University of Nairobi

Breastfeeding in the COVID-19 Pandemic

saving children's lives
ETAT+
Emergency Triage Assessement and Treatment plus admission

An initiative of ETAT+ Trainers

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NEST360°

Outline

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Introduction

Dr. Allan Kayiza
Benefits of breastfeeding and composition of breastmilk

Dr. Zanuba Mohammed
Anatomy and physiology of breastfeeding

Edith Gicheha
Initiation and Techniques of breastfeeding

Dr. Fareen Musa
Breastfeeding in COVID-19 pandemic

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Appropriate breastfeeding

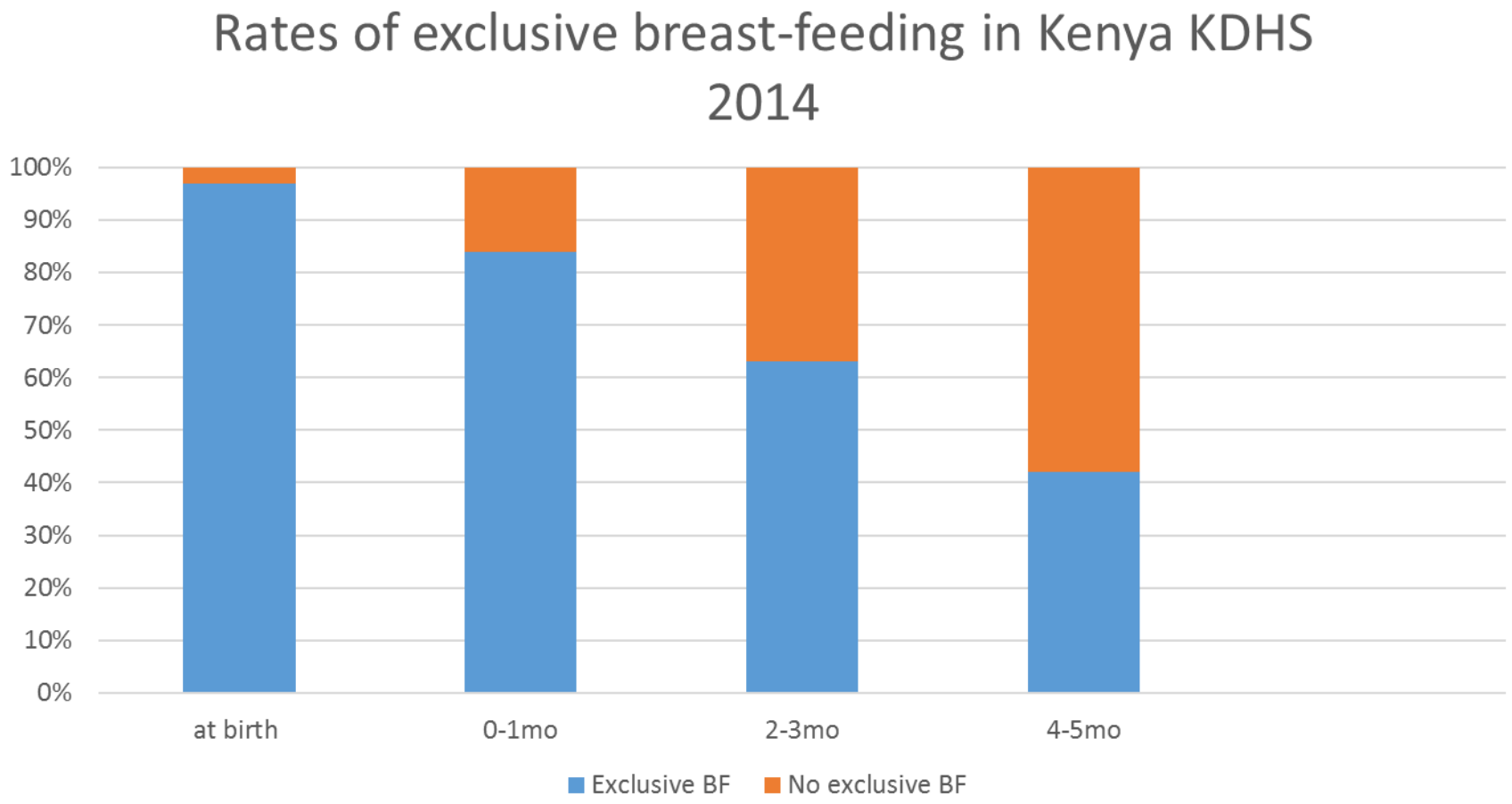
- Initiating breastfeeding immediately (or within the first 5 minutes)
- Exclusive breastfeeding until 6 months age
- Continued breastfeeding to at least up-to 2 years of age
- Breastfeeding on demand, day and night

Suboptimal breastfeeding practices contribute to 11.6% of mortality in the under 5's globally

Breastfeeding status in % by age KDHS 2014

Age in months	Breastfeeding status					
	Not breast-feeding	Exclusively breast-feeding	Breast-feeding and consuming plain water only	Breast-feeding and consuming non-milk liquids[1]	Breast-feeding and consuming other milk	Breast-feeding and consuming comple-mentary foods
0-1	0.4	84.1	6.8	2.3	4.4	1.9
2-3	0.4	63.0	11.9	2.9	8.7	13.1
4-5	0.7	42.0	11.1	4.5	14.7	26.9
6-8	1.6	7.6	4.0	2.7	5.7	78.3

Is there a problem?



Composition of Breast milk

Composition of Human Milk

Fats (3.5g/l)

- Phospholipids and cholesterol contents are highest in early lactation
- High level of polyunsaturated fats that (docosahexaenoic acid and arachidonic acid)

Proteins 0.9g/l

- Casein, serum albumin, α–lactalbumin, β–lactoglobulins, immunoglobulins, and other glycoproteins
- BM contains more of whey protein than casein – well digested.

Breast milk is 87% water

Carbohydrate

- Lactose, monosaccharides, oligosaccharides
- Oligosaccharides 10 times greater than in cow milk

Anti infective properties

- secretory IgA, lactoferrin, k-casein, oligosaccharides and cytokines
- Contains substances that kill germs and also prevent the attachment of these germs to the gut wall.

Vitamins and micro elements

- Vitamin A adequate,
- Iron and zinc are low quantity but bio-availability and absorption is high.
- Provided maternal iron status are adequate baby is born with adequate levels except pre-terms
- Poor source of Vitamin D

Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016

Specific variations in milk and effect on growth rate

	Days required to double birth weight	Content of milk (%)			Content in mg/100ml	
		Fat	Protein	Lactose	Minerals	Sodium
Human	**180**	**3.8**	**0.9**	**7.0**	**200**	**15**
Cow	47	3.7	3.4	4.8	700	58
Goat	19	4.5	2.9	4.1		
Sheep	10	7.4	5.5	4.8		

The breast milk is easily digested and baby need to feed often.
Cow's milk takes 4-5hrs to be digested

Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016

Continuum of human milk

Colostrum

- Thick yellow fluid
- Has a higher percentage of protein, Fat-soluble vitamins especially Vitamin A, sodium , potassium
- Rich in immunoglobulins especially sIgA,
- Facilitates establishment of normal flora - Lactobacillus bifidus
- Laxative effect

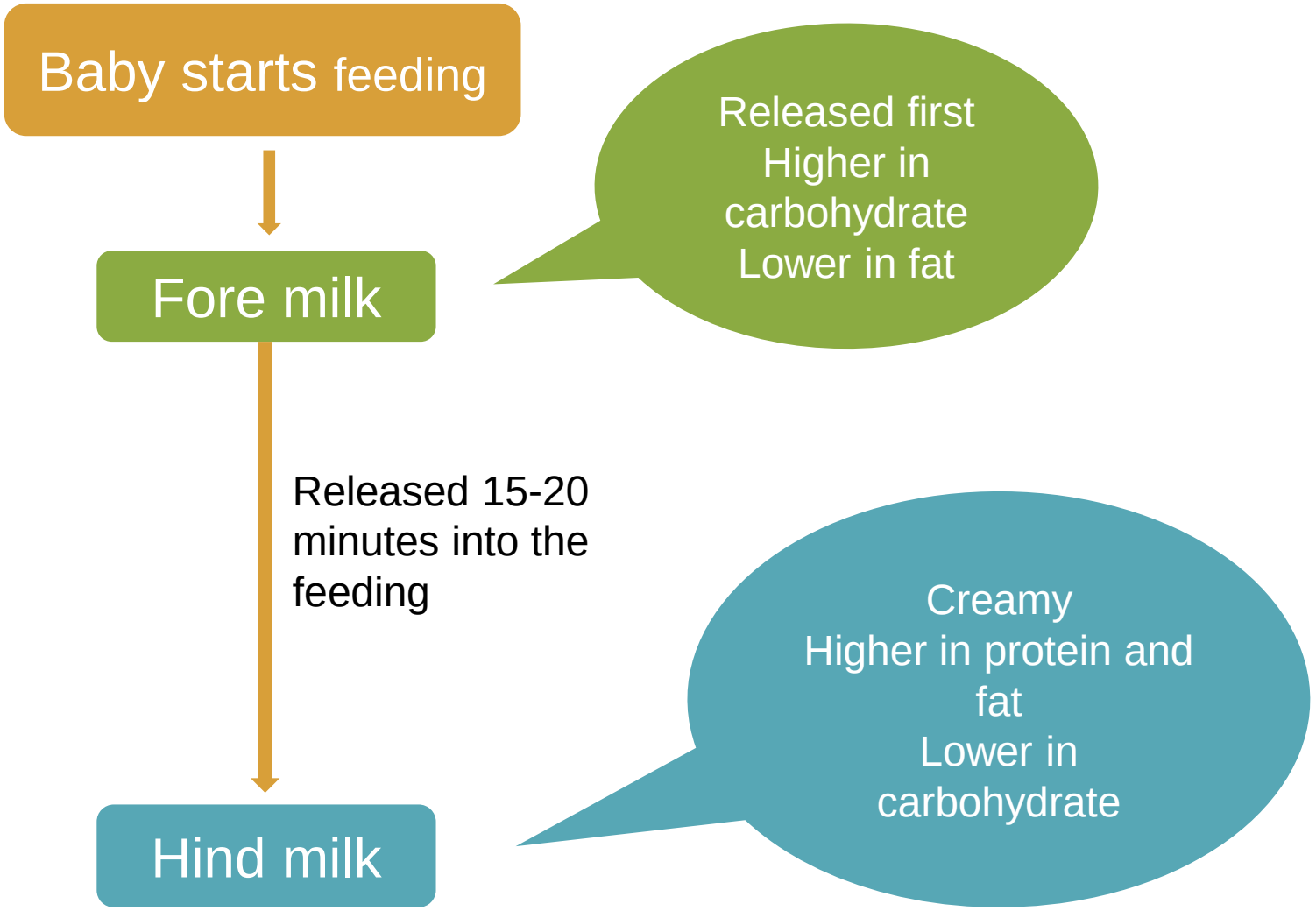
Transition milk

- 7 -14 days; increase in amount of milk
- The levels protein decreases
- The lactose, fat, and total caloric content increases.
- The fat-soluble vitamins decreases

Mature milk

Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016

Fore milk and hind milk



Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016

Benefits of breastmilk and breast feeding to infant and mother

Infant

- Nutritional benefits
- Cardiovascular health
- Protection against infections
- Immunological protection
- Psychological benefits
- Protection against child abuse
- Species specificity

Nutritional benefits

Meets the energy and nutrient needs of the vast majority of infants for the first 6 months[1]

Maximal bioavailability of essential nutrients including micronutrients

Unique composition provides ideal nutrients necessary for brain growth: **Cholesterol, DHA, Taurine**

Nutrient-nutrient interaction

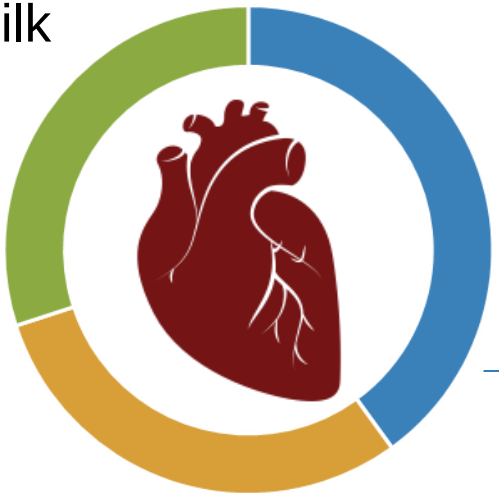
DHA: Docosahexaenoic acid

[1]Butte N et al. Nutrient adequacy of exclusive breastfeeding for the term infant during the first six months of life. Geneva, World Health Organization, 2002.

Protection against Cardiovascular disease

Presence of Long-chain polyunsaturated fatty acids such as DHA and AA in breastmilk but not in most brands of formula

The high cholesterol Content of breastmilk may have **a long-term programming effect on blood cholesterol levels**



Differences in insulin secretion:
Formula-fed infants have higher concentrations of insulin, which may lead to β-cell failure and type-2 diabetes

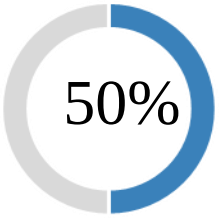
Protein intake as well as energy metabolism are lower among breastfed subjects.

DHA – Docosahexanoic acid; AA - Arachidonic acid

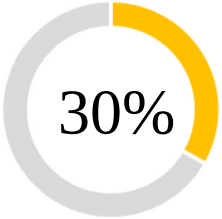
Bernardo et al, Long term effects of breastfeeding. A systemic review. WHO, 2013

Breast milk offers protection against infections

Breast milk has leukocytes, specificity antibodies and other microbial factors including immunoglobulins especially secretory IgA, lactoferrin, k-casein, oligosaccharides and cytokines



Reduction in gastrointestinal infections[3]



Reduction in respiratory tract infections[3]

Breastfeeding could prevent 72% of admissions for diarrhea and 57% of those for Respiratory infections

[3] *Cesar G et al; Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect, the lancet, vol. 387, 2016*

Immunological and allergy protection

- Epidemiological studies have revealed **reduced incidence of type 1 insulin dependent diabetes, type 2 diabetes and Crohn disease**[7]

- Artificial feeding is also associated with a greater risk of childhood leukemia[8]

- Infants at high risk of developing allergic symptoms such eczema and asthma by 2 years of age show a **reduced incidence and severity of symptoms** in early life

[7] Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016; [8] Kwan ML et al: Breastfeeding and the risk of childhood leukemia: a meta-analysis, Public Health Rep 119:521–535, 2014.

Psychological benefits

- Breast milk has long-chain polyunsaturated fatty acids including DHA and AA, which are important for **retinal and cortical brain development**

- Increase in **childhood cognitive and educational achievement** in infants who are breastfed[11]

Not breast feeding is associated with lower intelligence and economic losses of about $302 billion annually or 0.49% of world gross national income

[11] *Horwood LJ et al: Breastfeeding and later cognitive and academic outcomes, Pediatrics 101:e9, 1998*.

Species specificity and Protection against child abuse

- Milk of all mammalian species is specifically designed for their offspring
- Human breast milk is specific for needs of human infants.

- In a cohort study done in Australia, the odds ratio for maternal maltreatment increased as breast feeding duration decreased
- The odds of maternal maltreatment in bottle fed infants were 4.8 times greater than for children breastfeeding for atleast 4 months.[2]

Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016; [2]Strathearn L et al: Does breastfeeding protect against substantial child abuse and neglect? A 15 year cohort study, Pediatrics 123:483–493, 2009.

Mother

Empowerment

Postpartum recovery

Decreased risk of osteoporosis

Protection against Ovarian and breast cancer

Decreased risk of CVD, Hyperlipidemia and DM

Women Empowerment and postpartum recovery

- Breast feeding **empowers** a women to do something special for her infant
- Breastfeeding women develop **self esteem and assertiveness, become more outgoing and interact more maturely** with their infants compared to this who use artificial feeding

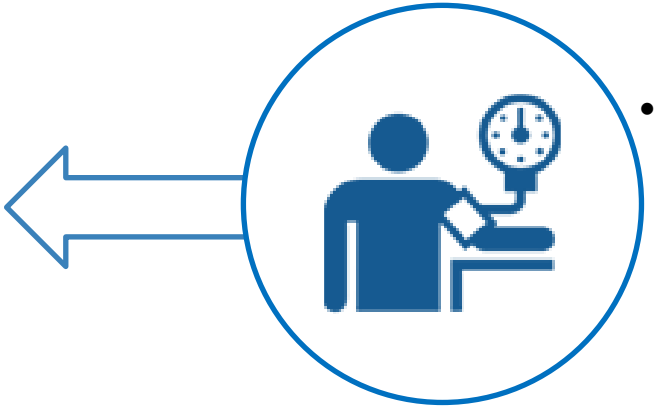
- Presence of oxytocin **stimulates the uterus to contract and involute**.
- Women who breast feed return to a pre-pregnancy state more promptly and have a **lower incidence of obesity** later in life

The mean energy cost during breast feeding is 2.8 MJ/day (675 kcal/day)

Ruth A et al. Breast feeding, a guide for the medical professional, 8th edition; Elsevier, 2016;

Decreased risk of osteoporosis and cardiovascular disease

- The **risk of osteoporosis is less** in later life for women who have borne an infant, and measurably less for those who have borne and breastfed infants



- Lactation stimulates the greatest **increases in fractional calcium absorption and serum calcitriol** after weaning[14]

Increased duration of lactation was associated with a **lower prevalence of hypertension, diabetes, hyperlipidemia and cardiovascular disease** in women who reported ≥ 12 months of lactation in their lifetime[15, 16]

[14]Kalkwarf HJ et al: Intestinal calcium absorption of women during lactation and after weaning, Am J Clin Nutr 63:526, 1996; [15] Kjos SL et al: Contraception and risk of type 2 diabetes mellitus, in Latina women with prior gestational diabetes mellitus, JAMA 280(6):533–538, 1998.; [16]Schwarz EB et al: Duration of lactation and risk factors for maternal cardiovascular disease, Obstet Gynecol 113:974–984, 2009.

Protection against Ovarian and breast cancer

Breastfeeding of at least 12 months cumulative duration was associated with **28% lower odds for ovarian cancer**

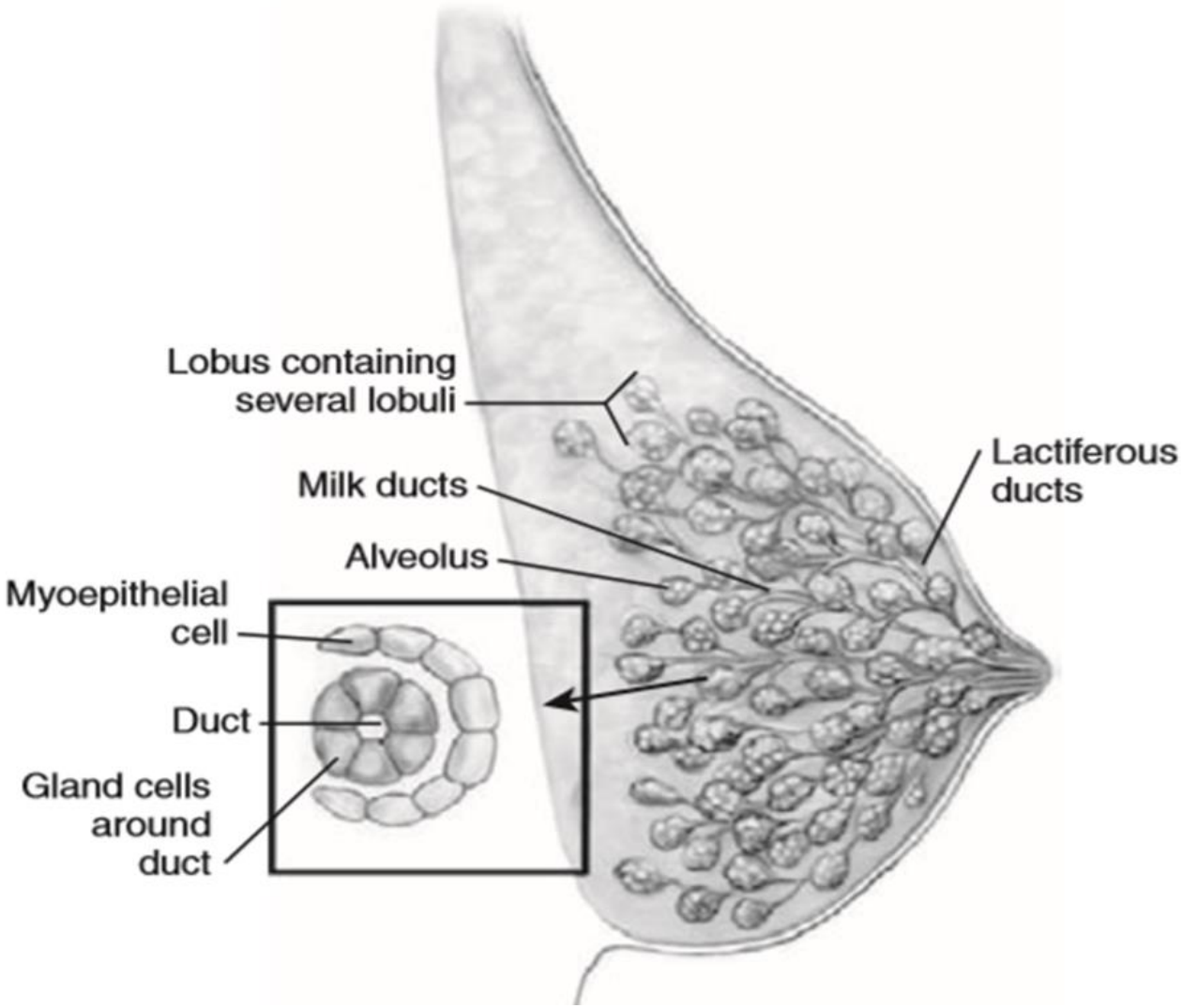
There is a **reduction in risk of breast cancer by 4.3%** for each year of breastfeeding

Improved breast feeding practices would prevent 20,000 annual deaths in women caused by breast cancer

Ip S et al: Breastfeeding and maternal and infant health outcomes in developed countries, Evidence report/ technology assessment number 153, Rockville, Md., 2007, Healthcare Research and Quality

Anatomy and physiology of breast feeding

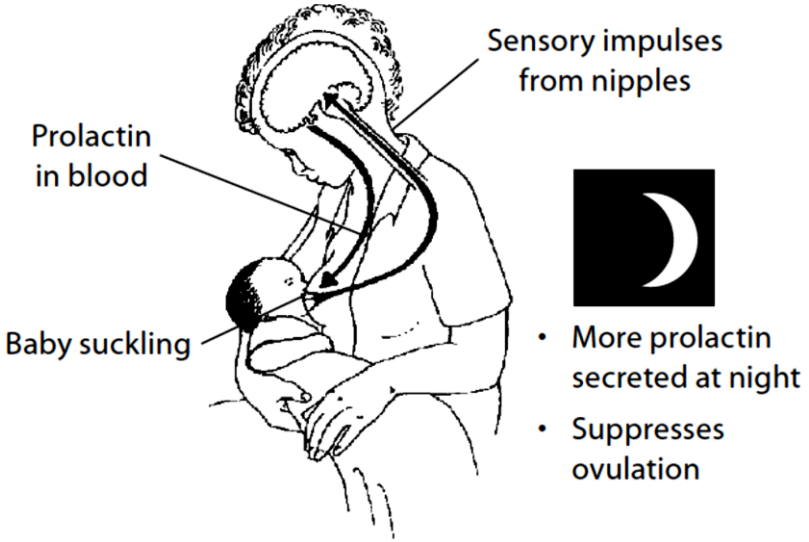
Structure of the breast



Breast feeding : a guide to medical profession 8th edition by Ruth and Robert Lawrence

Physiology of breastfeeding

Prolactin

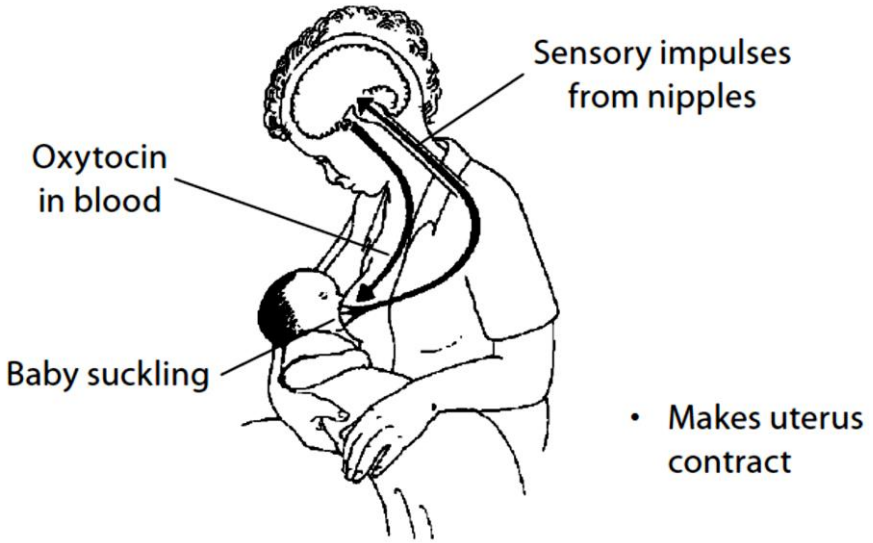


Secreted after every feed to produce next feed

Suckling is a POWERFUL stimulant of Prolactin

Other stimulants of oxytocin are tactile auditory and visual

Oxytocin



Works before or during the feed to make the milk flow

Infant and young child feeding,WHO,2009

Regulation of milk production

- Milk synthesis remains remarkably constant at approximately 800ml/day.
- Alveoli distention elevates intra-mammary pressure impeding flow via capillaries ,reducing supply of nutrients and stimulatory hormones.
- Increased pressure also disrupts connections between cells disrupting synthesis and secretion of milk components.
- Failure to remove milk disrupts milk production

.

- Feedback Inhibitor of Lactation (FIL) down regulates milk production

Initiation and Technique of Breastfeeding

Early initiation of breastfeeding

Babies who are not crying, not breathing and have poor muscle tone should be resuscitated first before initiating feeding

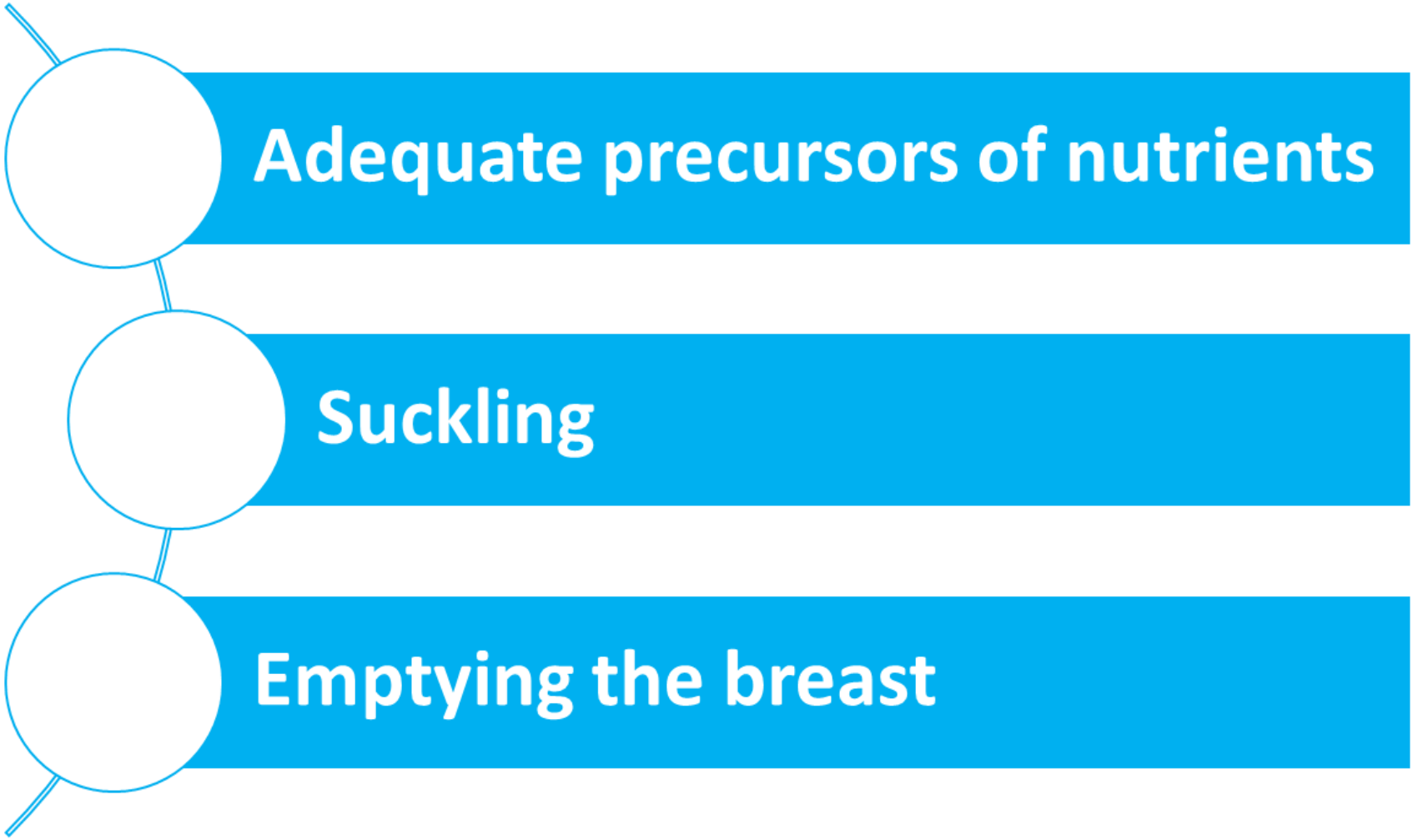
- Place the baby on the abdomen at birth if in stable condition i.e.;
  1. Crying
  2. Breathing
  3. Good tone
- Uninterrupted Skin to skin contact and early initiation of breast feeding;
  - Is alert, active, explorative
  - Sucking reflex is strongest

Benefits of early initiation of breastfeeding

- Promotes thermoregulation
- Stimulates breast milk production
- Facilitates the release of oxytocin - contraction of the uterus and reduces postpartum blood loss.
- Fosters bonding between mother and child.

- 56% Newborns breast fed within 1 hour of birth (KDHS 2014)
- Initiating breastfeeding within 1 hour reduces neonatal death rate by 22%

Essentials of effective lactation



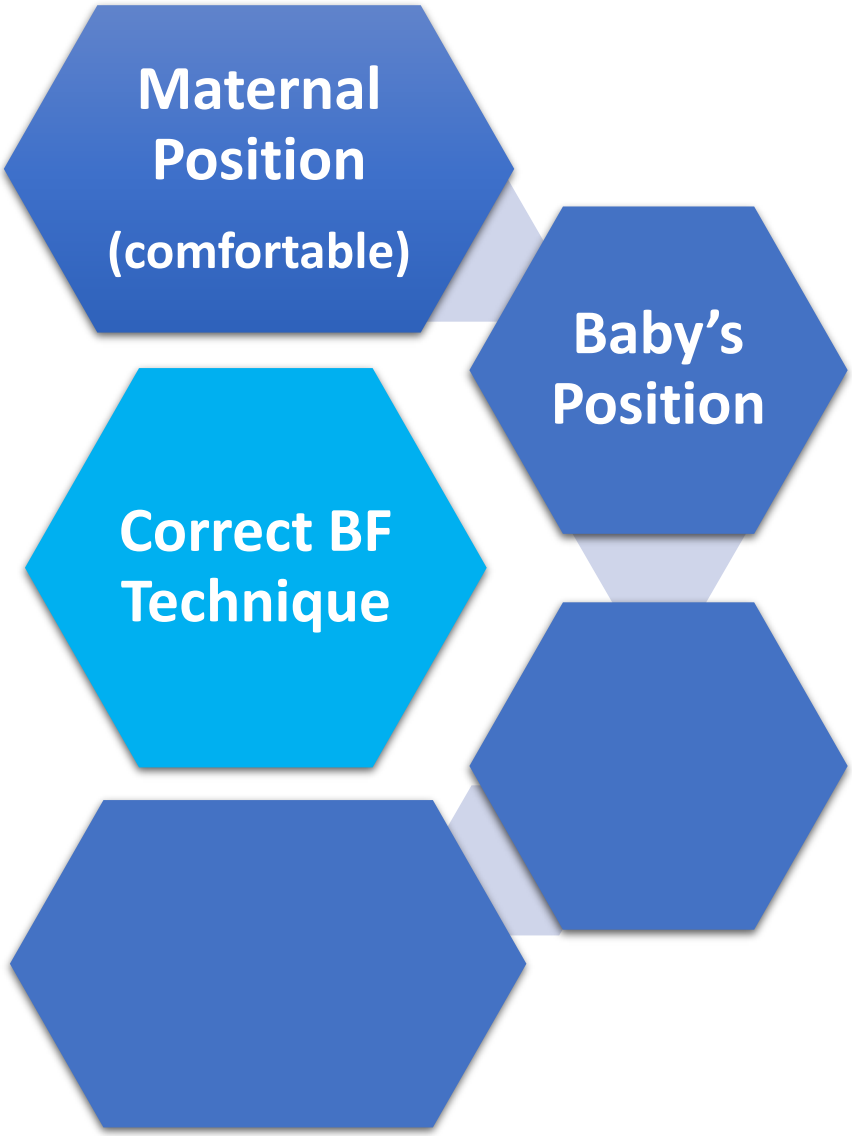
Correct breast feeding technique

- Maternal Position (comfortable)
- Baby's Position
- Correct BF Technique
- How the breast is held
- Attachment

If sitting, keep an upright posture

Use foot stool

Correct Positioning

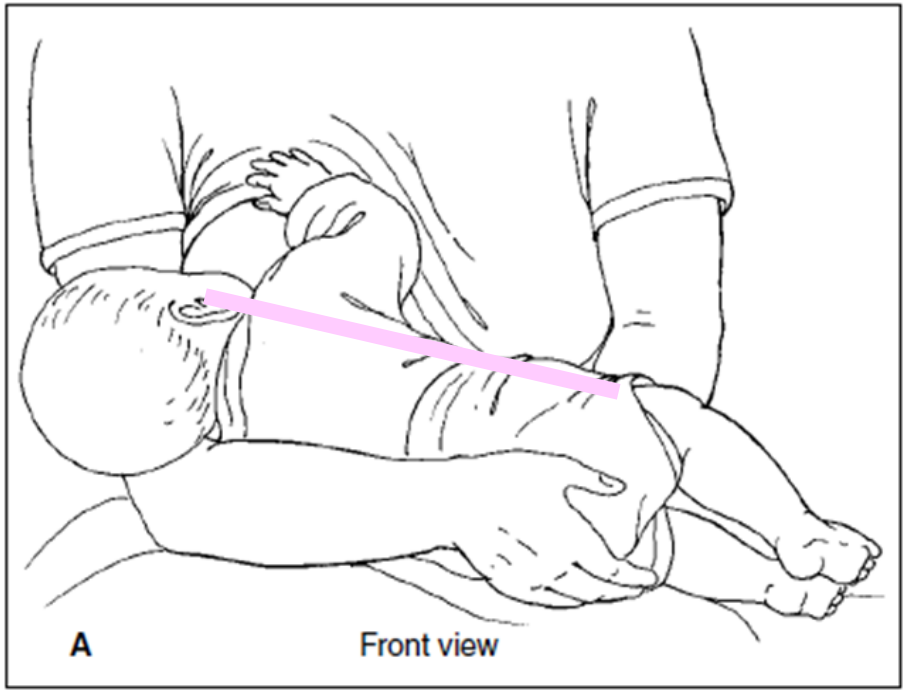


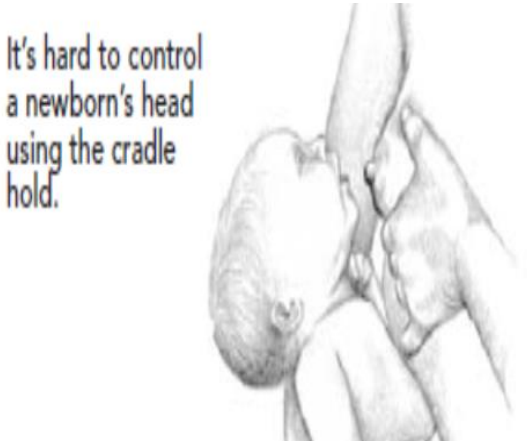
Baby's position

Breast feeding positions

1. Cradle hold
2. Cross – cradle hold
3. Football hold
4. Side-lying position

Cradle/Madonna Hold



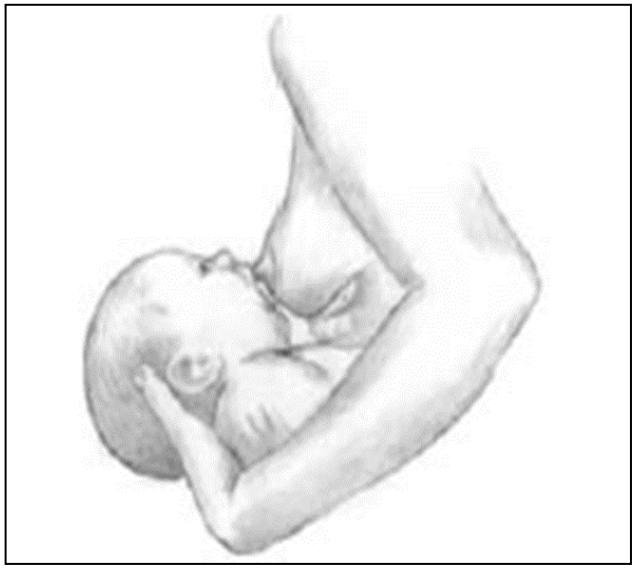


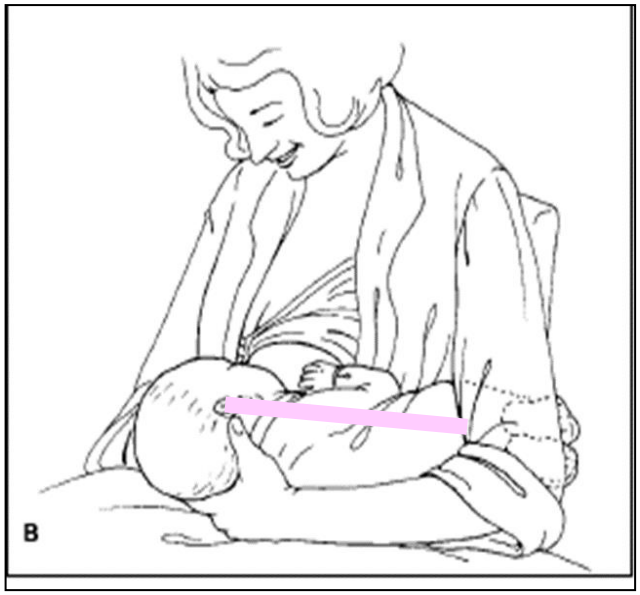
- Baby is close to the mother
- Baby's nose is at the level of the breast
- Baby's head, neck and body in a straight line
- Baby's whole body supported

Cross Cradle/Modified Clutch Hold

- Baby is close to the mother
- Baby's nose is at the level of the breast
- Baby's head, neck and body in a straight line
- Baby's whole body supported

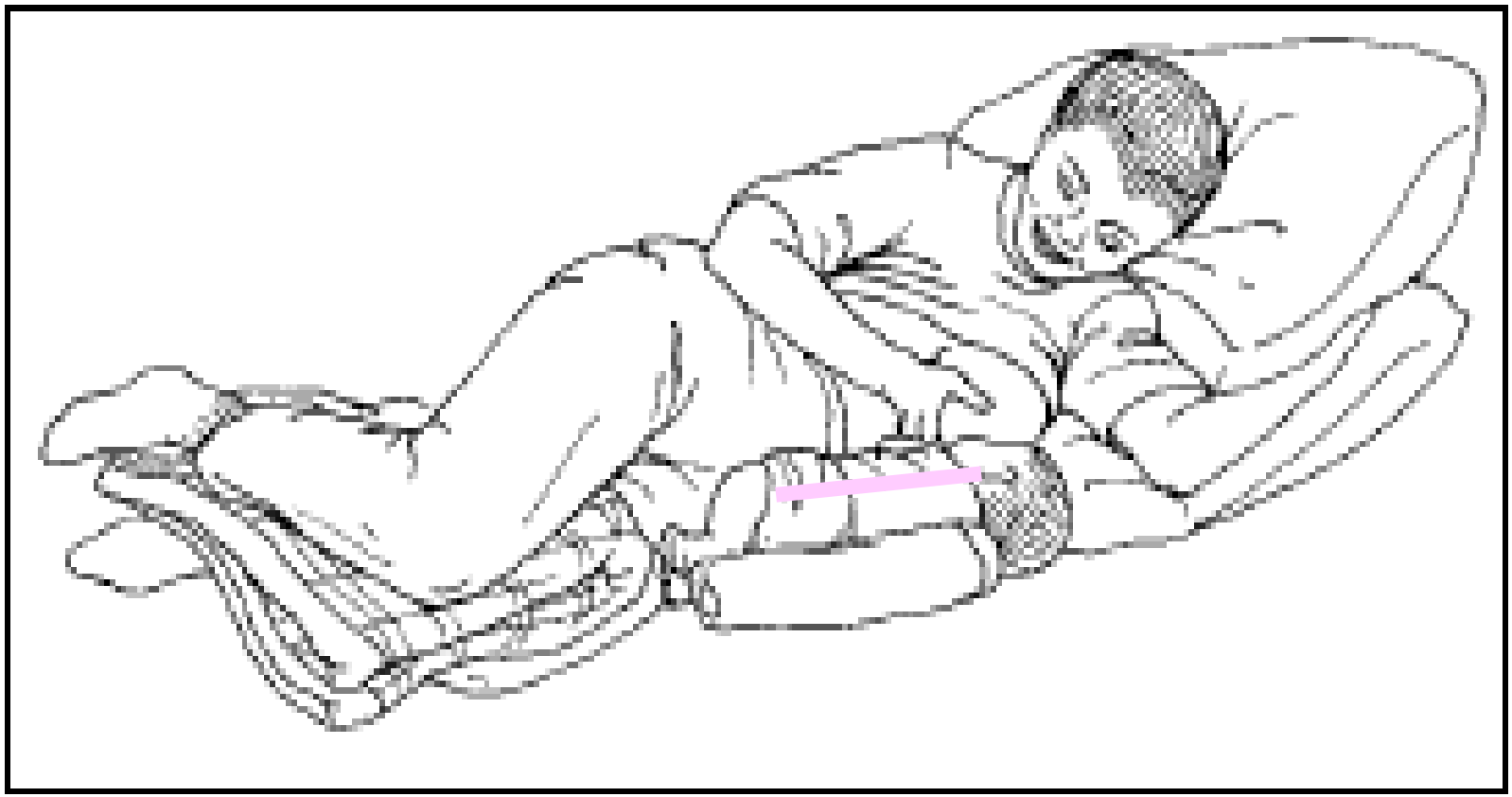
Football Hold





- Baby is close to the mother
- Baby's nose is at the level of the breast
- Baby's head, neck and body in a straight line
- Baby's whole body supported

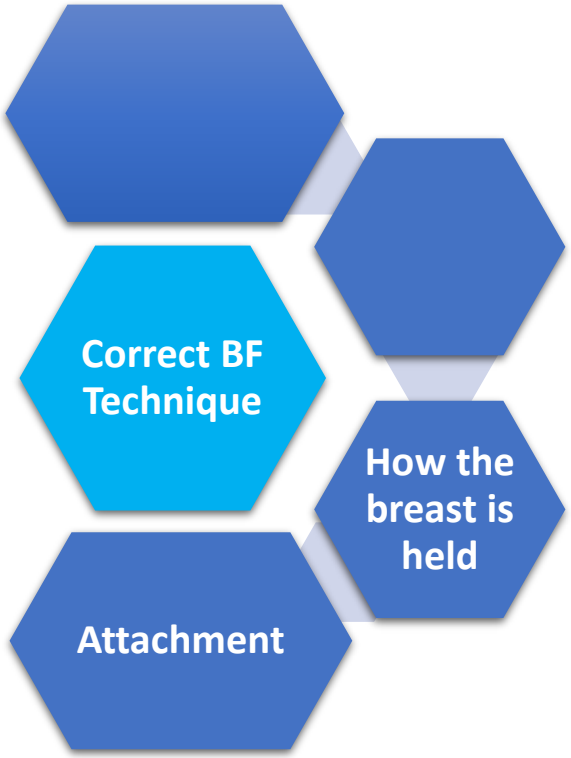
Side-lying position



Infant faces the mother with the mouth at the level of the nipple

- **Infants head, neck and body in a straight line**
- **Mother supports the whole body**

Correct Attachment



To correctly attach;

1. **Hold breast using C- grip**
2. **Stimulate the baby to open the mouth wide by touch nipple to upper lip**
3. **Introduce the breast as deeply into the mouth as possible**

C - grip

Good latch -- lips are >120° angle, lower lip covers more areola.

Correct Attachment

Poor Attachment

Signs of poor attachment

- ☐ More areola seen below bottom lip
- ☐ Baby's mouth not open wide
- ☐ Lips pointing forward or turned in
- ☐ Baby's chin not touching breast

Poor Latch -- lips are <90° angle, lower lip is just below nipple.

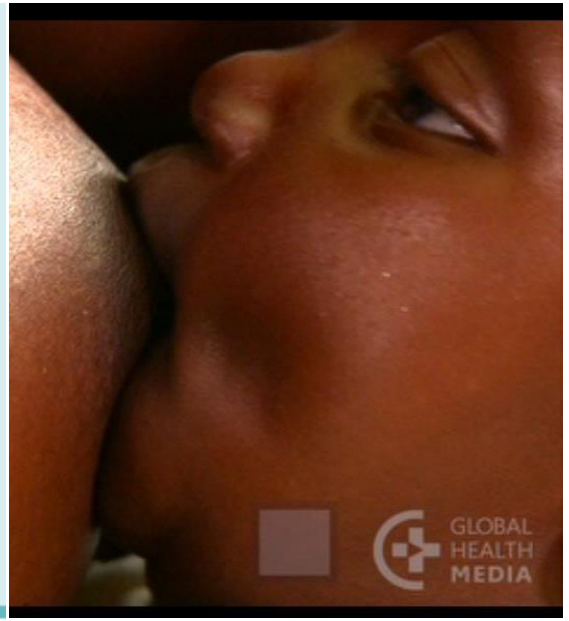
Assessing if suckling is effective

SUCKLING IS EFFECTIVE

- ☐ Slow, deep sucks with pauses
- ☐ Cheeks round when suckling
- ☐ Baby releases breast when finished
- ☐ Mother notices signs of oxytocin reflex

Poor suckling

- ☐ Rapid shallow sucks
- ☐ Cheeks pulled in when suckling
- ☐ Mother takes baby off the breast
- ☐ No signs of oxytocin reflex noticed



WHO 2009 Infant and Young Child Feeding

Emptying the breast

Correct Breastfeeding techniques

Sufficient Breast milk production

Relaxed Mother

Frequent breastfeeding – empty breasts are soft

Helps in Maternal weight reduction

Not by drinking or eating excessfully

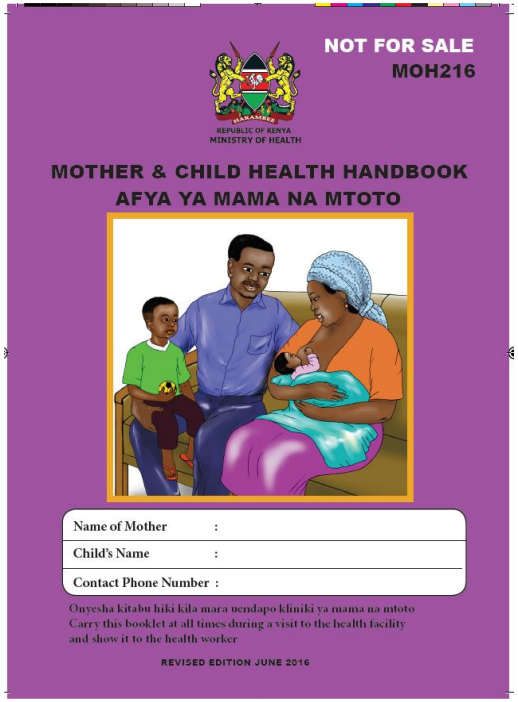
- Baby takes in 85% of feed in the first 5 min
- Usually finishes feeding at 20 min
- More than 1 hour is counter productive
- Baby releases breast when full

Assessing for correct breastfeeding technique

Correct technique	Incorrect technique
BABY'S POSITION	
☐ Baby's head and body in line	☐ Baby's neck and head twisted to feed
☐ Baby held close to mother's body	☐ Baby not held close
☐ Baby's whole body supported	☐ Baby supported by head and neck
☐ Baby approaches breast, nose opposite nipple	☐ Baby approaches breast, lower lip to nipple
BABY'S ATTACHMENT	
☐ More areola seen above baby's top lip	☐ More areola seen below bottom lip
☐ Baby's mouth open wide	☐ Baby's mouth not open wide
☐ Lower lip turned outwards	☐ Lips pointing forward or turned in
☐ Baby's chin touches breast	☐ Baby's chin not touching breast
SUCKLING	
☐ Slow, deep sucks with pauses	☐ Rapid shallow sucks
☐ Cheeks round when suckling	☐ Cheeks pulled in when suckling
☐ Baby releases breast when finished	☐ Mother takes baby off the breast
☐ Mother notices signs of oxytocin reflex	☐ No signs of oxytocin reflex noticed

WHO 2009 Infant and Young Child Feeding

Help the mother use the Mother and Child Handbook



GOOD POSITIONING FOR BREASTFEEDING

Is the infant correctly positioned? Positioning refers to how the baby is

- Infant's head and body straight
- Infant facing the mother with the nose opposite the nipple
- Infant's body close to the mother's body (Infant's Tummy to mother's tummy)
- Mother supporting infant's whole body and not just neck and shoulders.

ALL THE 4 SIGNS OF CORRECT POSITIONING MUST BE PRESENT TO DECIDE THERE IS CORRECT POSITIONING

Good Position

Is the infant able to attach? To check for attachment look for:

- Chin touching the breast
- Mouth wide open
- lower lip turned outward
- More areola seen above than below the mouth

AGAIN ALL THE 4 SIGNS OF GOOD ATTACHMENT MUST BE PRESENT FOR ONE TO DECIDE THE INFANT HAS GOOD ATTACHMENT

Good Attachment

Signs of effective suckling:

- Slow deep sucks, sometimes pausing
- Chicks round when suckling
- Baby releases breast when milk is finished or he/ she is satisfied
- Mother supporting infant's whole body and not just neck and shoulders.

How to attach:

- Touch the baby's upper lip with your nipple
- Wait until the baby's mouth is open wide
- Move the baby quickly onto your breast, aiming the baby's lower lip well below the nipple
- Mother feels relaxed

*NB: During breastfeeding, show the mother correct positioning and attachment. ** Chlorhexidine 7.1% delivering 4%*

Page 16 of 44

NOT FOR SALE

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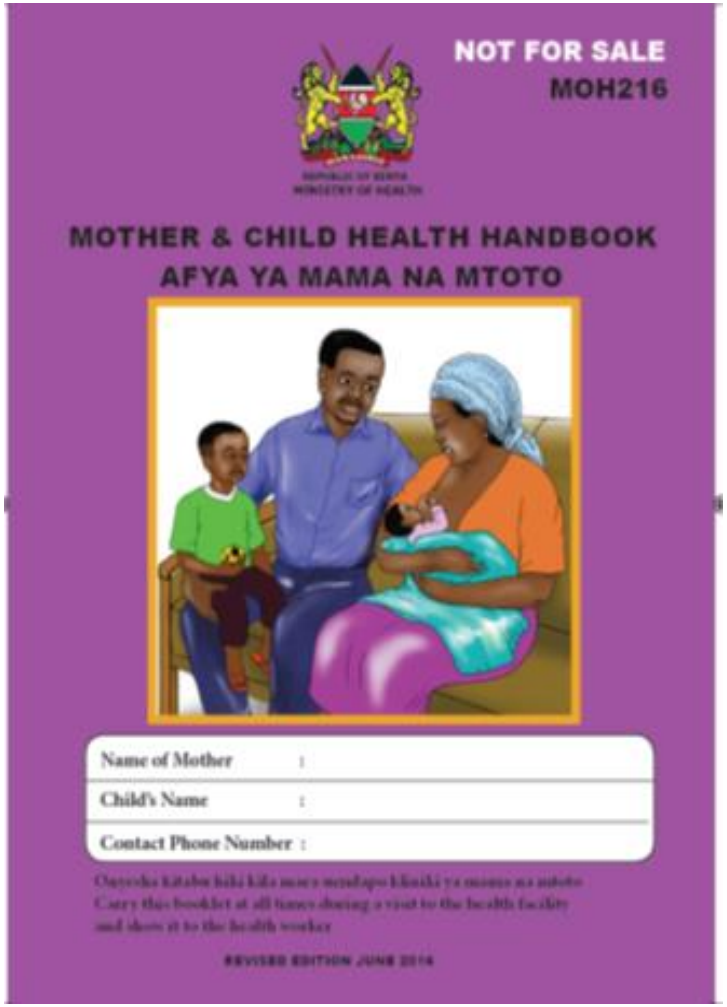
Postnatal Visit



Timing of Visit	48Hours	1-2 weeks	4-6 weeks	3targeted Visits
Date/visit				

B) BABY

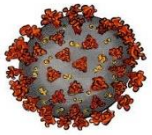
Baby's general Condition well.....unwell.....				
Baby's Temp				
Baby's breath per minute				
*Baby's feeding method				
**Baby's breastfeeding: positioning & attachment correct_____ Not correct _____				
Umbilical cord				
Baby immunization started (Yes, No)				
HEI infant given ART prophylaxis (Yes, No, N/A)				
Infant cotrimoxazole prophylaxis initiated (Yes, No, N/A)				

*Encourage exclusive breastfeeding unless advised otherwise by the health worker **Positioning and attachment for breast feeding: refer to page 16. NB: fill in page 24 to 25 (child health monitoring)

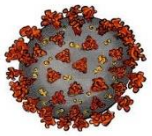
Breastfeeding in the Covid19 era

saving children's lives
ETAT+
Emergency Triage Assessement and Treatment plus admission

What is COVID-19?



Coronavirus disease 2019 (COVID-19) is a respiratory tract infection caused by a newly emergent coronavirus , that was first recognized in Wuhan, China, in December 2019



The virus that causes COVID-19 is designated as **severe acute respiratory syndrome corona virus 2 (SARS-CoV-2)**

March 11, 2020 , WHO characterized COVID-19 as a pandemic

Modes of transmission

		Preventing spread
1	**Droplet transmission:** • Large nuclei(>5µm) spread within 1m by coughing, sneezing or talking to an infected person. Settles by gravity	• Wearing a mask, • Maintaining distance
2	**Direct contact exposure:** • Contaminated hands directly touches mucous membranes of a susceptible person	• Avoid shaking hands, • Maintain hand hygiene, • Cough etiquette • Wear a mask
3	**Fomites:** • Object/surfaces likely to carry the microbes i.e. stethoscope or thermometer	• Regular disinfection of surfaces and objects e.g. stethoscopes and thermometers. • Use of gun thermometers to maintain distance
4	**Airborne transmission:** • microbes within droplet nuclei (< 5µm)/ dust particles aerosolized by procedures (alveoli)	• Wearing N95 masks and avoid procedures if they don't have to be done

Infection can be spread by asymptomatic or symptomatic patients.- when unwell should be isolated to break the cycle of spread. HCWs should take IPC precautions when attending to all patients

Source: Modes of transmission of virus causing COVID-19 : implications for IPC precaution recommendations. 2020;(March):19–21;

Identifying a mother with suspected covid 19

Suspected case

- Acute respiratory illness and/or fever >38^{0}C **AND** no known aetiologies that fully explain the presentation **AND** a history of travel to a community with COVID-19 transmission at least **14 days** prior to symptom onset;
- OR
- **Any** acute respiratory illness **AND** having been in contact with a confirmed or probable COVID-19 case in the last 14 days prior to symptom onset; OR
- Severe acute respiratory illness **AND** requiring hospitalization **AND** in the absence of an alternative diagnosis that fully explains the clinical presentation

Confirmed case

- A person with **laboratory** confirmation of COVID-19 infection, **irrespective** of clinical signs and symptoms

Probable case

- A probable case is one with pending results

Breastfeeding in COVID19

Recommendations

1. Support mother to breastfeed
2. Practice skin to skin contact
3. Rooming- in

Actions

1. Respiratory hygiene and wear a mask
2. Wash hand before and after handling the baby
3. Routine cleaning and disinfection of surfaces.

Spread of infection through breastmilk is unknown

http://www.emro.who.int/nutrition/nutrition-infocus/breastfeeding-advice-during-covid-19-outbreak.html

Feeding options in COVID19

Best option for the well mother breastfeeding

Feeding option for the unwell mother

- Preferable- Expressed breastmilk
- Others
  - Donor breast milk.
  - Relactation.
  - Wet nursing.

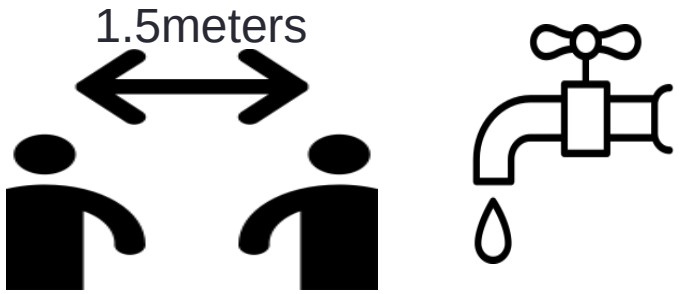
Health care workers and facilities **should not** promote

- Breastmilk substitutes
- Feeding bottles
- Pacifiers and teats

http://www.emro.who.int/nutrition/nutrition-infocus/breastfeeding-advice-during-covid-19-outbreak.html

Lay out in postnatal, NBU, KMC room & expressing breastmilk room

All mothers to keep 1.5 meter apart in all places. All wash hands frequently & wear masks; Instruct all mothers on cough etiquette and hand hygiene. Self temp monitoring twice a day



Potentially Contaminated zone
Suspected COVID 19

Confirmed COVID 19
Postnatal, KMC,NBU rooms etc

Suspected COVID-19
Postnatal, KMC, NBU rooms etc

Clean zone
No fever/no cough/no contact

Postnatal, KMC, NBU rooms etc

Beds 1.5 meters apart, cottons masks.

saving children's lives
ETAT+
Emergency Triage Assessment and Treatment plus admission

Summary

- Breastfeeding is indispensable for the growth and development of the baby
- Mother should be taught and supported to acquire appropriate feeding practices
- HCW should teach the mothers on expression of breastmilk and cup feeding
- Exclusive breastfeeding should be encouraged in mothers with COVID-19 and the necessary precaution should be taken.

Drills

saving children's lives
ETAT+
Emergency Triage Assessement and Treatment plus admission