

How Dietitians can support breastfeeding in a clinical setting

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Our roles

Denise King

Clinical Lead Community Paediatric Dietitian, IBCLC
Wirral Community NHS - specialist area - Early years nutrition, HETF
Private business - breastfeeding & weaning

Jenni Ashcroft

Paediatric Lead for SSPAU – Acute presentation of feeding problems & Faltering growth
Inpatient wards in district general hospital
Private business - Paediatric Dietitian & IBCLC

IBCLC qualification

International Board Certified Lactation Consultants

The International Board Certified Lactation Consultant accreditation is an internationally recognised professional breastfeeding qualification and is seen as the global gold standard



Ethical and professional guidelines set by IBCLC
Financial cost to achieve and maintain registration

Physiology of breastfeeding

- "Normal" milk production
- Position and attachment
- Supporting milk production

Dietetic support of the breastfed infant

- Supplementing the breastfed infant
- What supplement to use
- Monitoring and reviewing of treatment

Physiology of breastfeeding

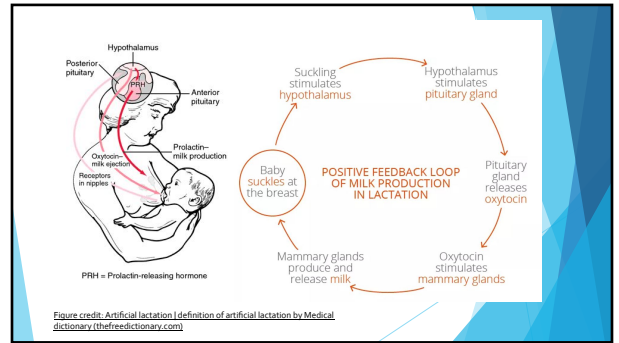
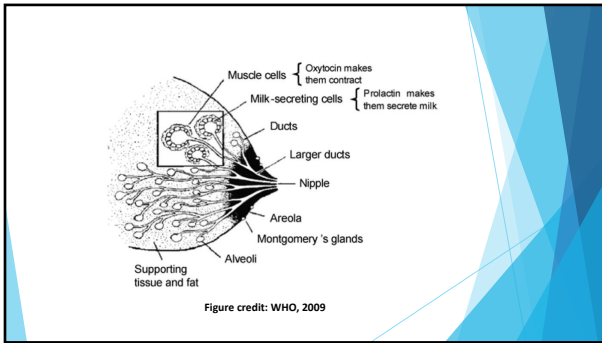
Recap on physiology

- Breast development begins in puberty
- During pregnancy breast-tissue increases as well as blood volume
- Oestrogen, progesterone and prolactin have roles during pregnancy and then lactation
- Delivery of placenta (drop in progesterone) → milk production and secretion (Lactogenesis II)
- Endocrine → Autocrine (supply and demand)

(Al-Chalabi *et al.*, 2022)

Prolactin is responsible for the production of milk, oxytocin is responsible for the release

An adequate milk supply needs sufficient mammary tissue, normal hormone levels, and regular removal of milk (Livingstone, 1990)



What is Breastmilk?

Colostrum:

- Produced from 16 weeks (lactogenesis I)
- Rich in immunological components (secretory IgA, lactoferrin, leukocytes and developmental factors)
- Low concentrations of lactose
- HIGHER sodium, chloride & magnesium
- LOWER potassium and calcium

Transitional milk:

- Increase in volume
- 5 → 14 day postpartum

Mature milk:

- Typically 4-6 weeks fully mature
- Relatively uniform in composition throughout the course of lactation*

Ballard & Morrow (2013)

Expected milk volumes

Average infant intake (Walker, 2013; Neville et al., 1988):

- Day 1: 37ml
- Day 2: 185ml
- Day 3: 408ml*
- Day 4-9: – breasts produce 400-750ml of breastmilk per day
- Day 9 onwards – Can be up to 1000ml + per day

- 8-12 feeds per day – longer initially to shorter feeds
- Mothers on average produce 1/3 more milk than infant requires
- Does maternal diet influence quality of milk produced?

Breastmilk composition (Term infants)

- Unlike formula – breastmilk constantly changing to infant needs
- Changes across the day and across a feed
- Adapts in periods of growth and illness
- Composition of breastmilk a spectrum – allergies
- If demand drops so does supply – introduction of complementary foods

Three stages of a breastfeed

- Stimulating a let down - active milk transfer - slower milk transfer
- Only one type of milk created – change in composition throughout a feed
- Human milk is not homogenised

- ↑milk removal ↑ fat content ↑ fat content consumed by infant
- ↓ milk removal ↓ decreased fat content ↓ volume produced
- Nutritional value to less fatty milk – lactose (CHO) caesin (protein) electrolyte etc

Breastfeeding beyond the first year

American Academy of Paediatrics (2005, 2012):

'Breastfeeding should be continued for at least the first year of life and beyond for as long as mutually desired by mother and child... Increased duration of breastfeeding confers significant health and developmental benefits for the child and the mother...'

'There is no upper limit to the duration of breastfeeding and no evidence of psychological or developmental harm from breastfeeding into the third year of life or longer'

- From 6 months we know that breastmilk increases immune and fat components
- Breastmilk does not lose immunological and nutritional value

Position & Attachment

Common breastfeeding positions



Side lying



Cross Cradle hold



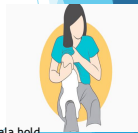
Laid back



Cradle hold



Rugby Ball



Koala hold

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milkology

What is a good breastfeeding position?

CHINS

- Close to breastfeeding parent
- Head free to tilt
- In line
- Nose to nipple
- Sustainable

(CHINS developed by Dr. Lynette Shotton)

Attaching a baby to the breast

- ▶ Chin well indented into the breast
- ▶ Mouth wide open
- ▶ Cheeks full and rounded
- ▶ Nose free and head tilted back
- ▶ More areola visible above top lip
- ▶ Feeding is pain-free

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Why babies have trouble attaching

- Fractious at the point of feeding
- Parental cause (e.g. engorgement, blocked duct, low supply)
- Baby cause (e.g. cleft lip/palate, neurological condition)
- Small mouth vs large nipple

Effects of poor attachment

Mother

Sore nipples
Engorgement
Mastitis
Poor milk supply
Loss of confidence



Baby

Feeding very frequently
Frustrated
Poor weight gain
Jaundiced
Hypernatraemia

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Time for a little practical work



Good Position?

- Baby is Close but looks like a sheet or something between him and his parent
- Head is not tilting back
- He looks like he is Inline
- Nipple pointing to centre of mouth - not Nose to nipple
- NOT a good position

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Good Position?

- Baby is not Close
- Head is not tilting back
- He is Inline BUT head will turn over shoulder to attach
- Nipple pointing to centre of mouth - not Nose to nipple
- NOT a good position

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Good Position?

- Baby is Close to the parent
- The Head is tilted backwards
- Ears, shoulders and are Inline
- Nose has been lined up to the nipple
- This IS a good position

Breastfeeding
Good for baby. Good for you.

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Good attachment?

- Chin not indenting the breast
- Narrow mouth
- Cheeks not full
- Head not tilted backwards
- Equal amounts of areola visible above the top lip and below the bottom lip
- NOT a good attachment

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Good attachment?

- Mums' fingers obstructing the baby's ability to latch
- Chin not indenting the breast
- Narrow mouth
- Cheeks not full
- NOT a good attachment

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Good attachment?

- Chin well indented into the breast
- Mouth wide open
- Cheeks full and rounded
- Nose free and head tilted back
- More areola visible above top lip
- This is GOOD attachment

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Effective Breastmilk Transfer

- The suck/swallow pattern of a feed



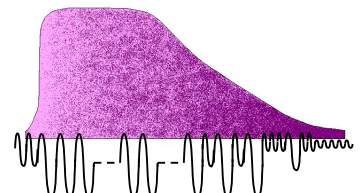
Beginning of feed - short, rapid sucks

After the 'let down' Active feeding - long, slow, rhythmic sucking and swallowing, with pauses

End of feed - 'flutter sucking' with occasional swallows

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Seeing what the baby is getting



Active feeding (1:1 or 1:2 swallowing)

'Flutter sucking' (fewer swallows)

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When a baby isn't feeding at the breast

- Ask why, what is the rationale?
- Can we support fewer breastfeeds or feeding after the parent has expressed?
- Share this with a lactation consultant/infant feeding lead or appropriately trained health professional in your trust and ask their opinion on how best to support the breastfeeding dyad
- Encourage skin to skin whilst being fed no matter what the route of administration
- Ensure the feeding parent is supported to express – [To Pump More Milk, Use Hands-On Pumping — Nancy Mohrbacher](#)
- If a baby is NBM/Tube fed – Can you support non nutritive sucking to help improve their oral skills?
- MONITOR & REVIEW frequently - things often change frequently
- On discharge - Refer to community teams to support transition to breastfeeding and local peer supporters

Optimising 'alternative' milk removal

Hand expressing the early days may result in mum expressing larger volumes than using a pump and overall increase milk supply

Breast massage and compression will help with overall amount of milk expressed

Breast pump use:

The reason for use - to have EBM to feed baby or to increase supply

- Silicone "pumps"
- Manual single hand pumps
- Single electric pumps
- Double electric pumps
- Hospital grade double electric pumps - multi-user

Understanding of the various settings - cycles and vacuums

Frequency and duration of expressing

Dietetic support of the breastfed infant

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Suboptimal weight gain vs faltering growth

Not a diagnosis - an observation of growth, deviation from normal (NICE 2017)

Up to 3 weeks (21 days) of age percentage weight loss is used to assess growth

Cause of concern - >10% birth weight lost in early days, or not back to birth weight by 3 weeks

Beyond 3 weeks NICE guidelines are used to assess growth and indicate when further assessment is needed:

- 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
- when current weight is below the 2nd centile for age, whatever the birth weight

Factors that contribute to faltering growth

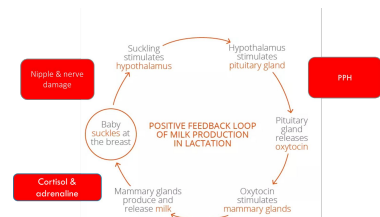
Infant factors

- Physiological jaundice - sleepy baby
- Poor positioning and attachment - ineffective milk transfer
- Dummy use - interferes with responsive feeding
- Medical condition e.g. cardiac abnormality, cleft lip/palate
- Illness or infection - e.g. UTI
- Delayed and infrequent feeding in the first few days after birth
- Infants who are IUGR or LBW
- Preterm infants - particularly late preterm infants

Maternal factors

- Birth factors - PPH/section
- Maternal nipple pain/trauma/mastitis
- Untreated thyroid condition
- Maternal anaemia
- Delay in starting breastfeeding >2 hour postnatally
- Previous breast surgery causing nerve damage
- Gestational diabetes
- Obesity
- Medical condition that inhibits parents response to babies feeding cues, (e.g. depression/anxiety)
- No breast changes noticed during pregnancy (hormone imbalances)
- Hypoplasia (insufficient breast tissue - requires specialist feeding assessment)

Factors that can interfere with breastfeeding



What to do when growth is less than optimum....

- **Take a detailed feeding history:**
 - This should include questions about how the breasts changed during pregnancy, or didn't
 - Is this their 1st baby - have they breastfed other children
 - Has their milk 'come in' - by Day 5 whiter milk and increased volumes indicate this
 - Do they feel a 'let down' of milk when feeding
 - Is the infant rousing and cueing for feeds themselves
 - How often is the baby feeding in 24hrs? Aim for 8-12 (>30min gap between feed - new feed)
 - How long does the baby feed for? Good feeds typically last 20 - 40min Those <5min or >40 cause for concern
 - Typically one episode of cluster feeding in 24 hours
 - Is the baby actively feeding at the breast? Can the parent explain the 3 stages of a breastfeed and recognise a swallow?

What to do when growth is less than optimum....



- **Taking a feeding history continued.....**
 - Is feeding pain free? not uncommon but not ok - indicates something wrong
 - How many times a day is the baby weeing and pooing? From day 4 onwards at least 2 dirty nappies and 4-6 heavy wet nappies should be seen
 - Are they exclusively breastfeeding? If not how many additional milk feeds are they having? Are they using a bottle or other feeding device? And when - immediately after a breastfeed or between breastfeeds?
 - How much additional milk volumes are being given
 - For older babies (>4 months) ask about complementary foods
 - Ask about pacifier/dummy use - ensure feeding cues aren't missed
 - Ask about medications for the parent and the baby and include herbal supplements
 - Make a note of any red flags and refer to a breastfeeding specialist for a full breastfeeding assessment

What to do when growth is less than optimum....

- **Watch a breastfeed! Can you recognise the 3 stages of a breastfeed and see/hear the baby swallowing?**
- **Advise on breast compressions if a mother can no longer see her baby swallowing - used during a breastfeed to increase the pressure in the breast and support increased milk transfer to your baby**
 - Make a C shape and cup the breast with the fingers close to the chest wall
 - When the baby starts to suckle compress the breast and hold the compression
 - When the baby stops swallowing release the compression
 - When the baby begins to suckle again, compress the breast again
 - Repeat until the baby is not swallowing even with compressions
 - Move the hand around the breast and repeat
 - Switch breasts and repeat
 - A baby can switch breasts multiple times - switch feeding



What sorts of infants are we seeing?

- Newborn re-presenting <21 days
- Infant <6 months
- Older infant >1 year
- Slow weight gain
- Severe faltering - late referral
- Complex medical history with either of the above
- Allergies with faltering growth (pre or post investigation)
- Exclusively expressing for enterally tube fed infant or child

What type of milk and amount to supplement?

Clinical reasoning

Normal nutritional requirement (NR) vs significant increased NR/restriction on fluid volumes
E.g. 120% of requirements

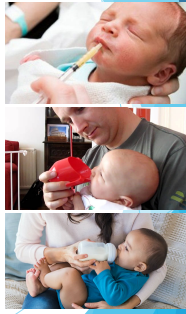
GOSH nutritional requirements reference

Average nutritional value mature breast milk (per 100ml) - 65kcal/1.3g protein, 6.7g CHO, 3.8g fat*

Institute of medicine (1991)

1. Expressed milk
2. Donor milk
3. Formula:
 - Standard formula
 - Allergy - AA based formula/concentrated
 - High calorie formula
 - Specialist infant formula

Tools for faltering growth in the breastfed infant



How to give a supplemental feed (SF)

Paced feeding help protect breastfeeding

- Infant controls how much and how quickly they feed
- Try and mimic typical feed pattern at breast
- Try to minimise fussiness at breast due to milk-flow speed

Offer breastfeed first (depending on alertness and feeding effectiveness)

May cap length of time at breast (depending on level of exertion/sleepiness)

Sometimes can be beneficial to give SF first as infant can regulate milk flow from breast easier (GORD) and mother can benefit from seeing infant settle at the breast and come off content

Typical feeding plans

"Triple feeding"

Breastfeed

Top up (may be EBM/Donor/Formula)

Mum to express (up to 8-12 x day)

Move to giving larger SF/replacement feeds to support ongoing expressing
Dependent on family goals

Being led by the infant - if transferring more at breast might take less SF
As infant gains weight they outgrow their SF as % of their intake

Monitoring of treatment

- Degree of faltering and level of input required
- Resources available
- <21 day infant could be every 48-72 hours weight check with CMW team
- If an inpatient could be monitored more closely than community
- <6 weeks maternal milk supply adjustable therefore plan might be more intense - triple feeding with weekly or twice weekly weight checks
- Good communication is key
- Until plan is de-escalated or longer term plan agreed with family regular input should be offered to support these families with clear goals set

- Be aware that supplementary feeding with infant formula in a breastfed infant may help with weight gain, but often results in cessation of breastfeeding
- Together with parents and carers, establish a management plan with specific goals for every infant or child where there are concerns about faltering growth. This plan could include:
 - Assessments or investigations
 - Interventions
 - Clinical and growth monitoring
 - When reassessment to review progress and achievement of growth goals should happen
- If supplementation with an infant formula is given to a breastfed infant:
 - Support the mother to continue breastfeeding
 - Advise expressing breast milk to promote milk supply and
 - Feed the infant with any available breast milk before giving any infant formula where appropriate

NG75 NICE (2017)

What can you achieve in a consultation?

- Practical plan which supports growth and protects breastfeeding
 1. Achieve appropriate growth or catch up
 2. Protect maternal milk supply
 3. Re-establish or improve direct breastfeeding
- Validation, reassurance and support
- Listening and asking open questions
 - Strengthen women's autonomy with good communication skills
 - Ask what mums goals for breastfeeding are
 - What experience and support has she had to date?
 - Onward referral or joint working with local IFL
 - Sensitive non-judgemental approach to combination feeding
- Signposting
- Dispelling myths

Signposting

- GP & Hospital Infant Feeding Network
- Academy of Breastfeeding Medicine - protocols
- International Breastfeeding Centre
- Breastfeeding Network
- Breastfeeding Helpline
- First Steps Nutrition
- Local Infant Feeding Leads
- Peer Support Groups
- La Leche League groups
- Breastfeeding support Facebook Groups
- Physianguidtobreastfeeding.org



Take home messages

- Familiarise yourself with breastfeeding physiology
- Observe more breastfeeding
- Become an expert on positioning and attachment
- Be able to recognise effective milk transfer
- Be confident in how to explain a "breastfeeding supportive" feeding plan that includes supplemental feeds, and know to wean SF
- Onward signposting to reputable sources for families
- Develop better working relationships with IFL teams

Many thanks

Any questions?

