

Infant Medical Conditions During Lactation

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IABLE

Institute for the Advancement
of Breastfeeding &
Lactation Education



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- 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



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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

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Pre-natal visit

- Maria is 32 years old and 33 weeks pregnant with her second child whose OB is concerned she might go into preterm labor. She wants to do the best for her baby; she did not breastfeed her first child; she was 17 years old when her first daughter was born.
- Maria says she heard that breastfeeding is good for babies but she is still trying to decide what to do.
- She asks you what health benefits breastfeeding would provide for her baby.
- What do you tell Maria?

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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

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It is well known that exclusive breastfeeding protects against infections!

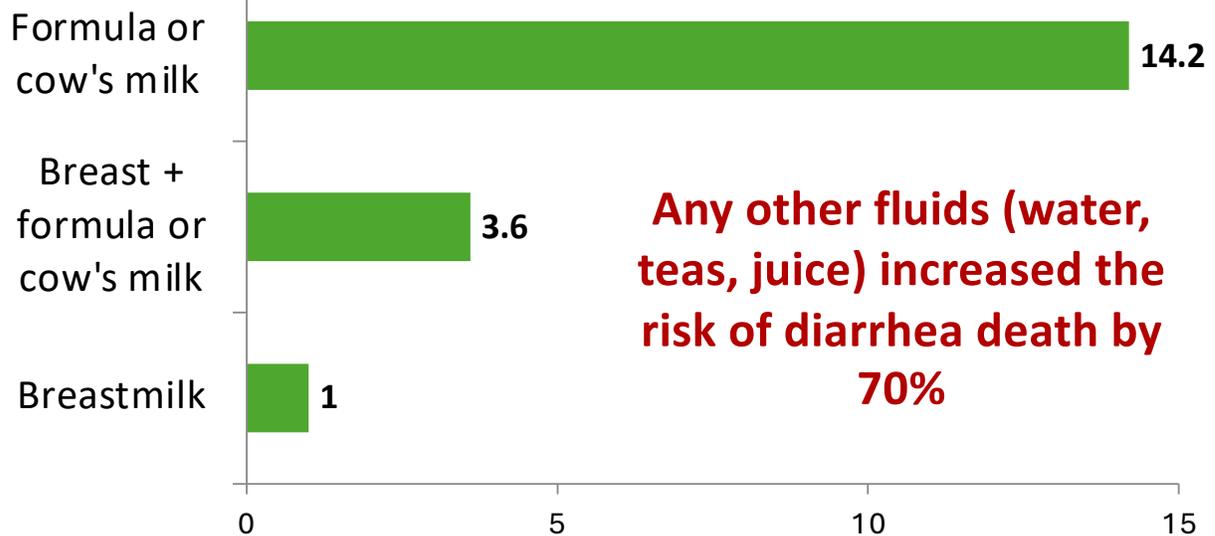
What are the odds (OR) of protection against death from diarrhea for infant receiving an exclusive breastmilk diet as compared to those receiving formula or cow's milk diet?

- A. OR 2
- B. OR 5
- C. OR 10
- D. OR 14**

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Evidence for Protection by BF against Infant Death from Diarrhea in Brazil

Results adjusted for several confounding variables



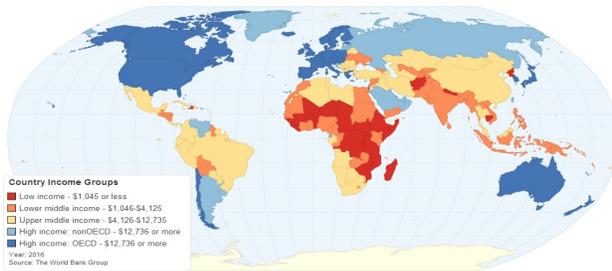
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- OR is how many times greater the odds of an event are in the group (case) exposed compared to the odds of the same event in the group (control) without the exposure
 - OR 1 = same odds in both groups (no association)
 - OR < 1 = less in case as compared to the control (exposure is protective of the outcome)
 - OR 0.5 = 50% decreased odds of outcome given the exposure
 - OR > 1 = more in case as compared to controls (exposure increases risk of the outcome)
 - OR 1.5 = 50% increased odds of outcome given the exposure
 - OR 2 = 100% increased odds of outcome given the exposure
 - The higher the OR, the higher the association

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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

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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.

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Joyce is now 2 weeks old. She was born full term, no complications during labor or delivery, went home after 2 days with her mother. Breastfeeding was going well, until a day ago when she has been very fussy and stopped eating; no fevers. She was found to be in SVT(cardiac arrhythmia) and is being admitted to the PICU for treatment.

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

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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



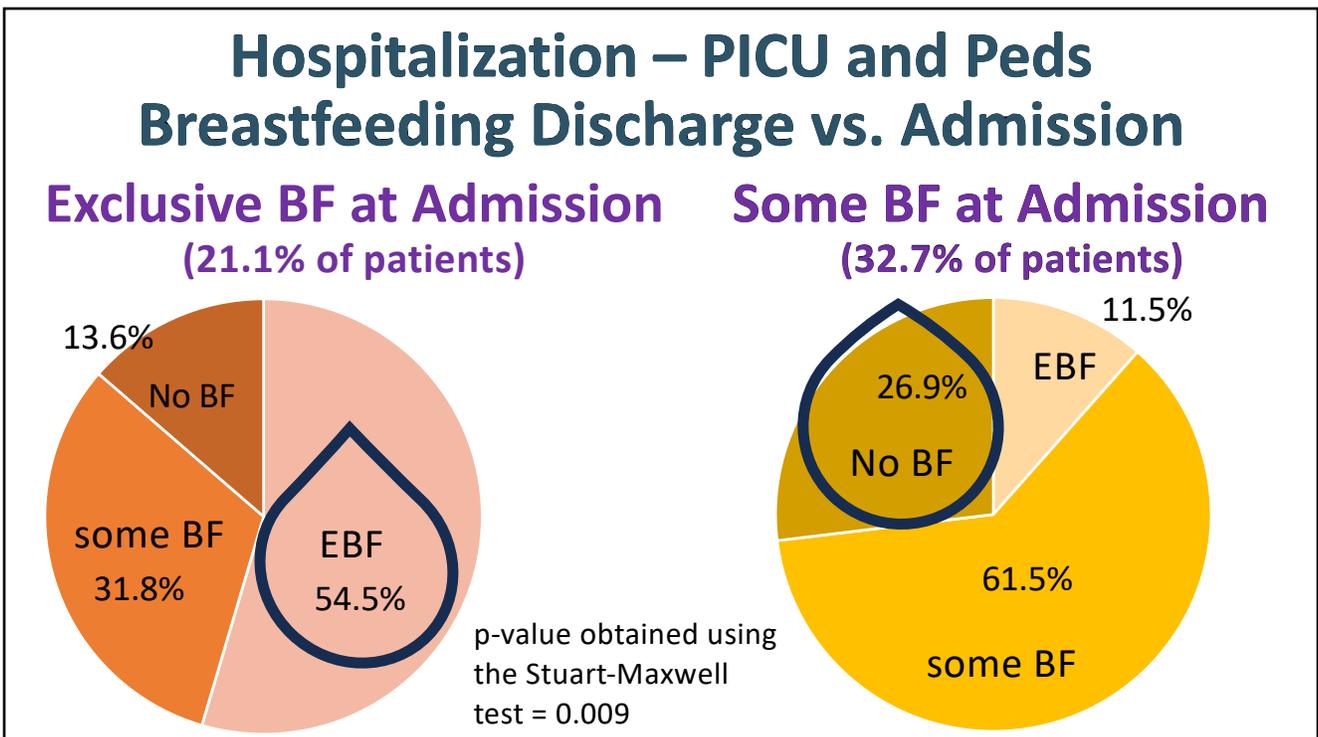
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Illness of any one in the dyad...

... interferes with breastfeeding!

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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.

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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

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Milk Expression and Storage



ABM #35, Mier et al. *Journal of Perinatology* 2016

- Double electric pump is ideal
- Importance of technique
 - Flange fit
 - Vacuum (-150 to -200 mmHg)
 - Duration (~12-15 minute, 2-3 let downs)
 - Frequency of pumping
- Volume goals (~ 25-30 oz/24 h)
- Fresh milk is always preferred
 - Room temperature- 4-6 hours
 - Refrigerator- 4 days
- Start expressing early: ED, OSH, Clinic
- Hand pump- *adjunct* to help maintain milk production

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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**



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Lucy is 5 weeks old and has a runny nose and has been coughing for the past 2 days and has some diarrhea for the past day.

She is now quite congested, is not feeding as well as before. She seems to be wanting to “snack all the time”.

She come to her office visit and was diagnosed with viral illness.

Lucy’s neighbor is worried she will get dehydrated and told her mom to give her Pedialyte.

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

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

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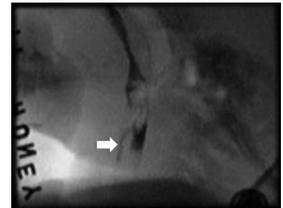
Infants who are ill at home with common colds, viral illness (RSV, influenza, etc), pneumonia, otitis (ear infections), hand foot mouth disease, or vomiting and diarrhea

- Breastfeed
- Breastfeed
- Breastfeed
- No need for Pedialyte or other fluids
- No need for complementary food if mother is exclusively breastfeeding and has a good production
- No concerns if they cough or choke some at the breast

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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



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Bronchiolitis “Viral Pneumonia”



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

- Fast breathing, cough, congestion, runny nose, fever
- In the hospital, sometimes they are not allowed to eat
- **Lots of empiric criteria to decide if the infant is allowed to feed and/or breastfeed**
- **Feeding-related complications are rare, regardless of**
 - Mode of feeding
 - Level of respiratory support
- **Interruption of feeds**
 - **↑hospital length of stay (2.5 days)**
- Social determinants of health

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Immunoglobulins in Breastmilk



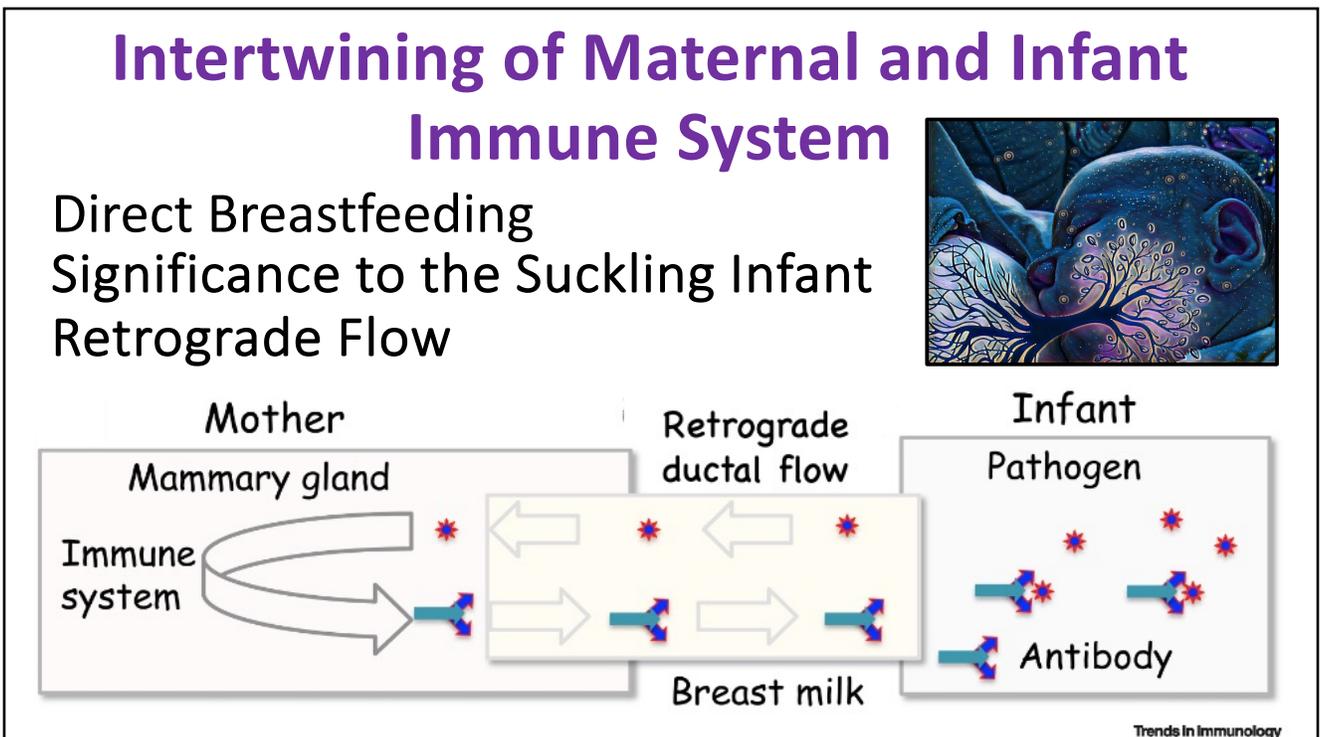
- sIgA (secretory IgA)
 - 80-90% of total Ig
 - 90% stays in the mucosal surface
 - Prevents infection and inflammation

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

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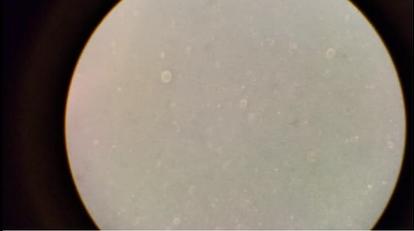


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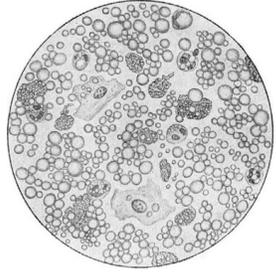
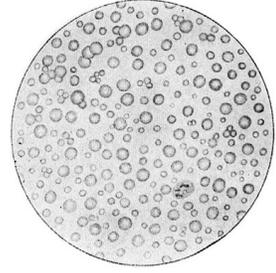
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Formula



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

Under the Microscope

Colostrum

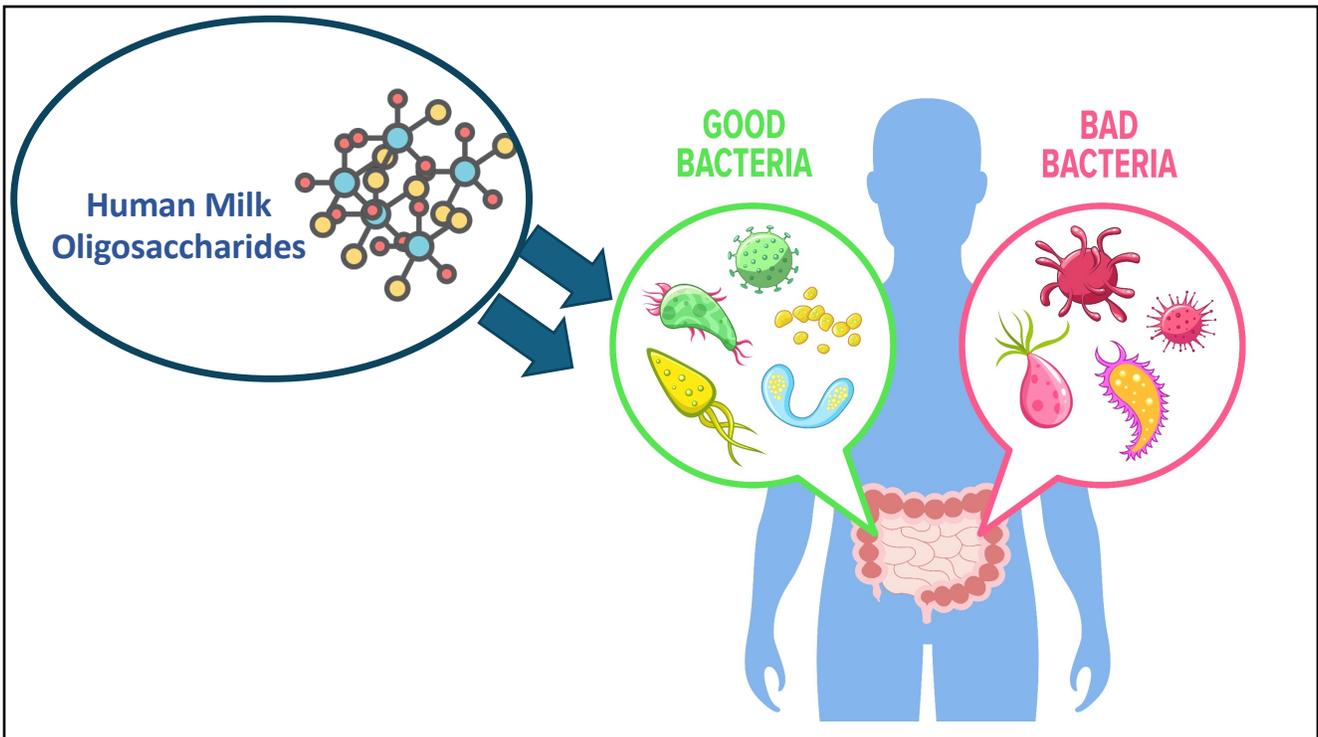
Breastmilk

4000 cells/cubic mm

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

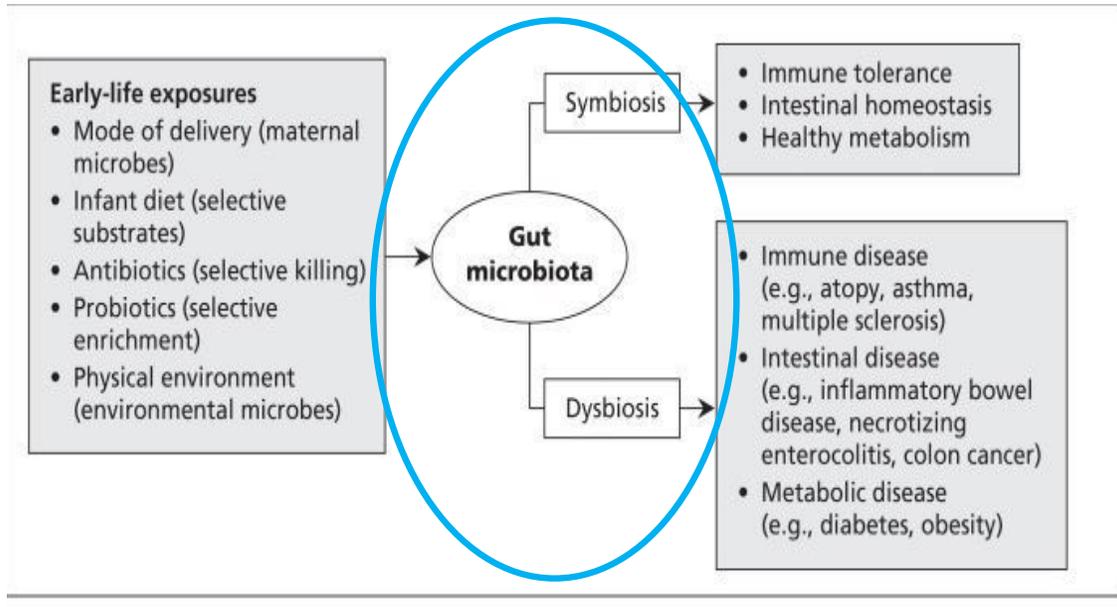
When infant in ill, this number increases significantly

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Development of the Human Microbiome



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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 ****



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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

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Rebecca is a 4 month-old infant who is exclusively breastfeed. During the day, she goes to daycare and takes bottles of EBM. For the past week, she has been refusing to nurse; she does feed well from the bottle. Her mom is quite upset because exclusive breastfeeding is very important to her; she was able to breastfeed her other children and does not understand why Rebecca is not taking the breast now. Rebecca is otherwise playful and acting normal.

What do you think is going on with Rebecca?

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Nursing Strike



Causes:

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

- “Pretend like you do not care!” - Do not force!!
- Skin to skin, offer early and often, when waking up/falling asleep, stand up, walk/dance, dark/quiet room
- Distract baby
- Warm bath (need a helper adult)

PACE BOTTLE FEEDING

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Torticollis

- May have preference for one breast
- May need to try different positions
 - Let them keep tight side down & allow baby to maintain head tilt, then just move sideways to other breast
 - Football hold for one breast and cross cradle or cradle for the other?
- Physical Therapy

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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
- Co-morbidities (heart, GI)
- More susceptible to infection
- 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

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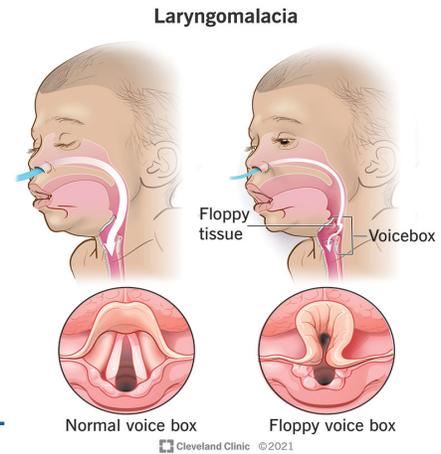


“Dancer’s Hand” Hold- pressure on cheeks

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Laryngomalacia

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



- <https://www.youtube.com/watch?v=IMCUUVNPjdI>

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What is the diagnosis?



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Cleft Lip and Cleft Palate

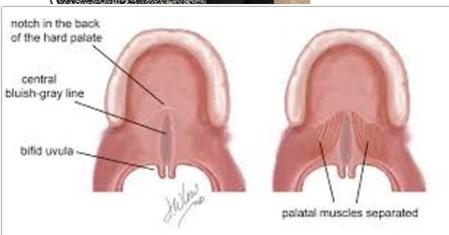


This baby comes into your office and is having some trouble eating. The parents ask for your advice. What would you tell them?

- 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.

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



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

- 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 have been designed to help...
- 50% have both cleft lip and palate (CLP)

See ABM protocol #17, 2019

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Diagnosis?



Recessed Chin

- Can be subtle or more severe
- Subtle can still impact breastfeeding
- Asymmetric positioning helpful
- Try Prone positioning
- More severe- need time

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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



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Frenula- Upper and Lower

• Upper frenula

- **No good evidence** for routinely clipping the upper lip frenulum for improving breastfeeding problems
- No evidence that early clipping prevents wide spacing of upper teeth
- Reasonable reasons to consider clipping:
 - Pain where frenulum meets areola, unchanged 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**

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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)



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Neonatal Opioid Withdrawal Syndrome (NOWS)

Repeated exposure to opioids prebirth (illicit or prescription)



Discontinuing exposure post birth



Infant withdrawal

- **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
- **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

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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: gel and IV glucose

ABM protocol #1

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NICU Baby Going Home

- Evaluate milk production, latch and milk transfer
- Optimize breastfeeding: breast compression/gentle breast massage, may need milk expression
- Avoid nipple shield
- Need iron and vit D supplementation
- 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)

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Neonatal Jaundice



- Transitory
- Most newborns have it! Affects 3/5 full term, healthy newborns
- Most often cause: not enough feeding in first days / week
 - Concerning: weight loss / not enough weight gain
 - white color stools
- Risk factors: based on maternal and infant blood type, health status
- Genetic issue that causes prolonged jaundice (breastmilk jaundice)
 - Nothing to do!! Continue to BF 😊

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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

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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 bottle:
 - Fresh milk instead of frozen
 - Paced bottle feeding
- 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 to breastfeed and for support when needed

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Breastfeeding is a lifelong gift
for mother and child.



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