

# **Nutritional Needs of a Neonate**

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# Learning Outcomes

**At the end of this session, the students will be able to:**

- Describe nutritional needs of a term newborn
- Use critical thinking in assisting parents in with nutritional problem solving
- Assess nutritional intake and feeding method of a newborn to determine adequate nutritional status
- Implement nursing care supportive of the new mother while breastfeeding
- Evaluate expected outcomes for achievement and effectiveness of care
- Integrate knowledge of normal newborn nutrition with nursing process to achieve quality maternal and child health nursing care



**“Breast is best.”**

# Mother-baby Friendly Hospital Initiative

## ***Critical management procedures***

1a. Comply fully with the International Code of Marketing of Breast-milk Substitutes and relevant World Health Assembly resolutions.

1b. Have a written infant feeding policy that is routinely communicated to staff and parents.

1c. Establish ongoing monitoring and data-management systems.

2. Ensure that staff have sufficient knowledge, competence and skills to support breastfeeding.

# Mother-baby Friendly Hospital Initiative

## ***Key clinical practices***

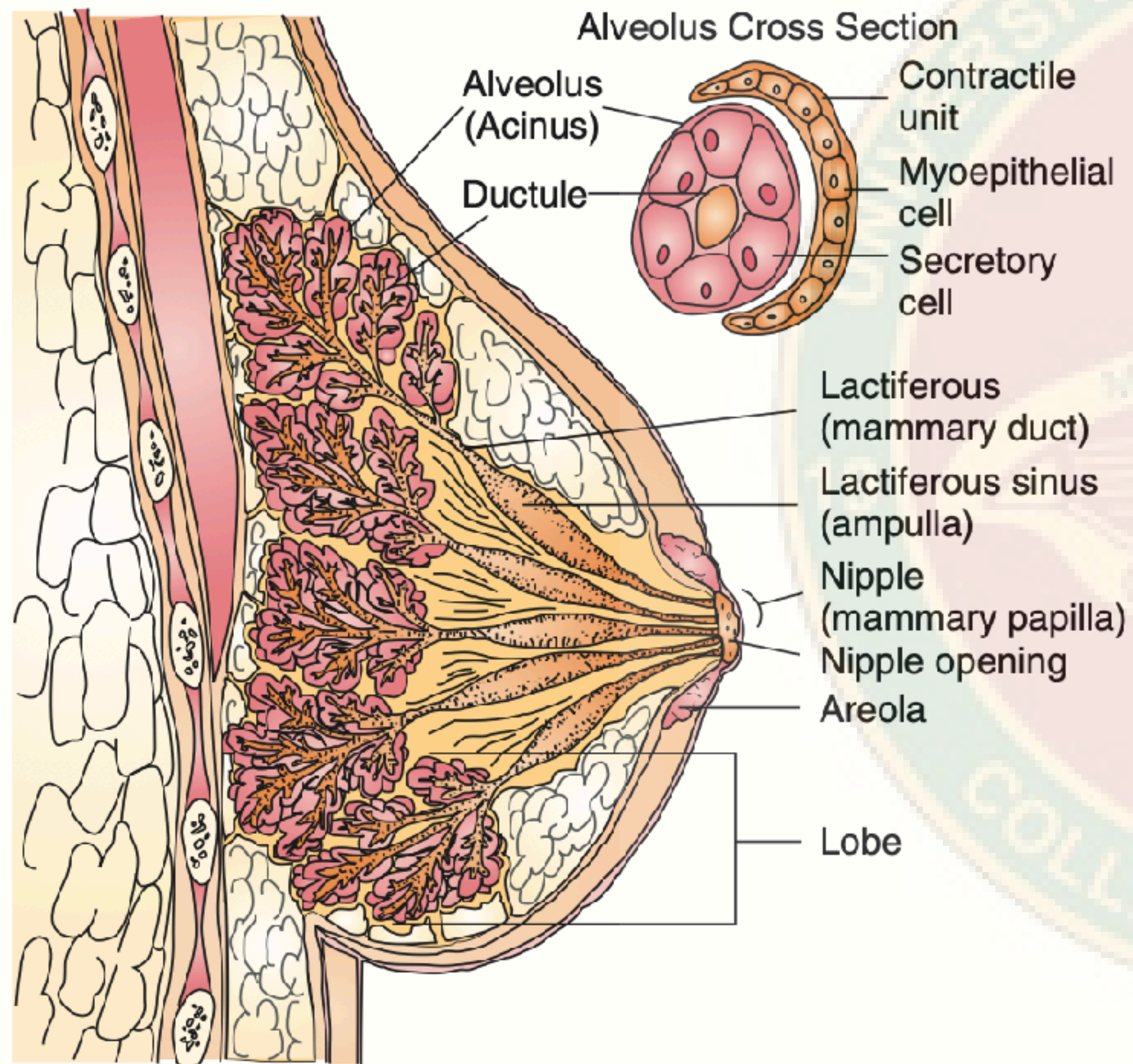
3. Discuss the importance and management of breastfeeding with pregnant women and their families.
4. Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.
5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.
6. Do not provide breastfed newborns any food or fluids other than breast milk, unless medically indicated.

# Mother-baby Friendly Hospital Initiative

## ***Key clinical practices***

7. Enable mothers and their infants to remain together and to practise rooming-in 24 hours a day.
8. Support mothers to recognize and respond to their infants' cues for feeding.
9. Counsel mothers on the use and risks of feeding bottles, teats and pacifiers.
10. Coordinate discharge so that parents and their infants have timely access to ongoing support and care.

# Physiology of Breastmilk Production



- Acinar or alveolar cells
- Prolactin: stimulate milk production
- Prolactin-releasing factor
- Other hormones: ATCH, TSH, GH
- foremilk (lactiferous sinus) > suckling > oxytocin release > sinuses contract > let-down reflex
- Hind milk

# Physiology of Breastmilk Production



- Colostrum: first 3-4 days
- Transitional breast milk
- True or mature breastmilk: 10th day

# Advantages of Breastmilk

## Breastmilk

- Perfect nutrients
- Easily digestible
- Ready to serve
- Protects against infection
- Protects against adult onset diseases (diabetes, high blood pressure)



## Breastfeeding

- Helps bonding and development
- Helps in adequate growth and development
- Enhances brain & visual development
- Baby has higher intelligence quotient
- Prevents hypothermia

# Advantages of Breastmilk

- **Lactoferrin:** interferes with growth of pathogenic bacteria
- **Lysozyme:** destroys bacteria by lysing cell membranes
- **Leukocytes:** common respiratory infections
- **Macrophages (interferon):** protects against viruses
- **Bifidus factor:** interfered with pathogenic bacteria in GI tract

4  
These antibodies are secreted in breastmilk to protect baby

3  
Some white cells go to her breast and make antibodies there

# Advantages of Breastmilk



- It lower the risk of osteoporosis
- It lowers the risk of developing breast and ovarian cancer
- Helps in the management of postpartum depression
- Develops deep mother child closeness
- Breastfeeding aid in delay menstruation (ovulation)

# Advantages of Breastmilk

## Mother

- Reduces post delivery bleeding and anemia
- Delays next pregnancy
- Protects breast and ovarian cancer
- Protects obesity and shapes body
- Convenient

## Family

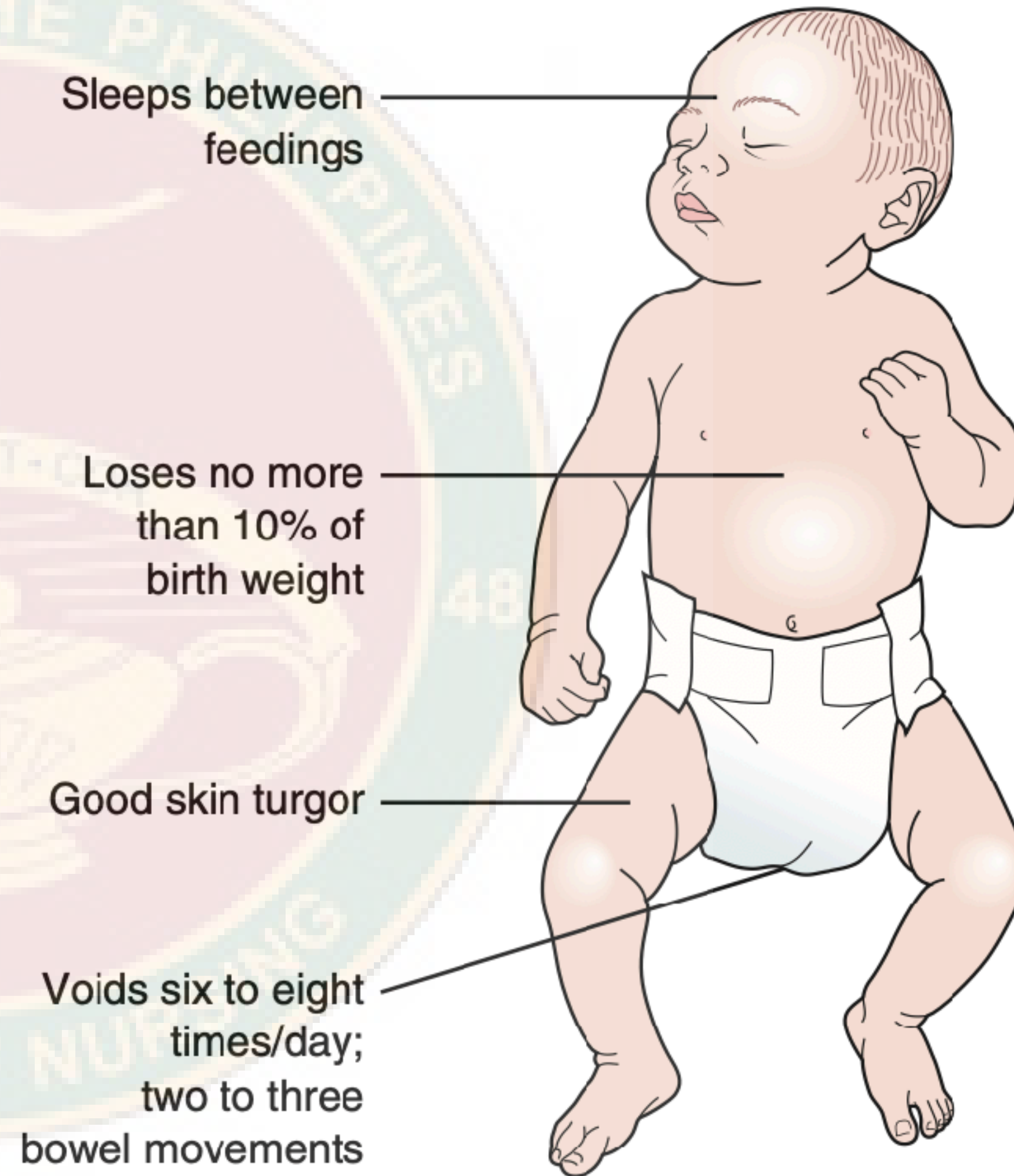
- Economic benefits
- Less illnesses
- Family bonding

## Society

- Eco-friendly
- Human resource development
- Economy development

# Nutritional Care of the Newborn

- Assessment
- Comfortable and confident
- Feeding cues
  1. Restlessness
  2. Tense body posture
  3. Smacking of lips
  4. Tongue thrusting
- Adequate nutrition?



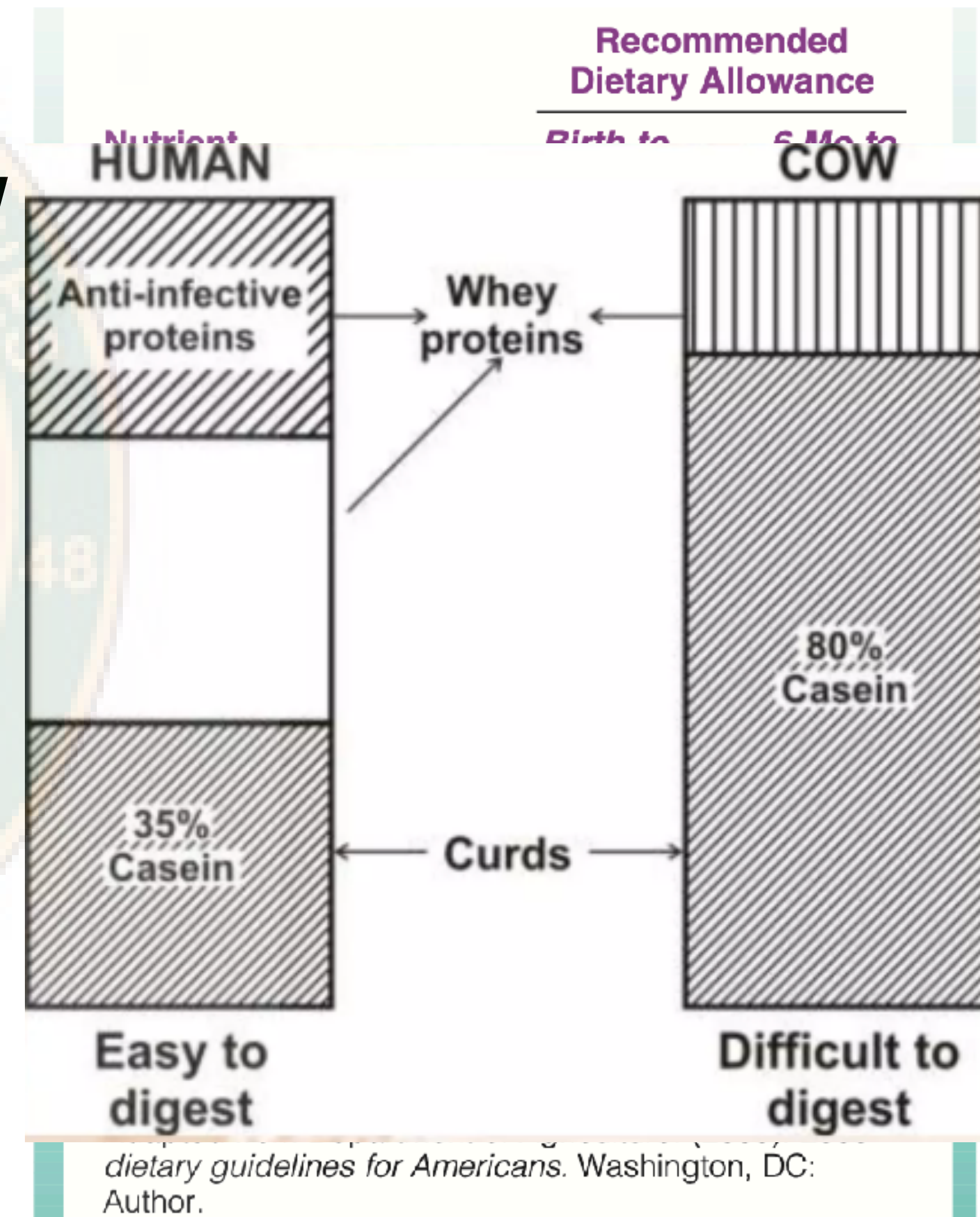
# Newborn nutrition



**Supporting mother's choice of feeding method.**

# Nutritional Allowances for a Newborn

- Calories
  - Newborn - 2 mos: 110-120 calories per kg BW
  - 2mos-1yr: 100kcal/kg
  - Adult: 42kcal/kg
- Protein
  - 2.2g/kg BW
  - Histidine
  - Unaltered cow's milk: rich solute load > overwhelmed kidneys
  - Lactein vs. Casein: curd tension



# Nutritional Allowances for a Newborn

- Fat: Linoleic acid
- Carbohydrate: Lactose
  - Lactose intolerance is rare in newborns
- Fluid
  - NB body surface area is large in relation to body mass
  - Water is distributed differently
    - 30-35% is ECF vs 20%
  - 150-200mL/kg
  - Fruit juices?



# Nutritional Allowances for a Newborn



- Minerals
- Calcium
- Iron
- Fluoride
- Vitamins

# Definition of terms

- Exclusive breastfeeding
- Predominant breastfeeding
- Full breastfeeding
- Bottle feeding
- Cup feeding
- Artificial feeding
- Partial breastfeeding
- Complementary feeding
- Timely complementary feeding

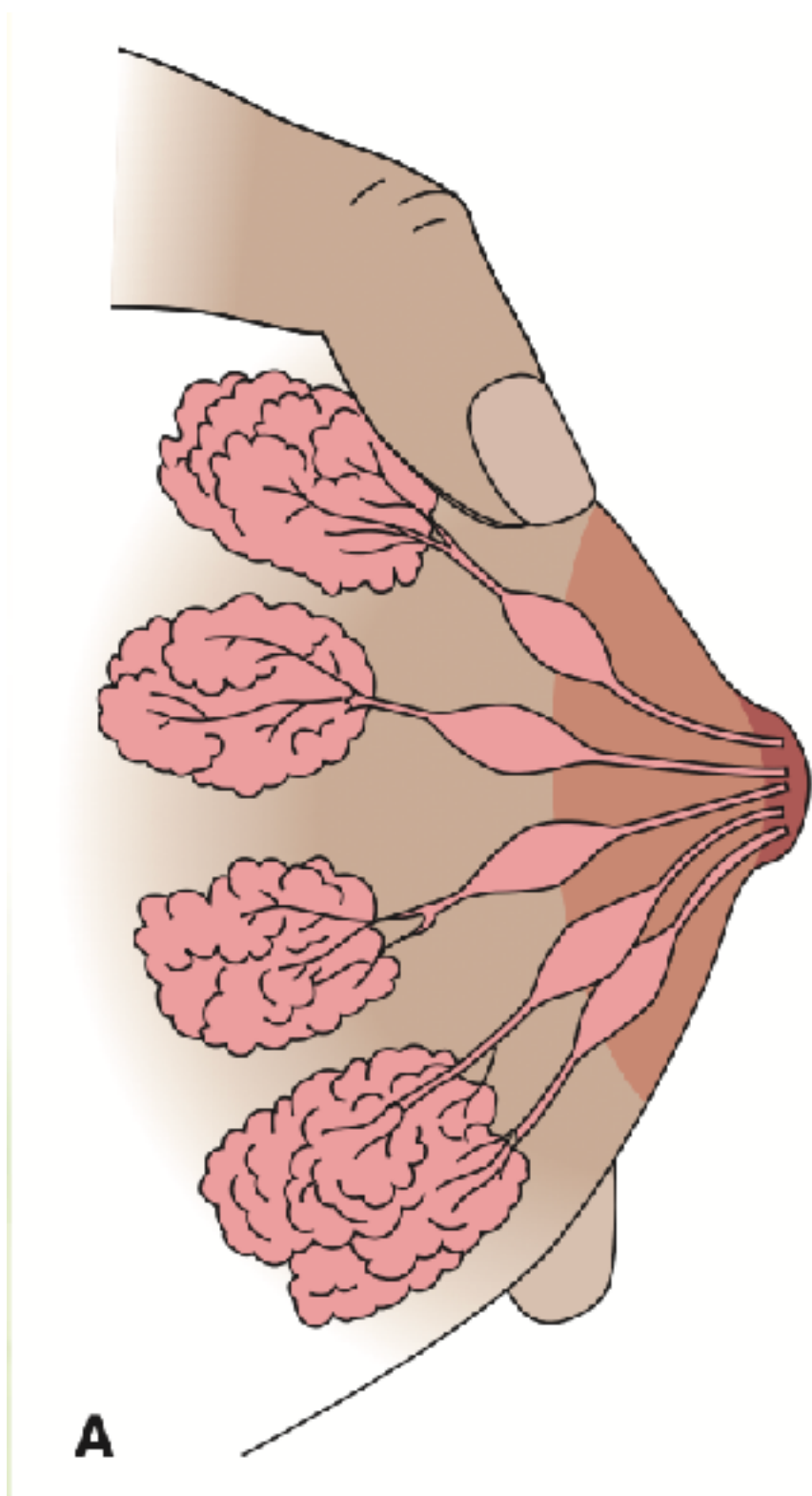


# Techniques of Breastfeeding



- Early initiation of breastfeeding (within 1 hour of birth)

# Techniques of Breastfeeding



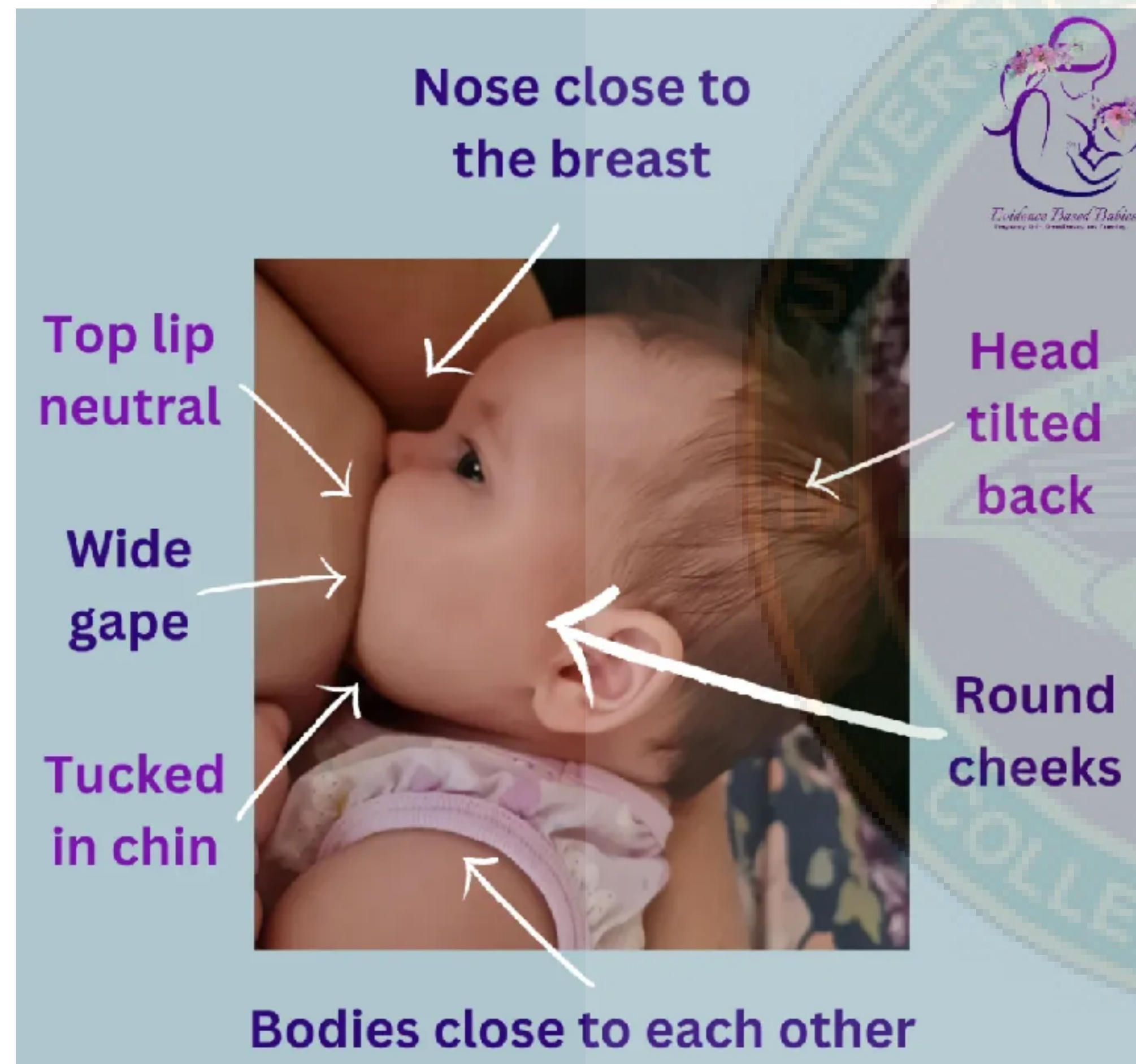
- Breast massage or manual expression of breastmilk
  - Support the breast
  - Place thumb and forefinger on the opposite sides of the breast, just behind the areolar margin,
  - first pushing backward toward the chest wall and then downward until secretions begins to flow

# Human Milk Storage Guidelines

## STORAGE LOCATIONS AND TEMPERATURES

<b>TYPE OF BREAST MILK</b>	<b>Countertop</b> 77°F (25°C) or colder <i>(room temperature)</i>	<b>Refrigerator</b> 40 °F (4°C)	<b>Freezer</b> 0°F (-18°C) or colder
<b>Freshly Expressed or Pumped</b>	Up to <b>4 Hours</b>	Up to <b>4 Days</b>	Within <b>6 months</b> is best Up to <b>12 months</b> is acceptable
<b>Thawed, Previously Frozen</b>	<b>1–2 Hours</b>	Up to <b>1 Day</b> <i>(24 hours)</i>	<b>NEVER</b> refreeze human milk after it has been thawed
<b>Leftover from a Feeding</b> <i>(baby did not finish the bottle)</i>	Use within <b>2 hours</b> after the baby is finished feeding		

# Proper Latching



- A comfortable experience with no pain
- More areola is visible above your baby's mouth than below
- Your baby's mouth is wide open
- Their lower lip is turned out
- Their chin is touching – or nearly touching – the breast

# POOR LATCH VS GOOD LATCH



Baby's sucking in their cheeks as they try to breastfeed



Baby is latching deeply

There are smacking noises as the baby tries to suck



Baby's chin is against your breast and their nostrils are free

Baby's lips are tucked in and under



Baby have their lips out like a fish

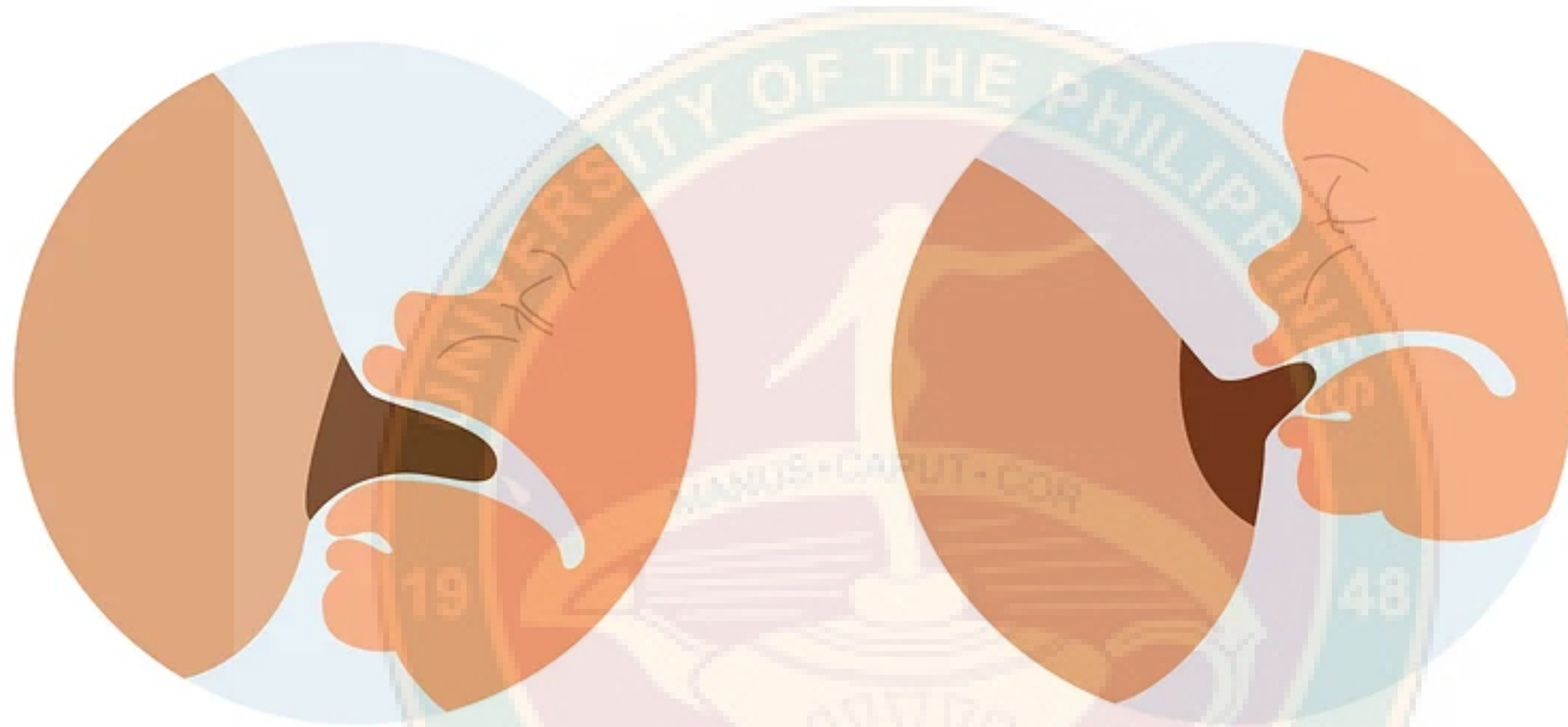
Sore nipples and painful breastfeedings



Breasts feel less full after a feeding







Deep latch ✓

Shallow latch ✗



**Narrow opening**



Incorrect Latch  
Painful latch  
Low milk extraction



**Wide opening**



Correct Latch  
Painfree latch  
Proper milk extraction

# Proper Latching



# Signs of Effective Suckling



- Your baby takes slow deep suckles, sometimes pausing.
- You may be able to see or hear your baby swallowing after one or two suckles.
- Suckling is comfortable and pain free for you.
- Your baby finishes the feed, releases the breast and looks contented and relaxed.
- Your breast is softer after the feed.

# Breastfeeding Positions

- **Cradle hold**

- Sit somewhere with support to keep your arm at the right height, like an armchair or couch. If needed, you can use pillows to support your arm.
- Position the baby on your lap with their head in the crook of your arm
- Keep your baby's chest against yours so they do not have to turn their head toward your breast. If necessary, use pillows to support your baby's head



# Breastfeeding Positions

- **Cross cradle hold**

- Hold baby's head at your right breast and baby's body toward your left side. If it's more comfortable, support your arm holding the baby on a pillow across your lap.
- Gently place your left hand behind your baby's ears and neck, with your thumb and index finger behind each ear and your palm between baby's shoulder blades.
- Turn your baby's body toward yours so that your tummies are touching.
- Hold your breast as if you are squeezing a sandwich.
- Reverse for the left side.



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# Breastfeeding Positions

- **Underarm hold/ Football hold/ Rugby ball hold**
  - Sit in a chair with a cushion or pillow along your side
  - Position your baby at your side (the side you want to feed from), under your arm, with their hips close to your hips. Your baby's nose should be level with your nipple
  - Support your baby's neck with the palm of your hand
  - Gently guide them to your nipple



# Breastfeeding Positions



# Breastfeeding Positions

- **Side lying position**

- Start by getting comfortable on your side. Lie your baby facing you, tummy to tummy
- Check to make sure baby's ear, shoulder, and hip are in a straight line (not twisted)
- Put some cushions or pillows behind you for support. A rolled up baby blanket placed behind your baby will help support them. If you have a pillow under your head, make sure it's not too close to your baby's head or face.
- Tuck the arm you're lying on under your head or pillow and use your free arm to support and guide your baby's head to your breast



# Breastfeeding Positions

- **Reclining position/ Laid back nursing**
  - Lean back (but not flat) on a sofa or bed
  - Prop yourself up with cushions or pillows so your back, shoulders and neck feel supported
  - When you are comfortable, place your baby on your front. Their tummy should be resting on your tummy – but if this is uncomfortable, lie them to one side
  - Make sure you are upright enough to look into your baby's eyes
  - While supporting your baby, gently guide your baby to your nipple



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# Signs of Good Positioning



- Your baby is held close to your body. A baby cannot attach well to the breast if they are far away from it.
- Your baby's whole body is supported with your arm along their back. This is particularly important for newborns and young babies. For older babies, support of the upper part of the body is usually enough.
- Your baby approaches breast nose to nipple, so that they come to your breast from underneath the nipple.

# Common Concerns



- Mother worries about the amount of milk being taken
- Infant does not suck well
- Father feels shut out of parent-child relationship
- Sore nipples
- Engorgement
- Breastfeeding in public

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