SESSION 10
INFANTS WITH SPECIAL NEEDS

Breastfeeding Promotion and Support

A Training Course for Health Professionals

Adapted from the Baby Friendly Hospital Initiative:
Revised, Updated and Expanded for Integrated Care (Section 3)
WHO/UNICEF 2009

Session Objectives:

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

1. Discuss importance of breastfeeding for infants with special needs
2. Discuss breastfeeding of infants who are pre-term and low birth weight
3. Describe how to assist mothers who breastfeed more than 1 baby
4. Outline prevention and management of common clinical concerns: neonatal hypoglycaemia,jaundice and dehydration with regards to breastfeeding
5. Outline the management of breastfeeding for infants with special needs
6. Outline medical indications for use of foods/fluids other than breastmilk

INTRODUCTION

- Human milk has been recognized as the gold standard for human feeding for centuries.

- Milk of other species that is fed to human infants have been known to contribute to increased in infants mortality.

Which Baby Require Special Attention?

- Prematurity
- Twin babies
  (more than one)
- Hypoglycemia
- Neonatal jaundice
- Dehydration
- Cardiac problem
- Babies who have breathing difficulties
- Cleft palate
- Down syndrome
- Medical problems
  - neurological condition
  - ill babies

1. The importance of Breastfeeding for Infants with Special Needs

Why is breastfeeding particularly important for a baby who is preterm, low birth weight, has special needs or any baby that is ill?

Importance of Breastmilk for Infants with Special Needs

Breastmilk contains:

- Protective immune factors
  - Help to prevent infection
- Growth factors
  - Helps baby's gut and other systems to develop as well as heal diarrhoea
- Enzymes
  - Make it easier to digest and absorb milk
- Special essential fatty acids help brain development

Other benefits

- Calms the baby
- Reduces pain from drawing blood or related to the baby's condition,
- Gives the mother an important role in caring for her baby,
- Comforts the baby
- Strengthen bonding
- Maintains the link with the family.

Babies who require special attention

- Not able to take oral feed
- Able to take oral feeds but not able to suckle
- Able to suckle but not for full feeds
- Not able to receive any breastmilk

2. Breastfeeding of Infants who are Pre-term and Low Birth Weight

BREASTFEEDING PREMATURE INFANTS

Benefits of Breastfeeding/ EBM for Preterm Infants

- Protection from necrotizing enterocolitis (NEC)
  - Neutrophils,macrophages, B and T lymphocytes, lactoferrin
    - Increases babies' immune defences
- presence of protective immune factors
  - Protection from infection or sepsis
- Increased feeding tolerance
  - in human milk: Whey protein more easily digested
  - In formula fed: increased vomiting, gastric residual, longer time to achieved full enteral feeding.

lucas et al,early human dev. 5:195,1981

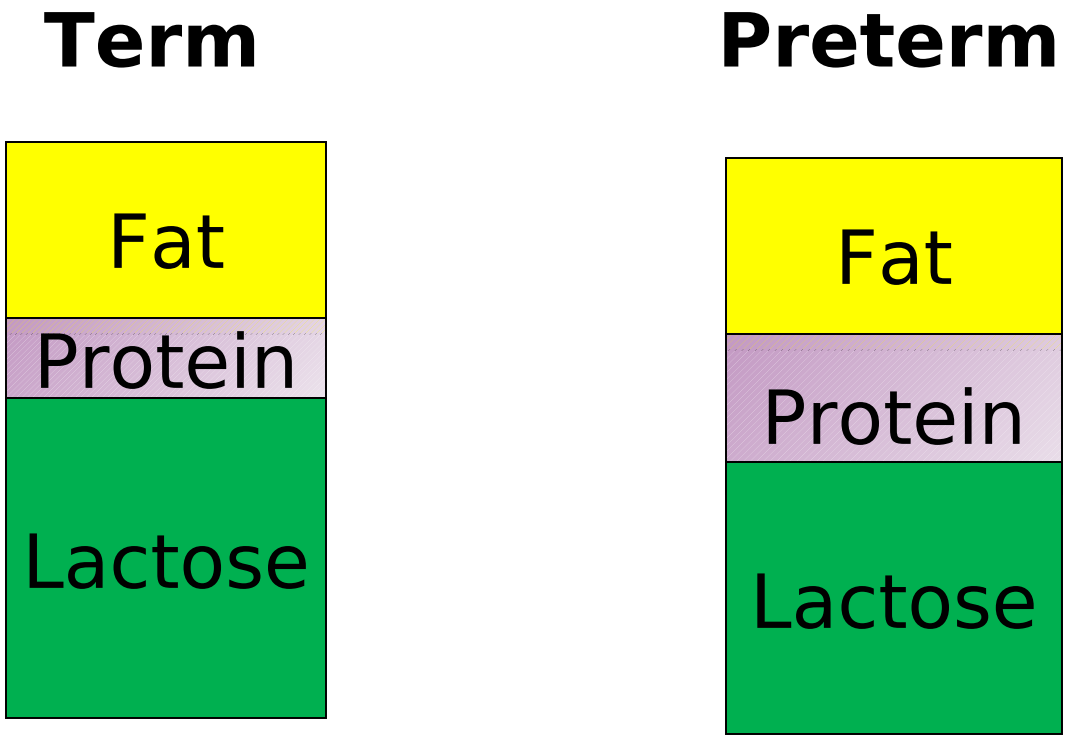
More Benefits of Breastfeeding/ EBM for Preterm Infants

- Decreased latex allergy
- Improve retinal function
  - Less retinopathy of prematurity (ROP)
  - Less severe ROP
  - Omega 3 ensure better retinal function
- Improve neurocognitive development
- Higher IQ Anderson et al, Am J Clin Nutr, 1999
- Faster brainstem maturation
  - Better control of breathing Amin et al, Pediatrik 2000
  - Better development outcome at 18 months
    - Lucas et al,Arch Dis Fetal Neonatal 1994

Preterm versus Term Breast Milk

- Increased protein content
  - Predominantly whey
  - More physiologic balance of amino acid
  - Contain many anti-infective property
- Increased supply of medium to intermediate chain fatty acid
- Lactose – increased absorption in premature

Nutritional Composition of Preterm and Term Breastmilk.



Composition of Preterm Human Milk (26-36wks)

Comparison to mature term human milk	
Protein	50-100% higher during first 4-7 wks
Sodium	30-150% higher first 4-6 wks
Chloride	30-80% higher during 3-4 wks
Potassium	30-75% higher during first 3-4 wks
IgA	Higher during first 2-3 months
Medium chain FA	40-80% higher during first 3 months
Polyunsat FA	40-70% higher in colostrum and transitional milk
Enzymes and growth factors	Equal to mature human milk

Health Advantages of human milk feeding for preterm infants

Benefit	References
Greater enteral feeding tolerance and more rapid achievement of full enteral feeding	Armand et al,1996 Gross,1983 Simmer et al,1997 Uraizee &Gross,1989
Reduced risk and severity of infection (short and long term)	El-Mohandes et al,93,97 Narayanan et al,81,82,84 Uraizee & Gross,89
Reduced risk and severity of necrotizing enterocolitis	Albanese & Rowe,95 Buescher,94 Neu,96
Reduced risk of atopic disease for infants with family risk histories	Chandra,97 Lucas et al,90
Enhanced retinal maturation and visual acuity	Carlson et al,86 Faldella et al, 96 de Andreca & Uauy, 95
Enhanced developmental and neurocognitive outcome	Carlson et al,86 Faldella et al, 96 de Andreca & Uauy, 95 Morley, 96
Greater physiological stability during	Blaymore Bier et al

Positioning a Preterm Infant

- Support head with mother`s hand (not grip) .The mother's arm can support the baby's body.
- The mother can support her breast with her other hand to help the baby keep the breast in his or her mouth.
- To increase milk flow, massage and compress the breast each time the baby pauses between suckling bursts

Issues on Breastfeeding in Premature Infants

- Expressed Breast Milk (EBM) -if the infant cannot suck directly at the breast
- Hindmilk
  - higher calories than foremilk for better weight gain.
  - Technique for expression of breastmilk for optimum result.
- Human milk fortifier.
- Non nutritive sucking

Human milk fortifier (HMF)

- HMF provides additional nutrients to human milk. (protein, calcium, sodium, phosphate,vitamins and trace elements).
- Use in the hospital setting or till the baby is 1.8 kgs of weight.
- Human milk fortification increases milk osmolality but does not increase feeding intolerance or NEC.
- Fortification is usually started when feeds reach 100 ml/kg by adding 1 sachet (2 grams) to 50 ml of Expressed Breast Milk (EBM).
- If there is a medical need for additions of HMF to the breast milk, mother must be informed that HMF is for a short period her baby has extra needs.

Non Nutritive Sucking

- Non-nutritive sucking is used during gavage feeding and in the transition from gavage to breast/bottle feeding in preterm infants.
- Facilitates the development of sucking behaviour in the premature babies.
- Help to Improves digestion of enteral feeds. enzymes/hormones lingual lipase, gastrin, insulin and motilin.
- Stimulate the secretion of these enzymes/hormones through vagal innervation in the oral mucosa
- Calming effect on infants

Feeding method in Premature Babies

Gestation	Birth weight	Method
< 30 weeks		Orogastric tube
30 – 32 weeks		Orogastric tube/ cup/ spoon once or twice/day
> 32 weeks	+/- 1.300grams	Try breastfeed - tube/cup feed
> 36 weeks	+/- 1.800grams	Full breastfeeding. EBM via cup.

Feeding Low Birth Weight Babies

	Borderline pre-term and term LBW	32-36 weeks gestational age	< 32 weeks gestational age
WHAT	Breast milk	Breast milk, expressed or suckled from the breast	Expressed breast milk
HOW	Breastfeeding	Cup,spoon, paladai	Naso-gastric tube
WHEN	• Start within one hour of birth • Breastfeed at least every 3 hours	• Start within one hour of birth or as soon as the baby is clinically stable • Feed every 2-3 hours	• Start 12-24 hours after birth • Feed every 1-2 hours

Method of Feeding in Premature Infants

- Nasogastric tube feeding
- Spoon feeding
- Cup feeding
  - when suck-swallow coordination has been achieved
- Supplementer Nursing System

Supplementer Nursing System

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Tube Feeding

Cup feeding is a skill that is easily learned by newborn and premature babies

What are some ways that a Special Care Unit can support breastfeeding?

Support for breastfeeding mother in the special care baby unit

- Mother should be :
  - given support and encouragement
  - encourage to visit, touch and care for her baby as much as possible.

- Staffs involved should be :
  - Knowledgeable
  - patient in the management of infant feeding.

Support for Mother

- Help the mother to rooming in.
- Provide a place for mum to rest if bed is not available for rooming in.
- Provide meals for the mother.
- Be parents friendly
  - Regular feedback to parent of infant growth and condition
  - Caring , attitude and patience while dealing with parent.
  - Answer the parents' questions and explain patiently
- Educate parents on breastfeeding

Help to establish Breastfeeding

- Assist the mother to express/pump her milk, starting within 6 hours of birth
  - expressing/pump 6 or more times in 24 hours
- Encourage and educate mother to give EBM via tube or cup before breastfeeding is establish
- Allow baby to be put on the breast when the baby is ready (presence of rooting, sucking and swallowing)
- Avoid using artificial teats.

Cont...

- Advise mum to express the breast before putting the baby on the breast to prevent possibility of choking as premature babies do not have good sucking swallowing coodination.

- The baby can go to the breast while receiving a tube feed to associate the feeling of fullness with being at the breast.

Explain to mothers what to expect at feeds

- Baby will probably feed for a long time and will pause frequently to rest during a feed.
- Expect some gulping and choking because of the baby's low muscle tone and uncoordinated suckle.
- Stop trying to feed if the baby seems too sleepy or fussy but she can continue to hold her baby against her breast
- Keep the feed as calm as possible. Avoid loud noises, bright lights, stroking, jiggling or talking to the baby during feeding attempts.

Arrange contact between mother and baby

- Encourage mother to visit, touch and care for baby as much as possible
- ***Kangaroo Mother Care (KMC)***
  - Skin-to skin contact
  - Baby can go to breast whenever he or she wants.
  - Mom exposure to pathogen in NICU, stimulate antibody
    - passed to babies via breastmilk
  - Helps to regulate the baby's temperature and breathing
  - Assists in growth and development
  - Increases the production of milk.

Kangaroo Mother Care

Kangaroo Mother Care

Dr Nils Bergman, Cape Town, South Africa

Discharge plan for premature baby

- When to discharge?

  -baby able to feed effectively and gain weight

  -Usual discharge weight is 1800 gram

- Encourage rooming in before discharge to build up mother confidence on care of baby at home.

- Counsel on feeding technique.

- Counsel on how to get assistance and follow up care after discharge.

3. Assisting Mothers to Breastfeed more than 1 Baby

Breastfeeding Twin/More Than One Baby

Issues in Feeding More than One Baby

- Mothers can make enough milk for 2 babies and even three.

  - Volume of breastmilk produced by a mother depends on the demand.

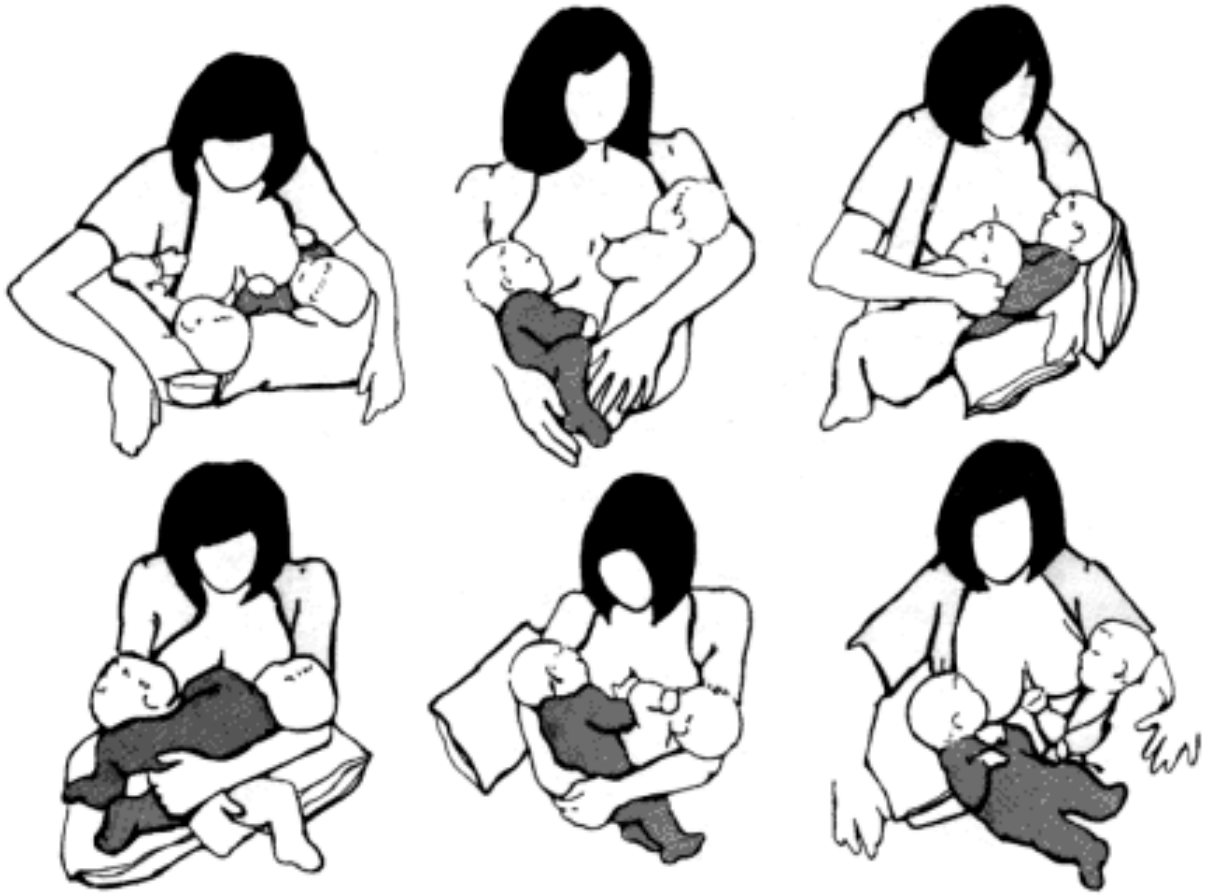
- Time ,support and encouragement from health care providers, family, and friends is required to ensure success.

- If one baby is a good feeder and one baby less active, make sure to alternate breasts so that the milk production remains high in both breasts.

How to encourage mother to breastfeed more than one baby

- Get help with caring for other children and doing household duties,
- Breastfeed lying down to conserve energy, when possible
- Eat a varied diet and take care of herself,
- Try to spend time alone with each of the babies so that she can get to know them individually.

Breastfeeding Twins



Breastfeeding Twins

Nursing one twin in the cradle hold, using the free hand to comfort the twin not nursing.

Nursing twins in the double-clutch hold.

Twins Grow Well on Breastmilk

UNICEF/HQ92-0260/ Lauren Goodsmith, Mauritania

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Breastfeeding a Baby and Older Child

- No need to stop breastfeeding an older baby when a new baby arrives.
- The mother will produce enough milk for both is she is cared for herself
- Abrupt cessation of breastfeeding should be avoided to prevent older child from risk of malnutrition

4. Prevention and Management of Common Clinical Concerns

Neonatal Hypoglycemia

- Hypoglycemia means a low blood glucose level
  (< 2.6 mmol/L)

- Babies fed on breastmilk may be better able to maintain their blood glucose levels than babies artificially fed on formulas.

- Babies compensate for low blood sugar by using their body fuels (e.g. glycogen stored in the liver).

- Babies at risk of hypoglycemia
  - premature, SGA, LGA, infant of diabetic mothers and sepsis

Neonatal Hypoglycemia

- Term, healthy babies do not develop hypoglycemia simply through under-feeding.

- If a healthy full term baby develops signs of hypoglycemia, the baby should be investigated for another underlying problem eg IEM, sepsis.

Signs of Hypoglycemia

- Lethargy
- Jitteriness
- Sweaty
- Convulsions,
- Abnormal tone (‘floppy’),
- Apnoea.

Breastfeeding and Neonatal Jaundice

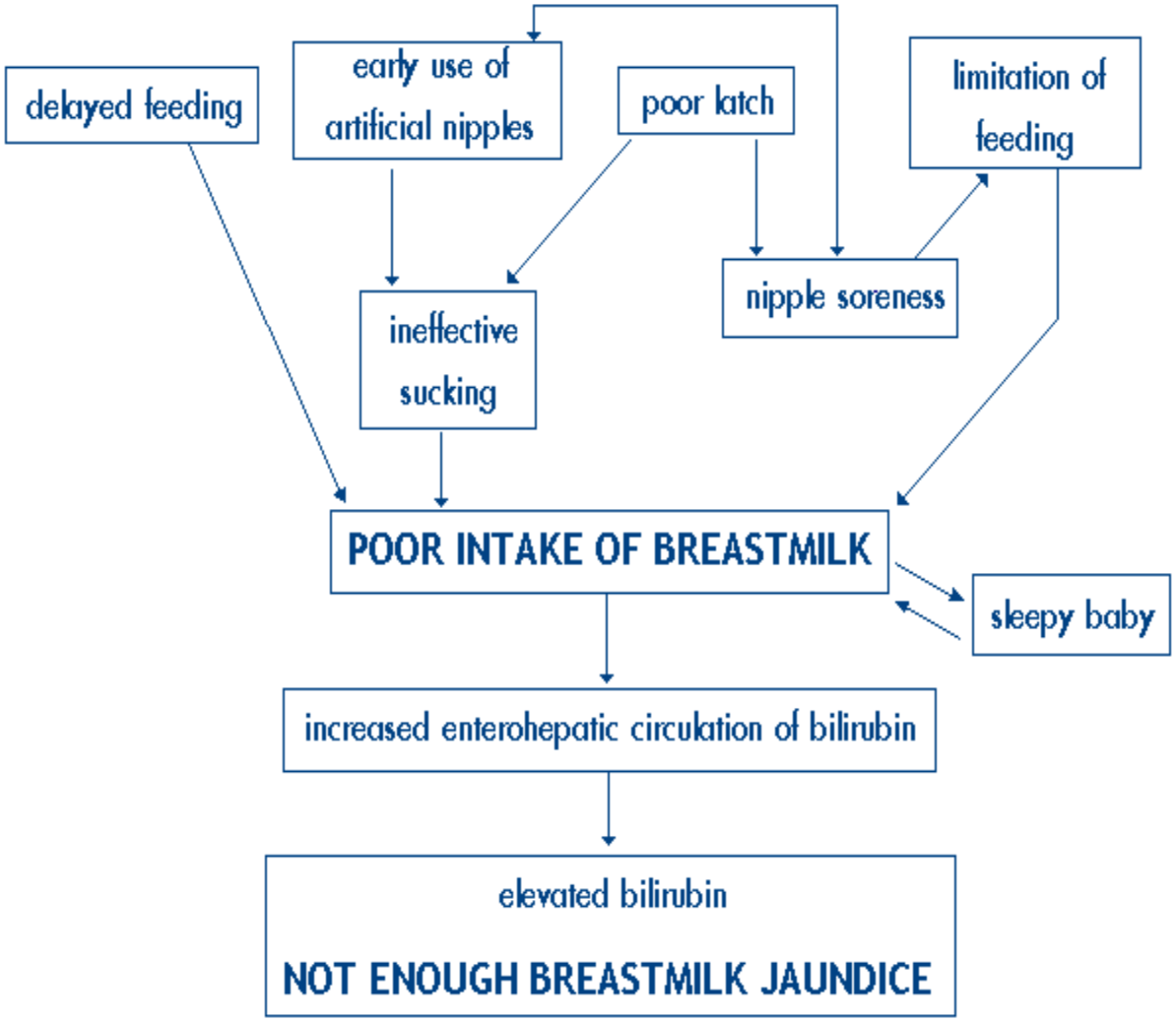
Physiological Jaundice

- Commonest cause of jaundice
- It usually appears on the second or third day peaks at fourth or fifth day and resolves by the tenth day.
- Occurs as a result of breakdown of the fetal red blood cell and liver immaturity

Breastfeeding Jaundice

- Occurs in 5-10% of newborns
- Result from inadequate breastmilk volume or insufficient milk intake
  - Lead to dehydration, low caloric intake
- May occur in 1st week of life in breastfed infants
- Incidence may be reduced by:
  - Encouraging early feeds
  - Increasing frequency of feeds
  - Avoiding use of water to replace breastmilk

Breastfeeding Jaundice – Causative Factors



Breastmilk Jaundice

- Occurs in 1% to 2% of breastfed babies.
- One of the cause of prolonged indirect jaundice.
- Can persist until 12 weeks of babies

Breastmilk Jaundice - Etiology

- Increased concentrations of nonesterified free fatty acids (NEFA) that inhibit hepatic glucuronyl transferase.

- Increased enterohepatic circulation of bilirubin due to

  (1) increased content of beta glucuronidase activity in breast milk and, therefore, the intestines of the breastfed neonate

  (2) delayed establishment of enteric flora in breastfed infants

Prevention of Severe Jaundice

- Early initiation of breastfeeding
  - Colostrum helps infants to pass the meconium,
  removes excess bilirubin from the body
- Encourage demand feeding
  - 8 – 12 feed a day
- Effective suckling
  - ensure effective milk tranfer

- No supplementary fluid

- Cup feeding with EBM if baby refuse to suck

Treatment of Severe Jaundice

- Phototherapy.
- Very frequent breastfeeding to avoid dehydration.
- Give expressed milk if the baby is sleepy.
- Water or glucose water supplements do not help as they reduce the intake of breastmilk and do little to reduce the jaundice.

Dehydration

- Healthy exclusively breastfed infants do not require additional fluids to prevent dehydration.
- Babies with diarrhoea should be breastfed more frequently.
- Frequent breastfeeding provides fluid, nutrients, and provides protective factors.
- The growth factors in breastmilk aid in the re-growth of the damaged intestine.

5. Management Of Breastfeeding For Infants With Special Needs

Babies who have Breathing Difficulties

- Babies with breathing difficulties should be fed small amounts frequently as they tire easily.

- Breastfeeding provides the infant with nutrients, immune bodies, calories, fluid and comforts the distressed baby and mother.

Babies with Cardiac Problems

- Babies may tire easily
- Short frequent feeds are helpful. The baby can breathe better when breastfeeding
- Breastfeeding is less stressful and less energy is used so there is better weight gain
- Breastmilk provides protection from illness thus reducing hospitalization and helping growth and development.

Breastfeeding and Cleft Palate

Babies with Cleft Lip/Palate

- Babies with cleft lip only should be able to breastfeed - tissue of the breast can help the baby to create a seal more effectively
- Babies with a cleft palate are less likely to breastfeed directly from their mother's breast.
- Cleft palate babies often have problem with sucking, and may choke or gag on food that gets into their nose.

Breastfeeding and Cleft Palate

- Cleft palate babies can be given EBM via special cleft palate bottle (Haberman feeder),spoon or cup.

Breastfeeding and Cleft Palate

- Encourage mom to put baby on breast for suckling and bonding
- Following surgery to repair the cleft, breastfeeding can resume as soon as the baby is alert.

Cleft lip and palate - How to feed?

- Hold the baby so that his or her nose and throat are higher than the breast
  - This will prevent milk from leaking into the nasal cavity, which would make it difficult for the baby to breathe during the feed
- Breast tissue or the mother's finger can fill a cleft in the lip to help the baby maintain suction.

Cleft lip and palate - How to feed?

Put the breast deep into the mouth so that the milk comes out on the back of the baby's tongue.

To prevent choking, feed the baby while he is sitting up with his head tilted forward a little.

Benefits of Breastmilk to Cleft Palate Babies

- Provides immunities against infection, especially ear infections
- Less irritating to the mucous membranes of the nose and the gastro-intestinal system than formula.

Benefits of Breastmilk to Cleft Palate Babies

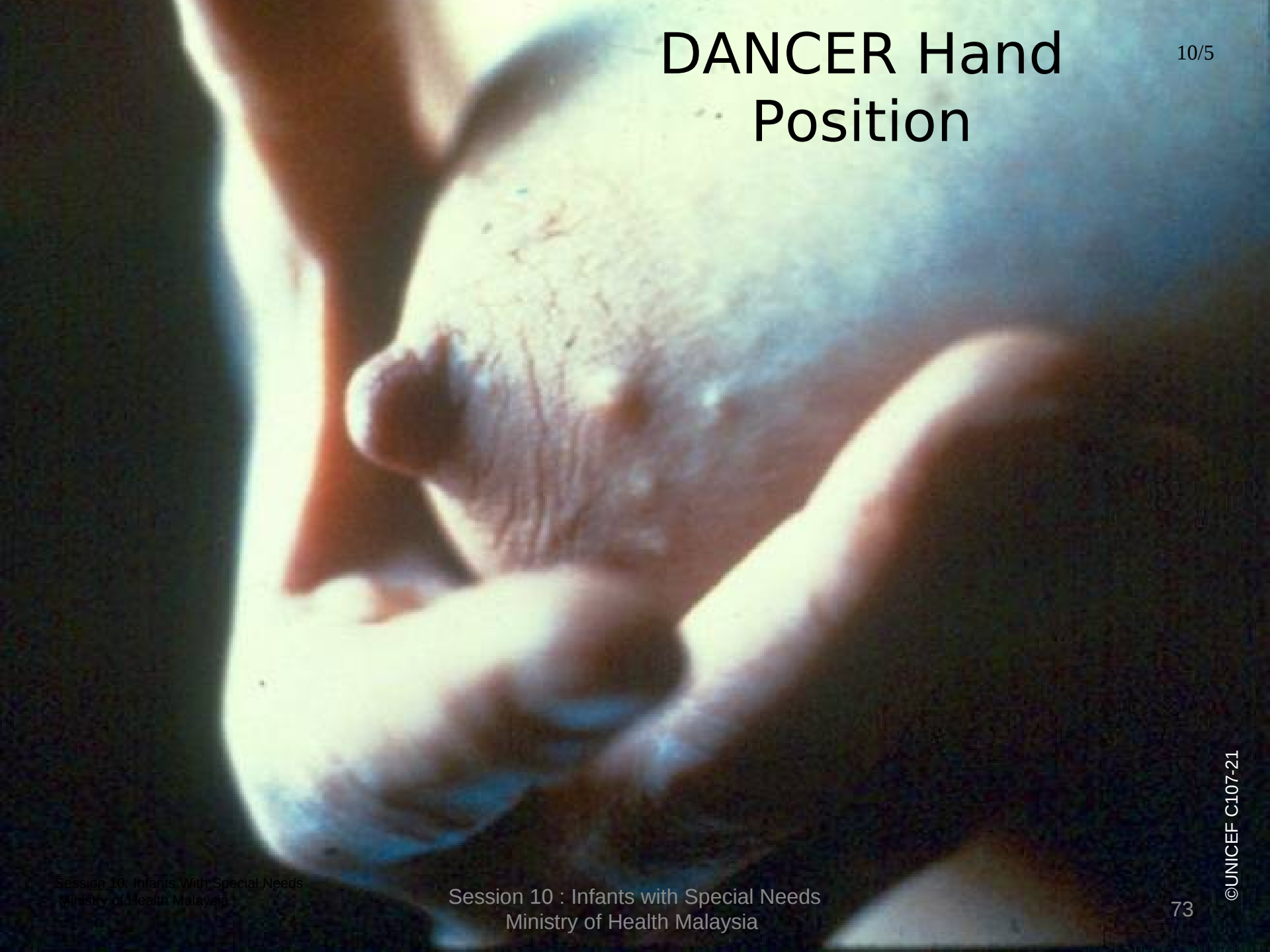
- Encourages proper development of the baby's mouth and face.
- The pliability of the breast can help to create a better seal and make it easier for the baby to return to the breast sooner after surgery.

Breast Feeding and Down Syndrome

Babies with Down Syndrome

- Hypotonia and poor sucking reflex
  - poor let down and inadequate supply
  - Prolong feeding,might need EBM
- Proper positioning,manual expression and supporting the breast so that infant do not lose nipple.

DANCER Hand Position



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Chin Support

Kay Hoover and Barbara Wilson-Clay, from *The Breastfeeding Atlas*

Breast Feeding and Down Syndrome - Benefits

- Improve mouth and tongue coordination
  - speech and language development later
- Fatty acid (DHA)
  - Increased brain growth and developement
- Skin to skin contact
  - Extra stimulation
- Closeness between baby and mother
  - know baby better.
- Anti-infective factor
  - reduce risk of respiratory infection.

Infants requiring Surgery

- Breastfeeding can usually commence as soon as the baby is awake after the surgery.
- Breastfeeding soon after surgery helps with pain relief, comforts the baby and provides fluid and energy.
- If the baby is not able to take large amounts of breastmilk immediately, the mother can express and let the baby suck on an ‘empty breast’ until the baby is more stable.

6. Medical Reasons For Food Other Than Breastmilk

Acceptable medical reasons for use of breastmilk substitute

- Babies who cannot be fed at the breast but for whom breastmilk remains food of choice
- Babies who should not receive breastmilk or any other milk
- Babies for whom breastmilk is not available for whatever reason

INFANT CONDITIONS

Infants who should not receive breast milk or any other milk except specialized formula :

- Galactosemia:
  - require a special galactose-free formula
- Maple syrup urine disease:
  - require a special formula free of leucine, isoleucine and valine
- Phenylketonuria:
  - require a special phenylalanine-free formula (some breastfeeding is possible, under careful monitoring).

INFANT CONDITIONS

Infants for whom breast milk remains the best feeding option but who may need other food in addition to breast milk for a limited period :

- Very low birth weight infants (< 1500g)
- Very preterm infants (< 32 weeks gest age)
  - *These infants may be fed expressed milk by tube, cup or spoon.*
- Newborn infants who are at risk of hypoglycaemia if the blood sugar fails to respond to optimal breastfeeding or breast-milk feeding.

Babies with Medical Condition

- Babies with medical conditions that do not permit exclusive breastfeeding need to be seen and followed-up by a suitably trained health worker.
- These infants need individualized feeding plans and the mother and family needs to be clear how to feed their baby.

CONCLUSION

- ***Because of significant benefits of breast milk, infants with special needs should be encouraged and mothers assisted in breastfeeding.***

THANK YOU