Infant Medical Conditions During Lactation

Liliana Simon, MD, C-NABBLM, FABM, IBCLC
Pediatric Critical Care and Breastfeeding Medicine
University of Maryland
liliana.simon@som.umaryland.edu

IABLE
Institute for the Advancement of Breastfeeding & Lactation Education

UNIVERSITY of MARYLAND CHILDREN'S HOSPITAL

1

- Conflict of Interest to disclose- None
- To earn continuing education recognition points (CERPS) for IBCLE, attendance for the entire course and a completion of an evaluation is required.
- For CMEs, please keep track of the hours you have attended, and completion of an evaluation is required

IABLE
Institute for the Advancement of Breastfeeding & Lactation Education

2

Objectives

- 1. Describe special accommodations for breastfeeding and lactation when the infant has a medical condition
- 2. Recite 3 challenges that the lactating parent and family face when their child is hospitalized
- 3. Describe practical breastfeeding strategies for the most frequent challenges faced by the dyad when an infant has a medical condition

3

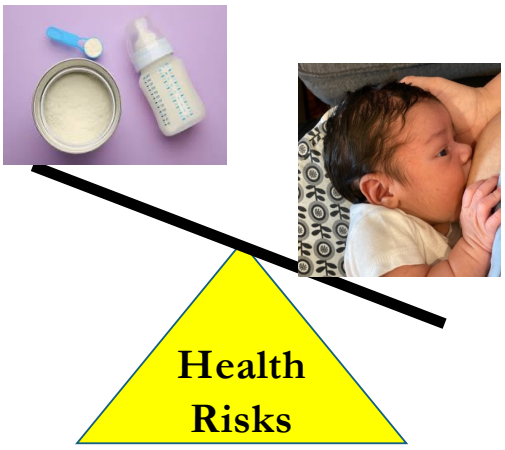
Pre-natal visit

- Maria is 32 years old and 33 weeks pregnant with her second child whose OB is concern she might go into preterm labor. She wants to do the best for her baby and is thinking about breastfeeding; she did not breastfeed her first child.
- She asks you what health benefits breastfeeding would provide for her baby.
- What do you tell Maria?

4

Why BF?

More BF = better health outcomes



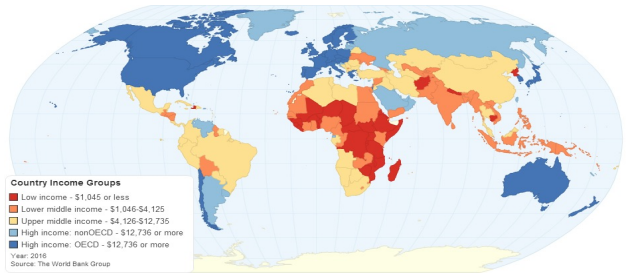
- Child
  - ↓ Infections, asthma, milk protein allergy, leukemia, SIDS (SUID), obesity, Type 1 diabetes, cardiovascular diseases
  - ↓ Hospital admissions, length of stay, post operative complications
  - Mortality- infant and in middle age
- Premature
  - ↓ NEC, BPD, ROP, Late onset Sepsis
  - ↓ feeding intolerance, readmissions
  - ↑ neurocognitive outcomes

5

Mortality Low/Middle Income Country (37% EBF<6m)

Exclusively breastfed children have only 12% the risk of death compared to non breastfed.

Never BF children have 8 x the mortality rate of BF children.



WHO (2018)- 75% of < 5y deaths occurred within the 1st year

Leading cause of under-five deaths: **Infectious diseases** (pneumonia, diarrhea and malaria), preterm birth, intrapartum-related complications

9

BF Disparities and Barriers

Language
Cultural
Racial

Breastfeeding is especially protective for Black women.

Black women least likely to provide breastmilk.
Black women experience unique social, cultural and historic barriers.

10

Joyce is now 2 weeks old; has had a very smooth course until now.

Breastfeeding was going well, until a day ago when she started to be a bit fussy and would not eat as usual; no fevers. She was found to be in SVT (cardiac arrythmia) and is being admitted to the PICU for treatment.

What are some of the risks for breastfeeding when the dyad is separated?

11

Risks of Separation

- Decreased milk production
- Decreased exclusivity
- Early weaning
- Breast discomfort, engorgement
- Mastitis
- Interferes (hampers) immune protection for the child against infection
- Interrupts shared circadian rhythms
- Emotional distress for both child and mother

12

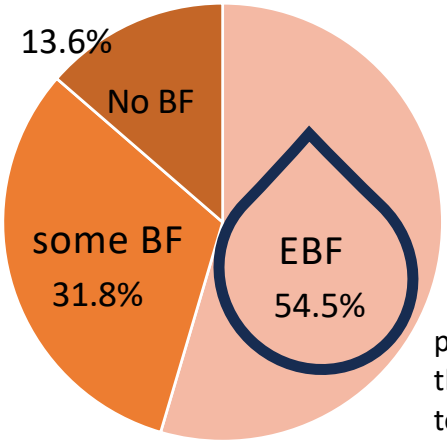
Illness of any one in the dyad…

… interferes with breastfeeding!

13

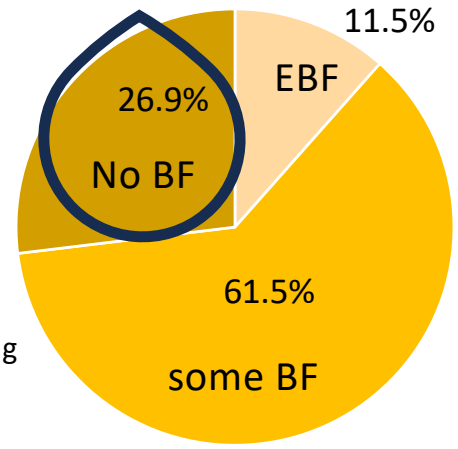
Hospitalization – PICU and Peds Breastfeeding Discharge vs. Admission

Exclusive BF at Admission (21.1% of patients)



p-value obtained using the Stuart-Maxwell test = 0.009

Some BF at Admission (32.7% of patients)



14

Barriers to Feeding/ Breastfeeding

- Change of feeding pattern
  - ↑ or ↓, NPO
  - Ability to breastfeed
  - Severity of illness
- Mother's availability
- Physical: tubes, lines, incisions, machinery
- Need for a strict fluid balance
- **Lack of knowledge on how to support BF**

JBI Database System Rev Implement Rep 2018; 16(11):2224–2245.

15

What can we do?

- Lactation support is a must
  - With understanding of lactation and illness physiology
- Keep dyad together
  - Lactating mother's basic needs should be accommodated
  - Support person to take care of non hospitalized person
- Anticipatory guidance
  - Prenatal counseling
  - Long hospitalizations
  - Multiple procedures
- Protect milk production if infant is not feeding well and Paced bottle feeding

16

Paced Bottle Feeding

- Wait until baby opens the mouth
- Slow insertion of the nipple
- Wait a few seconds before giving milk
- Bottle in the horizontal position
- Allow natural breaks during feeding
- Baby in an upright or side lying position
- Feeding session should take ~15 minutes

- For a sick child - red flags: gagging, coughing, spurting
- **Do not let any milk flow for first ~30 sec and pace the bottle**

18

Lucy is 5 weeks old and is presenting with runny nose, congestion and cough for the past 2 days and diarrhea for day.

She is not feeding as well as before as seems to be snacking all the time.

She comes to an office visit and was diagnosed with viral illness.

Lucy's neighbor is worried she will get dehydrated with her diarrhea and poor PO intake and strongly suggested that her mom gives Lucy Pedialyte.

19

Shall Lucy have Pedialyte to make sure she continues to be hydrated through this illness?

A – no

B – yes

There is no need to stop breastfeeding or give Pedialyte to an infant with a cold, cough or vomiting and diarrhea

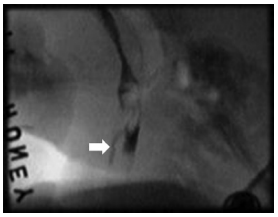
20

Infants who are ill at home with common colds, viral illness (RSV, influenza, etc), pneumonia, otitis (ear infections), hand foot mouth disease, or vomiting and diarrhea

- **Breastfeed**
- **Breastfeed**
- **Breastfeed**
- No need for Pedialyte or other fluids
- Older infant- If mother is exclusively breastfeeding and has a good production, there is no need for complementary food while sick
- No concerns if they cough or choke a little at the breast while sick

21

Aspiration and Breast Milk



- Retrospective cohort, 2016-2021
- Inclusion: medical clearance for BM despite aspiration
  - Documented aspiration of thin liquids in Videofluoroscopic Swallow Study (VFSS) / Modified Barium Swallow (MBS)
  - 54% males (43/80), 1-6 m of corrected age
- Pulmonary health monitored for 3 months
- **90% (72/80) no pulmonary illness in this 3-month period with proved aspiration**
- 10% (8/80) diagnosis of a pulmonary illness
  - Most had a surgical problem

22

Bronchiolitis "Viral Pneumonia"

J Hosp Med. 2019 Sep 18;14:E43-E48 , *Hosp Pediatr* 2017 May;7(5):249-255

- Runny nose, cough, congestion, fever, fast breathing
- In the hospital
  - Sometimes they are not allowed to eat
  - **Decision to feed or not is based on several of empiric criteria**
- **Feeding-related complications are rare, regardless of**
  - Mode of feeding
  - Level of respiratory support
- **Interruption of feeds**
  - **↑hospital length of stay by 2.5 days**

23

Immunoglobulins in Breastmilk

- sIgA (secretory IgA)
  - 80-90% of total Ig
  - 90% stays in the mucosal surface
  - Prevents infection and inflammation

Rev Assoc Med Bras 2016; 62(6):584-593

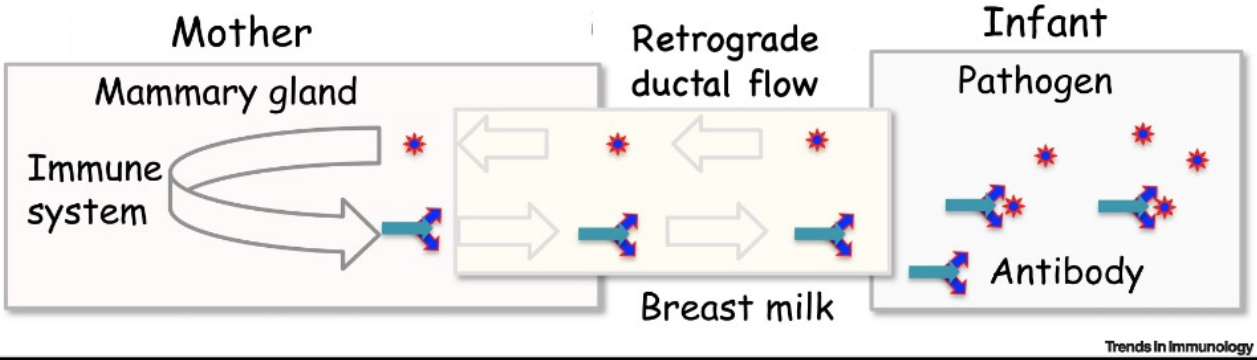
24

Breast milk and Infant Health Status

25

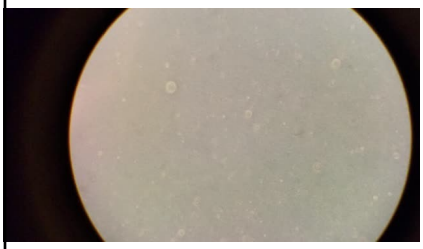
Intertwining of Maternal and Infant Immune System

Direct Breastfeeding
Significance to the Suckling Infant
Retrograde Flow



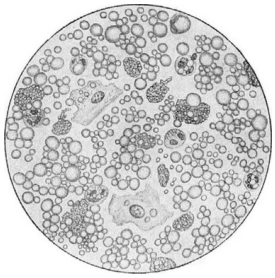
26

Formula

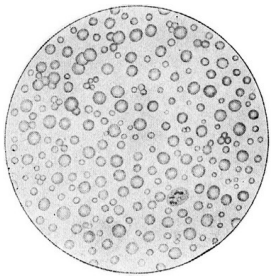


https://www.healthyway.com/content/this-is-the-real-difference-between-breast-milk-and-formula/

Under the Microscope



Colostrum



Breastmilk

4000 cells/cubic mm

Daily- infant receives ~100,000 to 350 million leukocytes (infection fighting cells) through BM

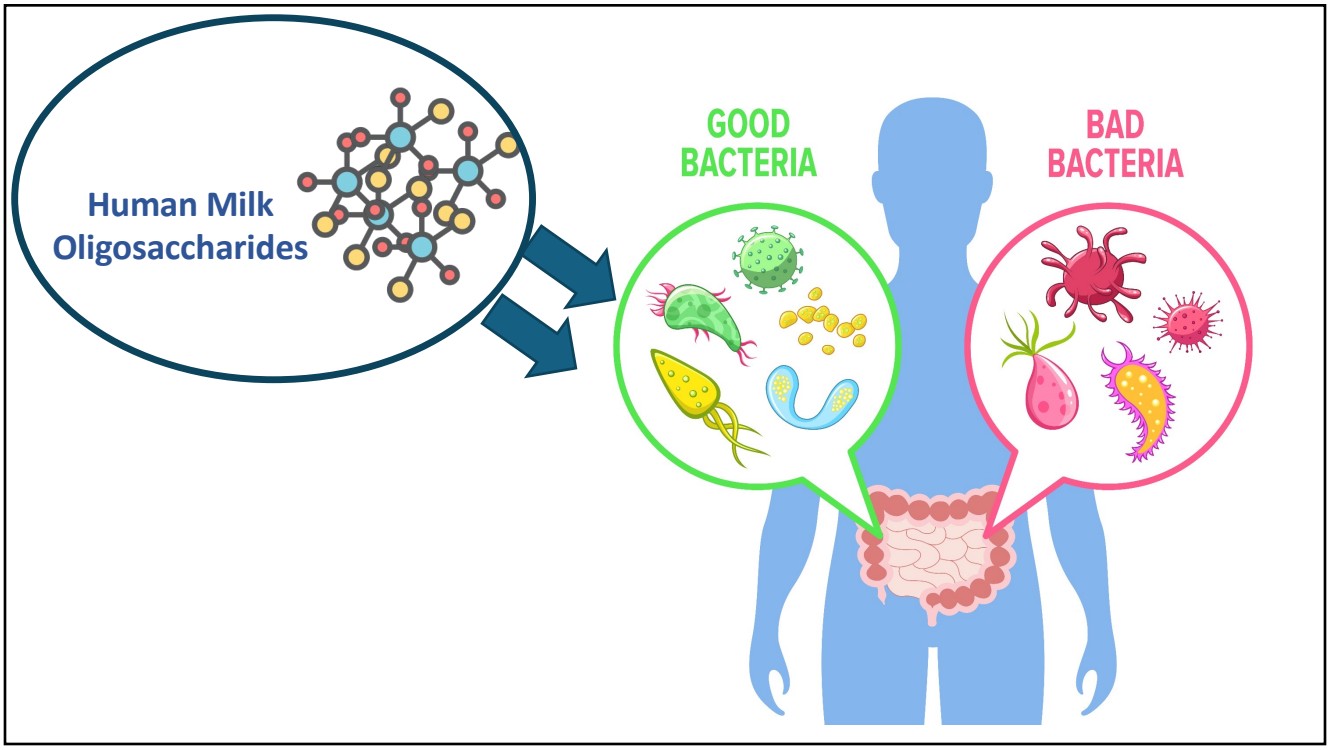
When infant in ill, this number increases significantly

27

Guidelines for feeding a sick child

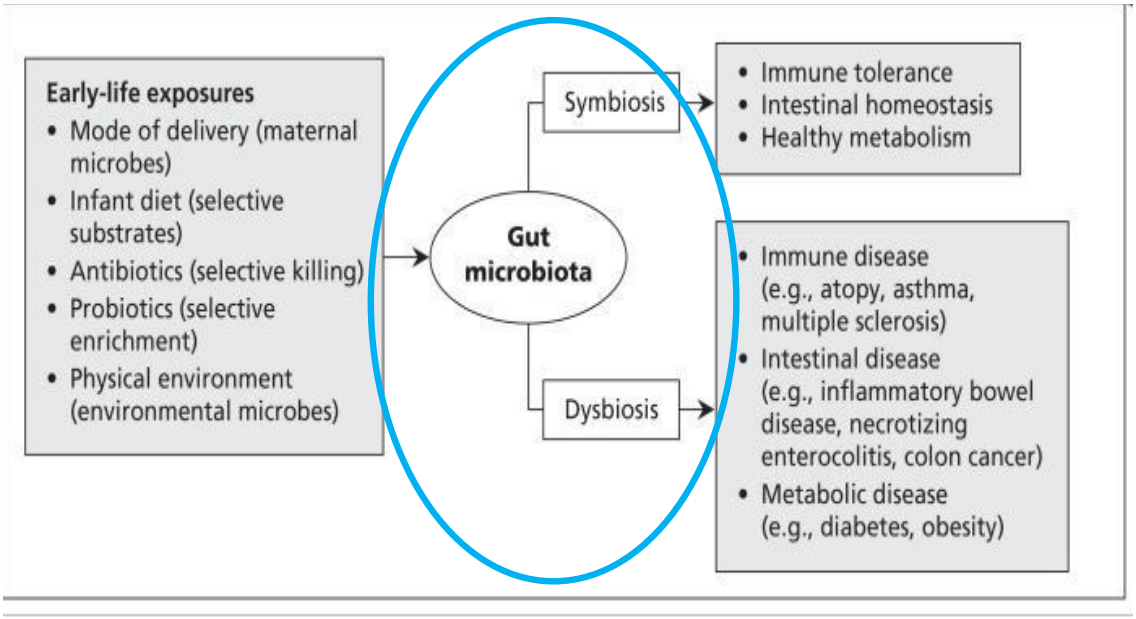
- Breastfeed
  - Exception: very sick infant
  - Nutrition, comfort, protection
  - Infant regulates flow and volume
  - May need adjustments/ alternative position
- Don't "push it"
- If bottle: Paced bottle feeding
- Pump to protect production, if needed

28



29

Development of the Human Microbiome



30

Formula changes the gut microbiome leading to an imbalance increasing the risk of more illnesses, allergies and immune diseases. How much formula is needed to cause disturb the microbiome?

A. 1 oz (30 ml)
B. 2 oz (60 ml)
C. 3 oz (90 ml)
D. 4 oz (120 ml)

**** Changes occur within 24 hours and take weeks to change back ****

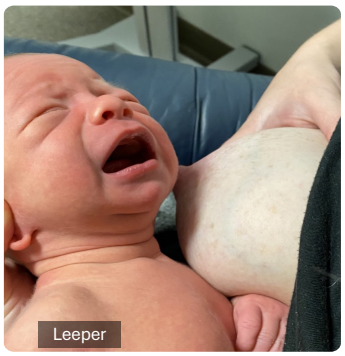
31

Rebecca is a 4 month old exclusively breastfed infant who attends daycare and takes bottles of EMB. For the past week, she has been refusing to breastfed when she with mom, but is still taking bottles well. Her mom is quite upset and does not understand why Rebecca is not taking the breast anymore. Rebecca is otherwise playful and acting normal.

What do you think is going on with Rebecca? Is she just ready to wean?

32

Nursing Strike



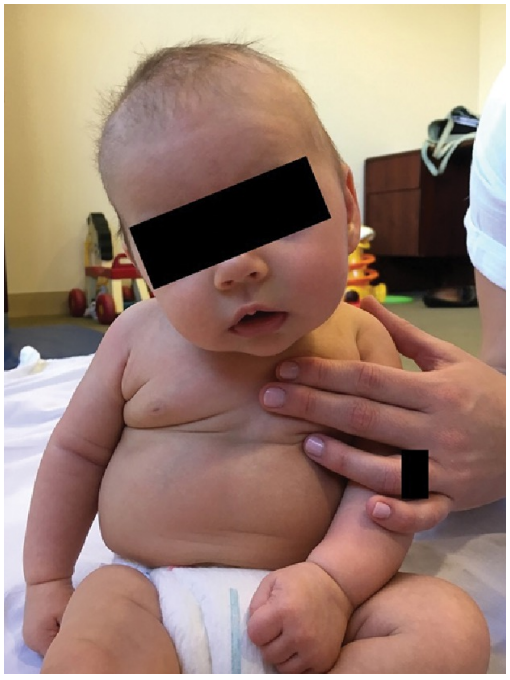
Causes:

- Bottle preference- fast flow (<6 wks of age)
- Low milk production or difficulty removing milk
- Illness or injury in baby
- Reacting strongly to a bite
- Change in routine (back to work, travel)
- Any stress, ?? often a mystery

- "Pretend like you do not care!" - Do not force!!
- Distract baby- Skin to skin, offer early and often, when waking up/falling asleep, stand up, walk/dance, dark/quiet room, warm bath

PACE BOTTLE FEEDING

33



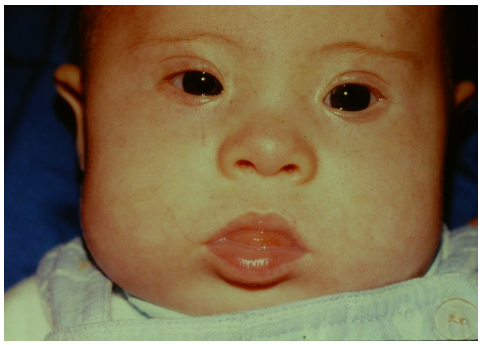
Torticollis

- Physical Therapy
- May have preference for one breast
- Try different positions
  - Allow baby to maintain head tilt
  - Keep tight side down
  - Then just move sideways to other breast
    - Football hold for one breast and cross cradle or cradle for the other

34

Trisomy 21 (Down's Sd) / Hypotonia

- **What are some particularities that make it challenging to breastfeed?**
- Oropharyngeal anatomy
  - Small mouths, tongue is large and protruding, malocclusion
- More susceptible to infection
- Co-morbidities (heart, GI)
- BF is even more beneficial
  - Infections, cancer, positive neurocognitive outcome



- Julia's Way- Good resource
  - www.juliasway.org
- Extra support – **Dancer hold**
  - Breast and infant's jaw simultaneously

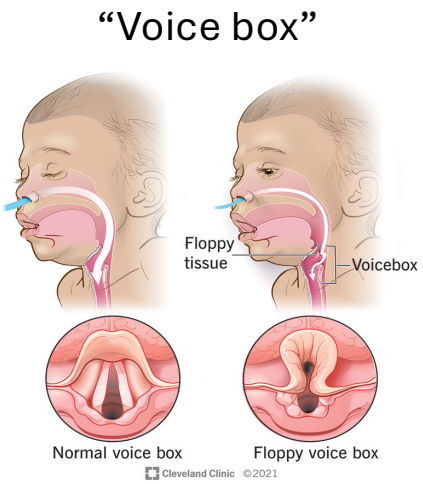
35

"Dancer's Hand" Hold- pressure on cheeks

36

Laryngomalacia

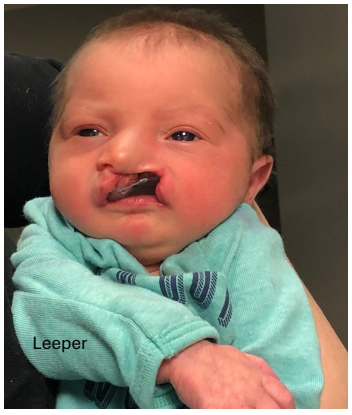
- Softening of tissues above the larynx
- Stridor- loud, squeaky, high-pitch noise when the baby breathes in
- Louder- laying, sleeping, crying or feeding
- Very common (>50%)
- Sometimes pulling and tugging at the neck
- Most have no trouble feeding or breathing
- Try different positioning
- Goes away by 1 year
- **If baby is struggling with latch or gain weight, work-up is needed**



- https://www.youtube.com/watch?v=lMCUUVNPjdI

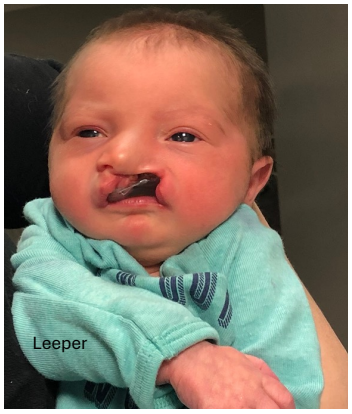
37

What is the diagnosis?



38

Cleft Lip and Cleft Palate



This baby comes into you while having some trouble eating. The parents ask for your advice. What would you tell them?

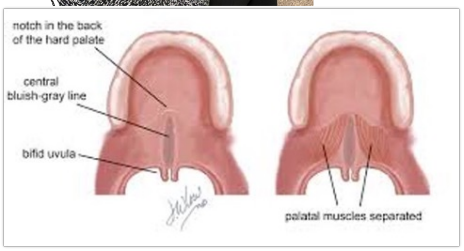
A. You might be able to help her. She needs a full exam to determine the extent of the cleft.

B. You don't expect her to be able to breastfeed. They should pump and give her express breast milk with a special bottle.

C. You can certainly help them by showing them some specific BF techniques.

39

MUST do a suck exam - Submucosal cleft can cause a lot of trouble with suction



- Prevalence 0.8 - 2.7/1,000 live births (sometimes part of a syndrome)
  - 20% isolated cleft lip (CL)
    - Usually not a problem for BF
    - Lay finger across the defect
  - 30% isolated cleft palate (CP)
    - Often cannot maintain latch and/or remove milk well
    - Special bottles can help
  - 50% have both cleft lip and palate (CLP)

- https://acpa-cpf.org/wp-content/uploads/2018/10/ACPA_booklet_Submucous.pdf

See ABM protocol #17, 2019

40

Diagnosis?

Recessed Chin

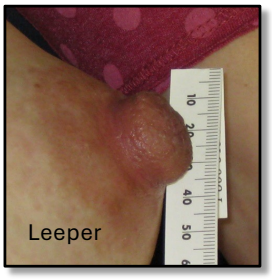
- Subtle or more severe
- Subtle- can still impact breastfeeding
  - Asymmetric positioning helpful
  - Try prone positioning
- More severe- need time

41

Nipple/Mouth Mismatch

Diagnosis?

- Seems to be more common with multiparous mothers
  - Some report nipples larger with each baby
- MUST pump and supplement until baby grows into the nipple



42

Frenula- Upper and Lower

- **Upper frenula**
  - **No evidence** for routinely clipping upper lip frenulum for BF
  - No evidence that early clipping prevents wide spacing of upper teeth
  - Reasonable reasons to consider clipping:
    - Pain where frenulum meets areola with optimal positioning/latch
    - Milk dripping from upper lip
    - Emerged teeth have early enamel changes (milk and solids are trapped by the frenulum against the teeth)
- **Lower- Tongue tie**
  - Need comprehensive breastfeeding evaluation by a provider with knowledge of breastfeeding

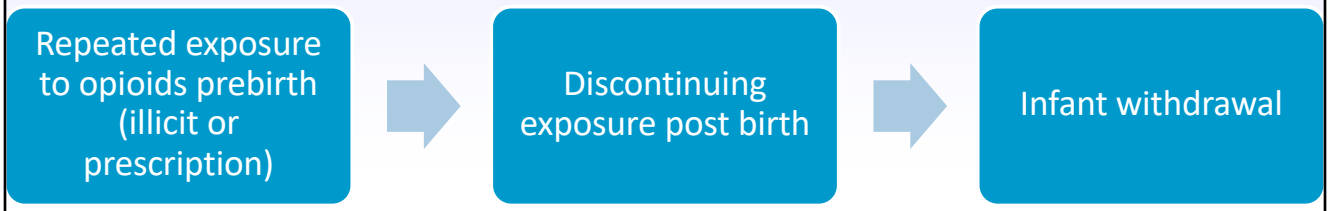
43

Infant Illnesses Requiring More Evaluation Before Breastfeeding

- A 5 day-old presents with lethargy, seizures, decreased feeding, vomiting, fast breathing, looks sick (pale, grey, cold)
- Genetic disorders:
  - Within a few days/ weeks after birth
  - May notice unusual odor in the infant
  - Breastfeeding / BM + special essential amino acid mixture/formula
  - **True contra-indication: galactosemia**
- Severe immunosuppression/ HIV (w/o control)

44

Neonatal Opioid Withdrawal Syndrome (NOWS)



- **Symptoms:** high-pitched, inconsolable cry, tremors, gastrointestinal distress, feeding difficulties. Can have excessive weight loss.
  - Finnegan Neonatal Abstinence Scoring System Tool (FNAST) to guide pharmacological intervention
- **First line treatment:** **Eat, sleep, Console** - Breastfeeding:
  - Tendency to have lower scores
  - Decreased need for and/or duration of pharmacological treatment
  - Shorter hospital length of stay

Chu,L *Nursing Research*. 2022; 71 (1): 54-65

45

Hypoglycemia in the Newborn (Goal > 45 mg/dL)

- Many babies have low blood glucose (sugar) in first 2-3h of life; most often self-limited
- Infants at risk: sick babies (premature, very small or very large, ill, NICU admission, limited prenatal care, poorly controlled maternal diabetes (pre-existing or gestational)
- **Prevention:** early breastfeeding, expressed colostrum (antenatal)
- **Treatment**
  - First line: glucose gel and intensify breastfeeding
    - Supplemental feeds: expressed colostrum, pasteurized donor milk, formula
  - If severe and/or symptomatic: add IV glucose

ABM protocol #1

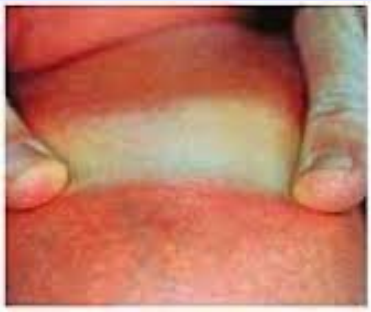
46

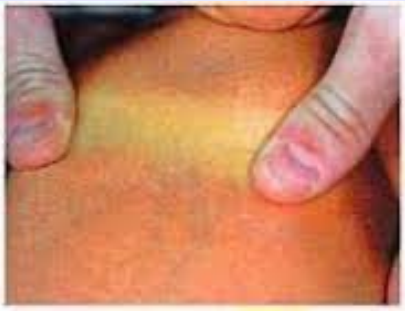
NICU or Early Term Baby Going Home

- **Evaluate milk production, latch and milk transfer**
- Optimize breastfeeding: breast compression/gentle breast massage, may need milk expression
- Avoid nipple shield
- NICU / Fortification:
  - Very general criteria: <32-34wk and <1500 g at birth
  - Modest evidence- support for short term growth
  - Insufficient evidence- long term effect on growth and development
- **Healthy preterm infants can tolerate volumes up to 200 ml/kg/day with no ↑ in adverse outcomes** (Travers, JPeds, 2020)

47

Neonatal Jaundice





- Transitory
- Most newborns have it!
- Affects 3/5 full term, healthy newborns
- Most often cause: not enough feeding in first days
- **Concerning: weight loss or not enough gain (**white color stools)
- Risk factors: based on maternal and infant blood type, health status
- Genetic issue that causes prolonged jaundice (breastmilk jaundice)
- Continue to support and optimize BF ☺

48

Partner Support

- Partners are instrumental in influencing the health choices made by women
- Mothers who received more support from their partners, had higher breastfeeding rate
- Although infant feeding decisions are a woman's choice, in reality, partner support—or lack thereof—is a major cause of attrition in breastfeeding

49

Practical Strategies for challenges when the dyad has a medical condition

- Decrease separation as much as possible
- Direct BF is almost always preferred. Modify position if needed.
- If bottle:
  - Paced bottle feeding
  - Fresh milk instead of frozen
- Maintain milk production- pump if infant is not BF as usual
- Nursing strike and/or bottle refusal- be patient!
- Understand underlying medical condition and adapt feeding plan as needed
- Empower parents to ask for breastfeeding / breastfeeding support when needed

50

Breastfeeding is a lifelong gift for mother and child.

Liliana Simon, MD, NABBLM-C, FABM, IBCLC

Pediatric Critical Care and Breastfeeding Medicine

University of Maryland

liliana.simon@som.umaryland.edu

51