Pediatrics - Topic 7 - To promote and support optimal Breast feeding for Infants

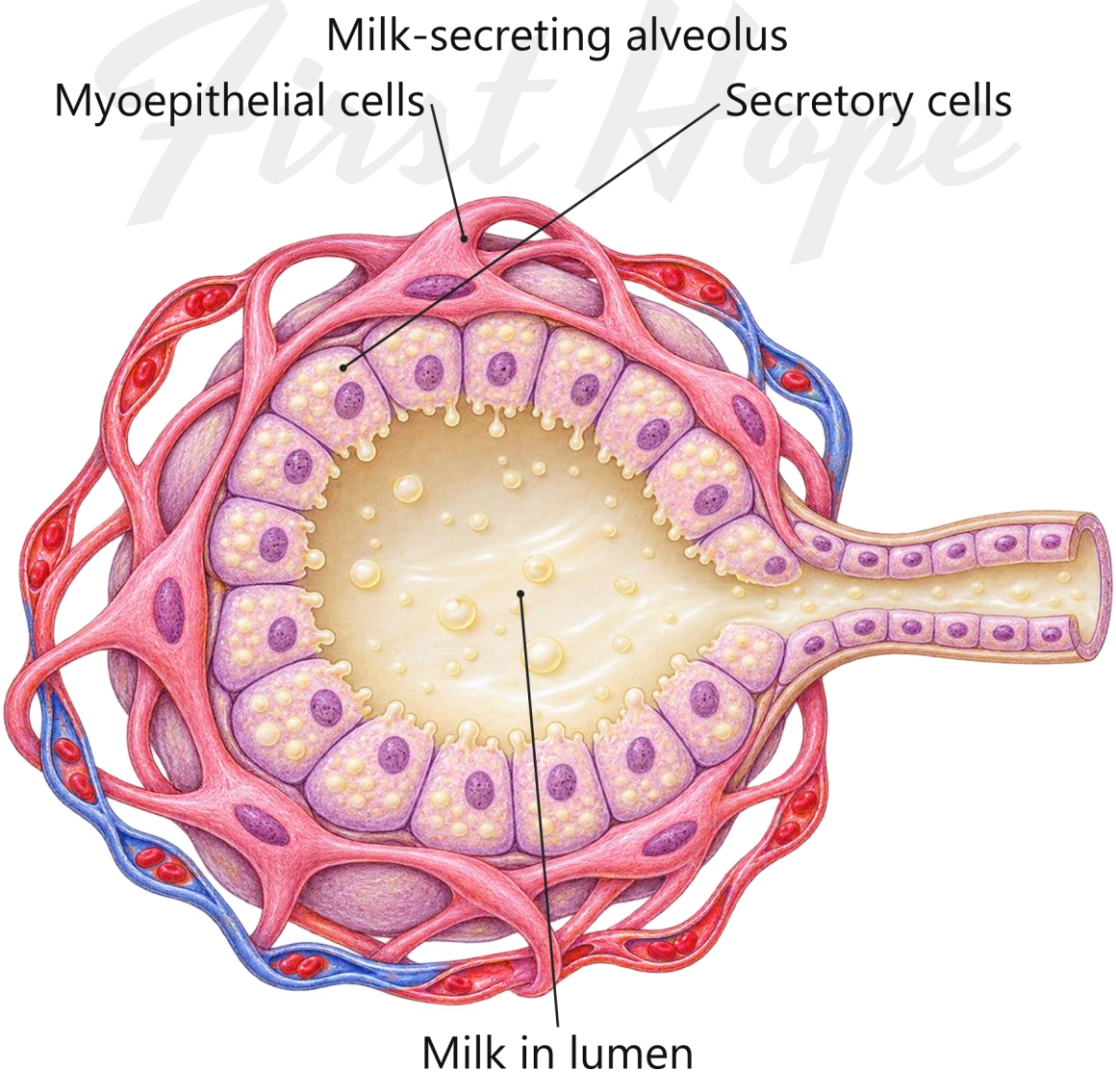
Breastfeeding and Lactation

- Breast milk provides nutrition suited to the infant together with immune and other biologically active components.

Establishing Breastfeeding

- Early skin-to-skin contact and skilled support help establish feeding after birth.
- Breastfeeding should begin within the first hour when the mother and newborn are clinically able to do so.
- Exclusive breastfeeding is recommended for the first 6 months, followed by appropriate complementary foods with continued breastfeeding to 2 years or beyond.
    - Exclusive breastfeeding allows prescribed medicines, vitamin or mineral drops and oral rehydration solution when needed, but not routine water or other feeds.

Hormonal Components of Lactation



Secretory cells produce milk within an alveolus, while surrounding myoepithelial cells help eject it

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1. Milk Production

- During pregnancy, estrogen and progesterone promote breast development while their high concentrations limit copious milk secretion.
- After delivery of the placenta, falling progesterone permits prolactin to support abundant milk synthesis.
- Suckling stimulates prolactin secretion from the anterior pituitary and helps maintain milk production.
- Frequent effective removal of milk is an important local signal for continued supply.

2. Milk Ejection

- Suckling also stimulates oxytocin release from the posterior pituitary.
- Oxytocin contracts myoepithelial cells around the milk-producing alveoli and moves milk toward the ducts.
- Pain, fear and stress can temporarily inhibit milk ejection, while reassurance and comfortable positioning can help.
- A feeling of fullness or leaking alone is not a reliable measure of whether milk production is adequate.

Types and Composition of Milk

Stages of Breast Milk

A. Colostrum

- Colostrum is the small-volume early milk produced in the first days after birth.
- It is rich in protective proteins and cells and should be fed to the newborn rather than discarded.
- Secretory IgA helps protect mucosal surfaces, while lactoferrin, lysozyme, immune cells and human milk oligosaccharides contribute to defence.

B. Transitional and Mature Milk

Transition and Typical Composition

- Transitional milk appears as milk volume rises over the first days and weeks.
- Mature milk contains water, lactose, fat, protein and micronutrients in a changing mixture that supports infant growth.
- Mature human milk supplies roughly 65–70 kcal per 100 mL, with about 7 g lactose, 3–5 g fat and about 1 g protein per 100 mL.

Variation and Preterm Requirements

- These are approximate values because composition changes with lactation, gestation, time of day and sampling within a feed.

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- Fat content varies during and between feeds, so an arbitrary time limit should not be used to divide every feed into rigid milk types.
- Milk from a mother who delivers preterm differs from term milk, but very preterm infants may still require prescribed fortification.

Human Milk and Cow's Milk

Feature	Human milk	Unmodified cow's milk
Protein and solute load	The protein pattern and renal solute load suit the human infant.	The protein and mineral load is greater.
Carbohydrate	Lactose is the main carbohydrate and supports energy needs.	The lactose concentration is lower.
Protective components	It contains antibodies, cells and other bioactive factors.	It does not provide the same human immune components.
Iron and feeding role	Iron content is low, so complementary iron-rich foods become important from 6 months.	It is low in available iron and can displace suitable infant nutrition.

- Unmodified cow's milk is not a suitable substitute for breast milk as the main drink in early infancy.
- Commercial infant formula is modified for infant feeding but does not reproduce all of the living and immunological properties of human milk.
- Families who require replacement feeding need respectful advice on a suitable feed, safe preparation and follow-up.

Interpreting the Milk Comparison

- Human milk has a lower casein proportion and a softer curd than cow's milk, which helps explain its suitability for infant digestion.
- Milk composition alone is only part of the comparison because fresh human milk also contains living cells and bioactive substances.

Benefits for the Infant and Mother

Infant and Family Benefits

- Breastfeeding reduces gastrointestinal and respiratory infections and is especially valuable when safe water and hygienic food preparation are difficult.
- Mother's own milk is preferred for preterm infants and helps reduce important feeding-related complications.
- Breastfeeding supports close responsive interaction and avoids the cost and contamination risks of unnecessary replacement feeds.

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Maternal Benefits

- Oxytocin released during feeding supports uterine contraction after birth.
- Longer breastfeeding is associated with lower maternal breast and ovarian cancer risk, while individual circumstances still require supportive care rather than pressure.

Assessing and Supporting Technique

Components of an Observed Breastfeed

1. Prepare and Position

- Ask permission to observe a feed and ensure privacy and comfortable support for the mother.
- Keep the baby's head and body in one line, with the whole body supported and the baby facing the breast.
- Bring the baby close to the mother instead of asking the mother to bend forward toward the baby.
- Begin with the baby's nose opposite the nipple and allow the head to tilt slightly back as the mouth opens.



Cradle



Cross-cradle



Football hold



Side-lying

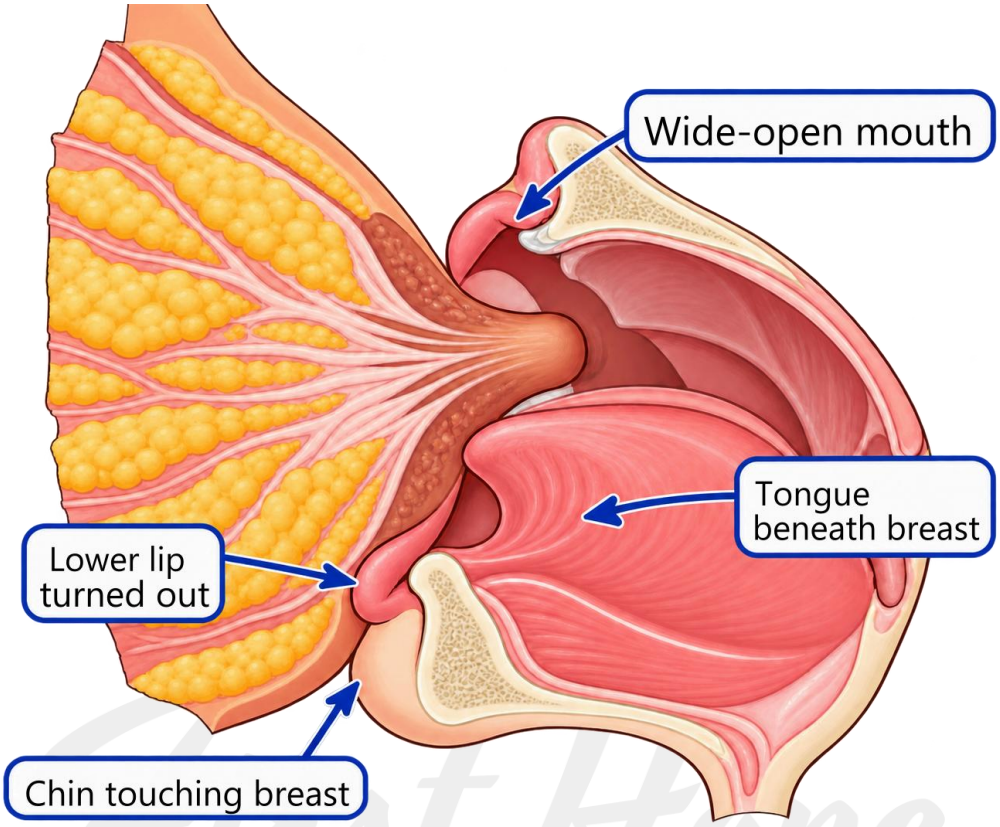
Several holds can support comfortable feeding; side-lying feeding requires an awake, attentive caregiver and does not replace a safe infant sleep arrangement

2. Achieve Deep Attachment

- Wait for a wide-open mouth and bring the baby to the breast with the chin leading.
- A good attachment includes the nipple and a substantial portion of the areola in the mouth.

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- The lower lip is turned outward, the chin touches the breast and more areola may be visible above the mouth than below.
- The nose should remain free enough for comfortable breathing without pressing the baby's head into the breast.



Deep attachment places breast tissue over the tongue, with an outward lower lip and the chin close to the breast

3. Assess Milk Transfer

- Look for slow deep sucks with pauses and audible or visible swallowing after milk flow is established.
- The cheeks should remain rounded rather than dimpled during sucking.
- Persistent pain, clicking, repeated slipping off or a pinched nipple after feeding suggests that attachment needs review.
- If attachment is painful, gently release the suction with a clean finger before trying again.

Recognising Adequate Intake

- Use weight trend, clinical hydration, urine output and an observed feed together to assess intake.
- After milk supply is established, regular pale urine and an alert infant who feeds effectively are reassuring findings.
- Poor feeding, marked sleepiness, reduced urine, worsening jaundice or excessive weight loss requires prompt clinical assessment.
- Crying alone does not prove inadequate milk, and a soft breast does not mean that it is empty.

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