assessment [www.nice.org.uk](http://www.nice.org.uk)
- NICE (2015) for GORD in children investigation and management of gastro-oesophageal reflux in children [www.nice.org.uk](http://www.nice.org.uk)
- North West Allergy Network [www.allergynorthwest.nhs.uk](http://www.allergynorthwest.nhs.uk)
- Allergy UK <https://www.allergyuk.org>
- Living with reflux (LWR) <https://www.livingwithreflux.org>

## Additional information

- Local Infant Feeding Information Board [www.lifib.org.uk](http://www.lifib.org.uk)
- NICE (2015) Maternal and child nutrition [www.nice.org.uk](http://www.nice.org.uk)
- NICE (2010) Constipation in children and young people: diagnosis and management. <https://www.nice.org.uk/guidance/cg99>
- <http://www.nhs.uk/Conditions/Colic/Pages/Introduction.aspx>
- CRY – SIS [www.cry-sis.org.uk](http://www.cry-sis.org.uk)
- First Steps Nutrition (June 2015). Infant Milks In The UK [http://www.firststepsnutrition.org/pdfs/Infant\\_Milks\\_June\\_2015.pdf](http://www.firststepsnutrition.org/pdfs/Infant_Milks_June_2015.pdf)
- Logemann, J. (1999) Evaluation and Treatment of Swallowing Disorders and the Royal College of Speech and Language Therapy.