Wentworth Healthcare

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Feeding problems in infants

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phn NEPEAN BLUE MOUNTAINS

An Australian Government Initiative

Feeding problems in infants

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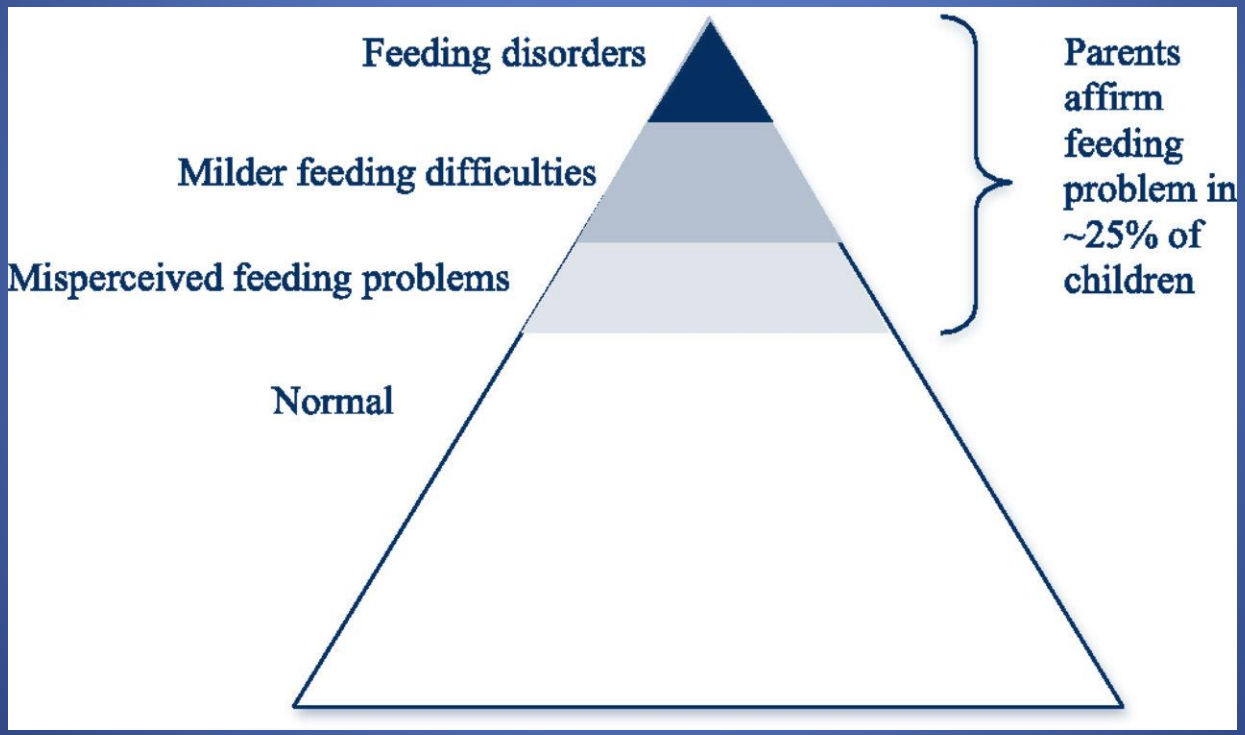
Key learning objectives

- Understand normal feeding patterns in infant
- Recognise that feeding problems are common.
- Prevent or ameliorate feeding problems.
- Distinguish between feeding problems and feeding disorders.
- Recognise “Red Flags”- When to refer

How common are feeding problems?



How common are feeding problems?

- Approximately 25% of otherwise normally developing infants and up to 80% of those with developmental handicaps have been reported to have feeding problems.
- 1-2% of infants have been found to have serious feeding difficulties associated with poor weight gain.

"I tried feeding-on-demand - it led to divorce-on-demand."

Psycho-social factors ←→Feeding problems

- In up to 80% cases of feeding difficulties- psychosocial/behavioural issues co-exist
- Maternal anxiety, post natal depression, in appropriate feeding style, in appropriate meal time environment, parent/infant attachment issues
- 10% of total feeding disorders are due to behavioural/psychosocial issues.

What is feeding difficulty?

- A useful umbrella term that simply suggests there is a feeding problem of some sort.
- In essence, **if the mother says there's a problem, there is a problem.**

Feeding disorder

- A term connoting a severe problem that results in substantial organic, nutritional, or emotional consequences.
- It equates to avoidant/restrictive food intake disorder diagnoses in the DSM-V and the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision*.

DSM-5 Criteria

- The DSM-5 defines the following diagnostic criteria:[2]
- Disturbance in eating or feeding, as evidenced by one or more of:
  - Substantial weight loss (or, in children, absence of expected weight gain)
  - Nutritional deficiency
  - Dependence on a feeding tube or dietary supplements
  - Significant psychosocial interference
- Disturbance not due to unavailability of food, or to observation of cultural norms
- Disturbance not due to anorexia nervosa or bulimia nervosa, and no evidence of disturbance in experience of body shape or weight
- Disturbance not better explained by another medical condition or mental disorder, or when occurring concurrently with another condition, the disturbance exceeds what is normally caused by that condition.


Normal infant feeding
Feeding problems/Feeding difficulties
Feeding disorder

Impact of feeding disorders

- Disrupts infant's early development
- Linked to later deficits in cognitive development, behavioural problems, anxiety disorders and eating disorders during childhood, adolescent and young adulthood.
- Therefore it's extremely important to identify, understand and treat early feeding problems or feeding difficulty.

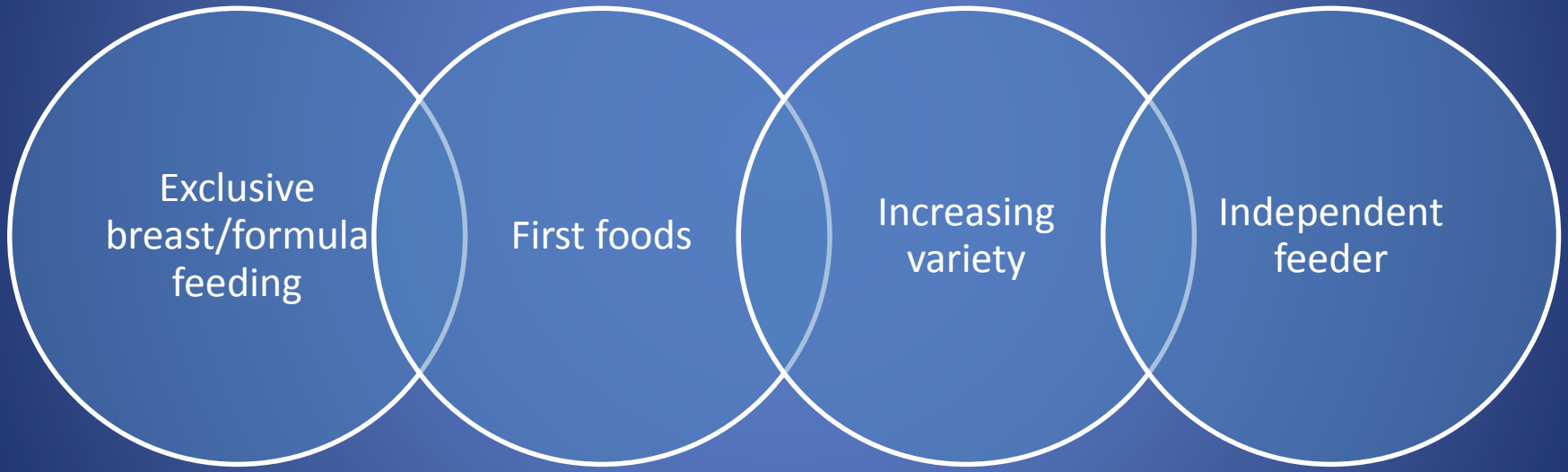
Normal infant feeding development

- Basic skills for normal feeding pattern begin to develop well before birth, continues through early infancy and into childhood.
- Swallowing develops at end of first trimester and by a term infant will be swallowing about 500 mL of amniotic fluid per day.
- Infants from about 34 week's gestation have the ability to feed orally and maintain adequate nutrition.

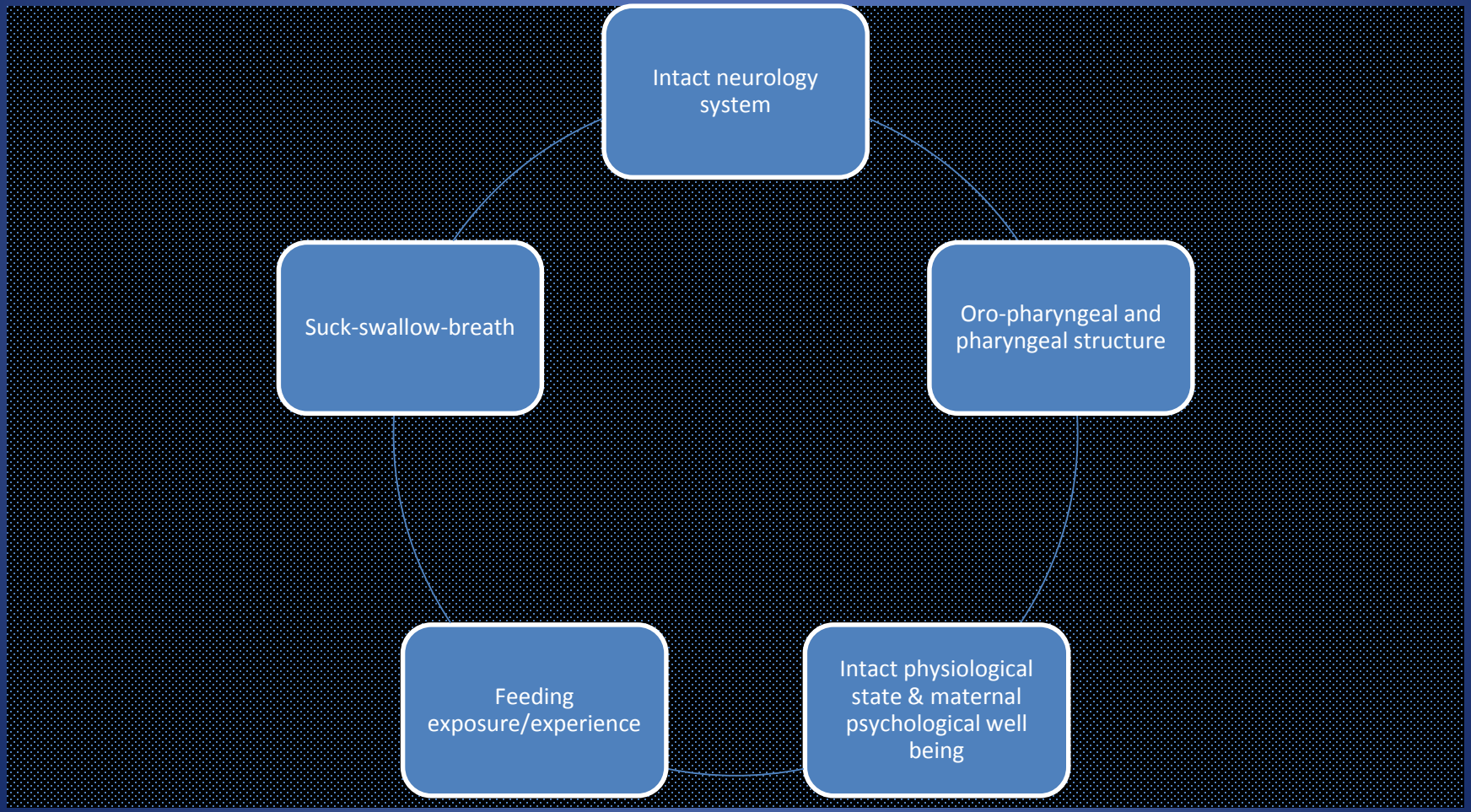
Feeding gradually changes from reflexive to learnt behaviour

Feeding development domains

Key developmental stages



What is required for effective feeding?



Complex interplay of multiple factors

- Given that feeding is multifaceted, these factors can interact with each other to result in complex feeding difficulties.
- With many infants there may be more than one factor that results in poor feeding and inadequate weight gain.
- Children with complex medical conditions requiring periods of supplemental feeding are at particular risk of reduced feeding skills due to less exposure at critical feeding milestones.

Presenting features of feeding difficulties

Presenting features of feeding difficulties

Prolonged mealtimes

Food refusal lasting <1 month

Disruptive and stressful mealtimes

Lack of appropriate independent feeding

Distraction to increase intake

Failure to advance textures

Prolonged breast or bottle-feeding

Case study

- George was 7 month old when he was referred to Paediatrician for review because of eating only small amounts of milk/solids and poor weight gain.
- His mother Mrs Smith reported that George would only drink small amount of milk and eat very little most days.

- Sometimes he would drink whole bottle of 150 ml at night but usually during the day not accept more than 30-50 ml at a time before he would cry and refuse to take any more.
- When offered pureed baby foods, he would move it around his mouth and lost most of it.
- He was a happy baby in general, but he cried a lot during feeds.

- Mrs Smith left exhausted because feeding would take more than an hour, and she felt that she was feeding George all day long without getting much food into him.
- He was born at term, uneventful pregnancy and normal delivery with birth weight of 3.8 kg. 2nd child of Mrs Smith (older 4 year old).
- Mrs Smith felt he fed well for the first 2 months but he never took more than 70-80 ml of formula at a time.

- After 2 months his feeding behaviour changed when he started to cry during feeds and would often arch himself up so that Mrs Smith had to stop feeding him.
- His crying became more intense and also started to vomit with occasional gagging.
- His weight was below the 5th percentile and height at the 10th percentile.

Examination

- Thin looking infant with minimal subcutaneous fat. No rashes on skin.
- Started crying during examination.
- Soft abdomen. Bowel sounds present. No abdominal mass palpable. Rest examination normal
- ? Diagnosis ?Treatment

Questions?

Questions

- Organic cause ? Gastroesophageal reflux disease
- ?Cow's milk protein allergy (No rash/No family history of Atopy or Eczema). No history of diarrhoea
- ?Oro-motor delay ?Needs oromotor assessment by speech pathologist
- Developmental status- any delay?
- Is this behavioural feeding problem, ?maternal anxiety/?food aversion

Common organic causes of feeding difficulties

Neurological impairment

- Often presents in newborn period with difficulty attaching to breast or bottle for feeding and disordered sucking skills. Includes Conditions such as Hypoxic ischaemic encephalopathy, cerebral palsy, muscular dystrophy and Chromosomal abnormalities.
- Often at risk of aspiration due to incoordination of their suck-swallow-breath pattern.
- Food refusal and aversion may indicate the presence of silent aspiration with feeding

Structural abnormality

- Ankyloglossia- (Tongue tie). Baby unable to protrude tongue past lip line. Can result in problem with breast feeding Surgical intervention may be needed in severe cases.
- Laryngomalacia & Tracheomalacia- Infants presents with stridor and noisy breathing. Get tired easily during/after feeds. Usually improves by 12-18 months. Severe cases need surgery.
- Laryngeal clefts- Gurgling sounds after feeding, at risk of aspiration. Laryngscopy diagnostic
- Cleft palate and Cleft lip. Bifid Uvula and nasal regurgitation of milk may help in diagnosis.

Physiological instability

- Respiratory and cardiac abnormalities- Often not conducive to effective feeding.
- Chronic lung disease, cardiac failure secondary to congenital heart disease
- Tachypnoea→ Increased caloric requirements, reduced ability to maintain suck-swallow-breath
- Increased caloric requirements + reduced ability to suck = Failure to thrive.

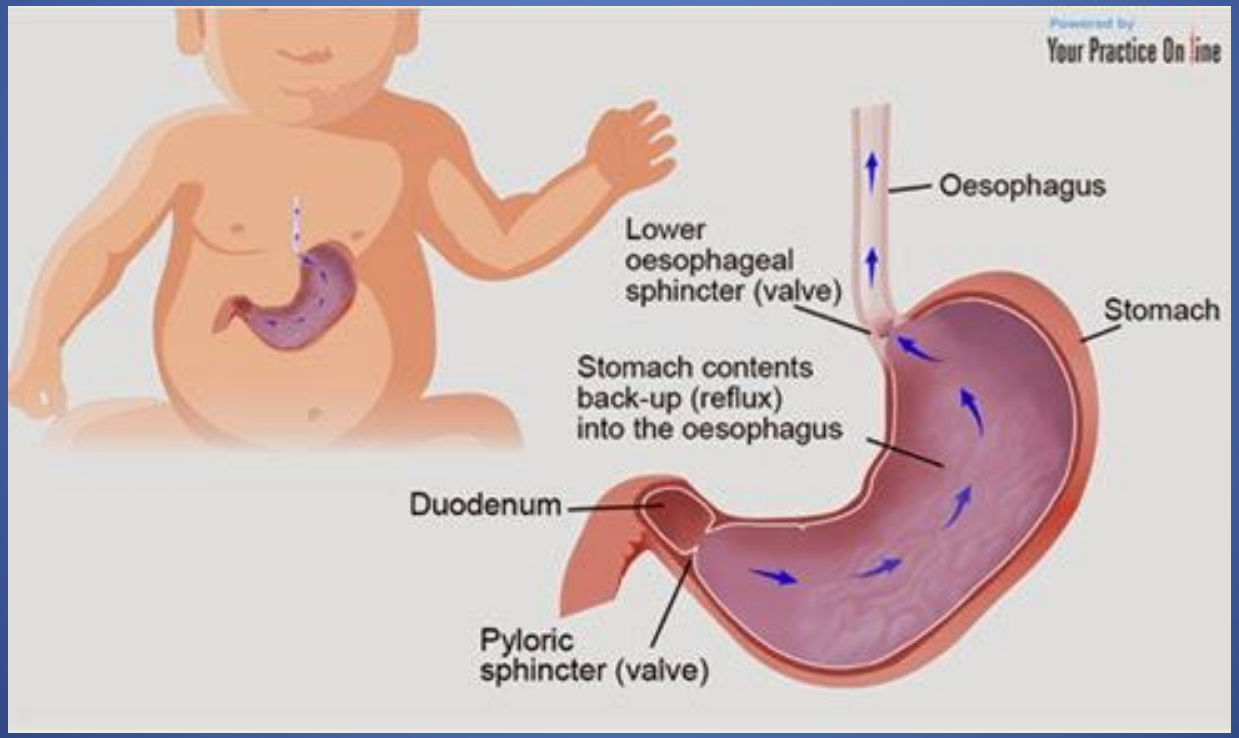
Organic causes (contd)

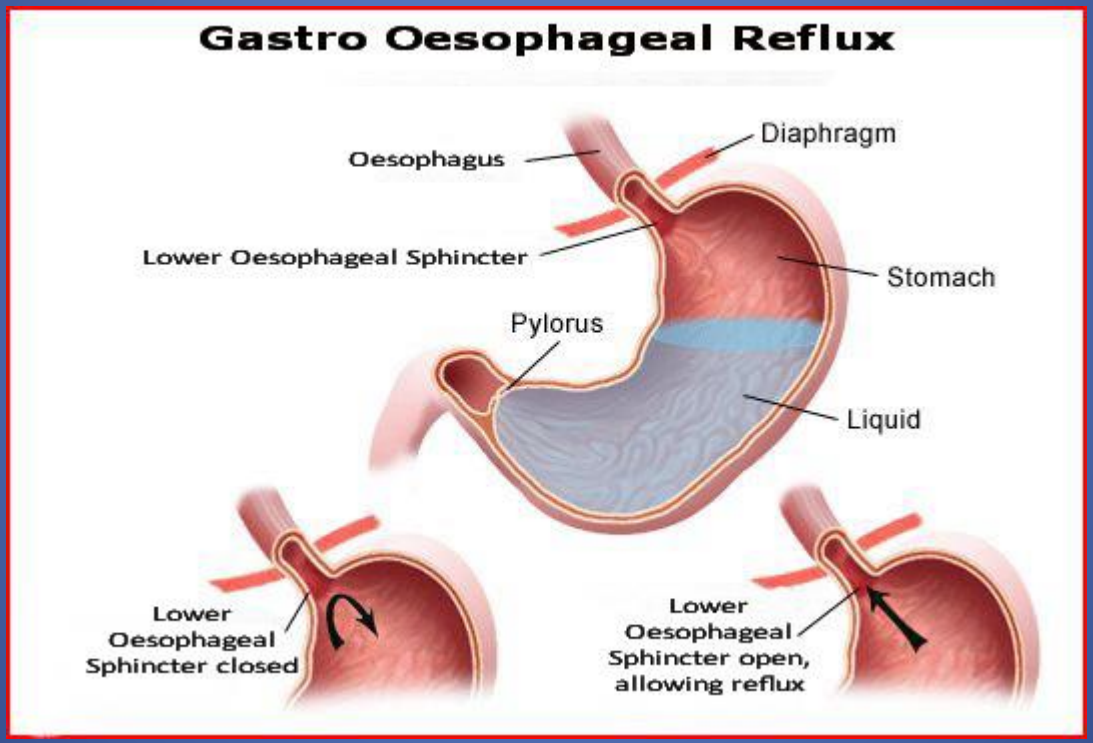
Developmental delay	•Feeding skills in line with their overall developmental level •Progression of textures beyond their developmental capability puts these infants at risk of choking, aspiration and subsequent food aversion
Gastroesophageal reflux (GOR) and disease (GORD)	•GOR is the passive regurgitation of a feed due to an ineffective lower oesophageal sphincter. Most newborns have some degree of GOR. If thriving well, no treatment required. •Gastro-oesophageal reflux disease (GORD) is the presence of significant reflux that results in pathology such as oesophagitis or failure to thrive. Treatment- Medication/thickener •Recurrent/Projectile Vomiting should alert to pathologies other than reflux such as pyloric stenosis.
Food allergy and intolerance	•Infants with food allergy most commonly present with an urticarial rash, often initially around the mouth. If allergy is severe than oral/periorbital swelling/anaphylaxis can develop. •Cow's milk protein is most common food intolerance- presents in first 2 months- formula fed infants, loose stools, flecks of blood, failure to thrive. Vomiting/Food refusal may be present. • Lactose intolerance- (primary rare) usually develops in infants after viral gastro illness . Transient. Lactose free formula may help. No need to stop breast feeding.

Gastroesophageal reflux (GOR)

- Regurgitation is reported in 67% of normal infants under 4 months of age, and accounts for 6.1% of paediatric consultations.
- Simple regurgitation without any other symptoms is physiological and does not require either investigation or treatment.
- Many carers consider it to be abnormal, and in one study 24% raised it as a concern at a well-baby visit.
- Another study showed that Carers are more likely to be concerned when regurgitation happens more than once daily, is a large volume, or is associated with irritability.

Gastroesophageal reflux (GOR)




Gastro Oesophageal Reflux
Oesophagus
Diaphragm
Lower Oesophageal Sphincter
Stomach
Pylorus
Liquid
Lower Oesophageal Sphincter closed
Lower Oesophageal Sphincter open, allowing reflux

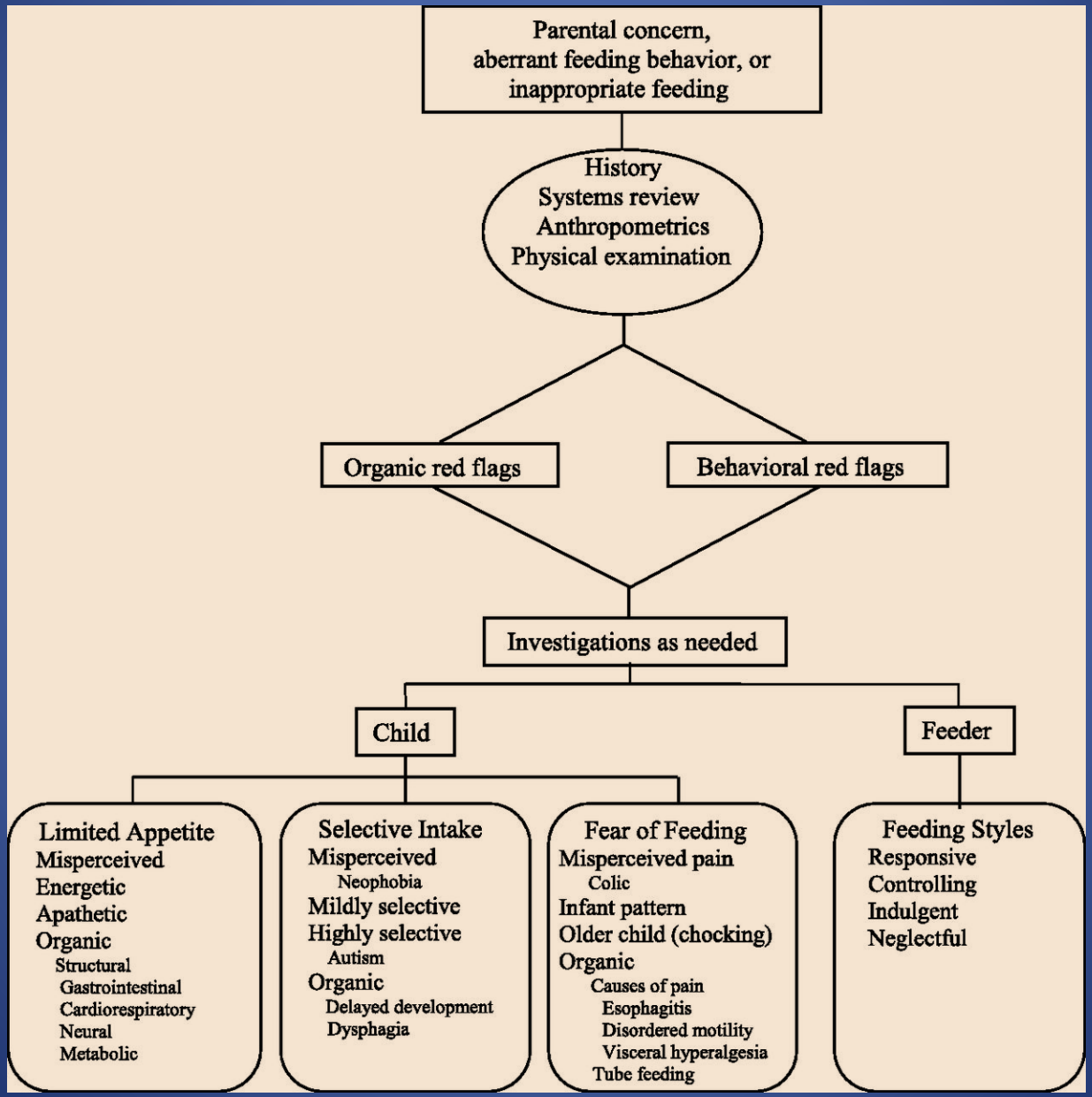
Happy Spitters !

Eosinophilic esophagitis

- Eosinophilic oesophagitis (EoE) is a chronic inflammatory disorder of the oesophagus that leads to oesophageal dysfunction and symptoms including dysphagia and heartburn. (chocking, gagging, crying, feeding problems)
- The first cases of oesophageal eosinophilia were described as early as the 1960s and 1970s. However, EoE was formally recognised in a 1993 case series describing patients with oesophageal eosinophilia that lacked evidence of acid reflux.

- In the past, most cases of EoE were labelled as gastro-oesophageal reflux disease (GORD). However, this diagnosis came to be questioned, given that patients' oesophageal pH studies were normal and symptoms were non-responsive to acid suppression.

An approach to identify feeding difficulties



Terminology

- *Odynophagia* (from the Greek roots odyno-, pain + -phagia, from phagein, to eat) is painful swallowing, in the mouth (oropharynx) or esophagus. It can occur with or without dysphagia.
- Dysphagia (difficulty swallowing) means it takes more time and effort to move food or liquid from your mouth to your stomach.

Red flags

- **Organic**
- Dysphagia
- Aspiration
- Apparent pain with feeding
- Vomiting and diarrhoea
- Developmental delay
- Chronic cardio-respiratory symptoms
- Growth failure (failure to thrive)

- **Behavioural**
- Noxious (forceful and/or persecutory) feeding
- Abrupt cessation of feeding after a trigger event
- Anticipatory gagging
- Failure to thrive
- Food fixation (selective, extreme dietary limitations)

Organic red flags

- Dysphagia and aspiration most critical red flags
- In non verbal infant dysphagia and odynophagia may present with food refusal
- Features that suggest in-cordinate swallowing may be overt such as coughing or choking.
- Evaluation of dysphagia requires identifying which phase of deglutition (oral, pharyngeal, or esophageal) is disorganised and is best handled by oral motor specialists (speech pathologists).

Organic red flags

- Growth failure
- Diarrhoea
- Vomiting
- Failure to thrive in many societies more often a feature of behavioural problem than of organic disease

Behavioural red flags

- Noxious (forceful and/or persecutory) feeding
- Abrupt cessation of feeding after a trigger event
- Anticipatory gagging
- Failure to thrive
- Food fixation (selective, extreme dietary limitations)

Behavioural red flags

- Whether or not organic causes are identified behavioural red flags should be sought as they often co-existOften requires more intensive approach with help of behaviour modification experts/specialists.
- Often need to modify parents' feeding style, noting that when it is forceful or mechanistic (independent of the child's positive or negative feedback) feeding difficulties are likely.

Practical classification of feeding difficulties

- Based on the parents' expressed concerns about their child's feeding/eating behaviour
- 3 Principal categories with subcategories in each group
- Not eating enough (limited appetite)
- Eating an inadequate variety of foods (selective intake)
- Afraid to eat (fear of feeding).
- *(Benny Kerzner,I Chatoor et al PEDIATRICS Vol. 135 No. 2 February 01, 2015)*

Parent's feeding style

- Feeding is a transaction influenced by both the child's behaviour and the parents' feeding technique.
- 4 fundamental feeding styles: Responsive. Controlling, Indulgent, and neglectful.
- Feeding styles have potential to positively or negatively affect every feeding problem.

Responsive feeders

- Concept of division of responsibility; the parent determines where, when, and what the child is fed; the child determines how much to eat
- Respond to the infant's feeding signals
- Guide the infant's eating instead of controlling it
- Reported to result in children eating more fruits, vegetables, and dairy products and less "junk food," resulting in a lower risk of becoming overweight.

Controlling feeders

- Common !!
- Half of all mother and greater proportion of father employ these methods.
- These caregivers ignore the infant's hunger signals and may use force, punishment, or inappropriate rewards to coerce the child to eat.
- These practices initially appear effective, but become counterproductive, resulting in poor adjustment of energy intake and consumption of fewer variety of foods.

Indulgent feeders

- They cater to the child. They tend to feed the child whenever and whatever the child demands, often preparing special or multiple foods.
- This feeder feels it is imperative to meet the child's every need, but by doing so ignores that child's hunger signals and sets no limits.

Neglectful feeders

- Neglectful feeders abandon the responsibility of feeding the infant and may fail to offer food or set limits.
- When feeding their infants, they may avoid eye contact and appear detached.
- Neglectful parents ignore both the infant's hunger signals and other emotional and physical needs.
- They may have emotional issues, developmental disabilities, depression, or other conditions that make it difficult for them to feed their infant effectively.

Take home messages

- Feeding problems are common→ most cases if managed early with parental education/modification of feeding techniques can prevent serious feeding disorders without long term consequences
- Identify and refer when red flags (organic or behaivoural)
- Gastroesophageal reflux (GOR) NO treatment if infant thriving well
- GORD→ Uncommon
- Vomiting + Crying NOT always GORD
- Vomiting +Crying + Poor weight gain→ Early Paediatrician referral

Any questions?

- Thank you