

### Disclosures

- We have no financial interests or other relationships with any manufacturer/s of any commercial products.
- We work at Mothers' Milk Bank of the Western Great Lakes, a nonprofit HMBANA Accredited milk bank.

# Objectives

- Identify two human milk bioactive factors that promote a healthy infant microbiome
- List two programs the milk bank offers in addition to providing pasteurized donor human milk to local NICUs
- Define milk depots and milk dispensaries







Effects of pasteurization					
Human milk components	1. Mom's Milk	2. Donor Milk	3. Formula		
Immune cells	100%	0%	0%		
sIgA antibody	100%	70%	0%		
Lactoferrin	100%	40% (10-65%)	0%		
Lysozyme	100%	75% (30-80%)	0%		
Cytokines	100%	Many are retained	0%		
Growth Factors	100%	60-100%	0%		
Oligosaccharides	100% 150+ types	100% 150+ types	Varies 2-3 types synthetic		
Gangliosides	100%	100%	0%		
Lipids	100%	100%	*Not comparable		
Data from Tully et al., 2001; Riskin, 2020; Peila et al., 2016					





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i → 49 37 → 56 (19 increase) (19 increase)
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→ 49      37.5 → 59        /dl increase)      (19.5 increase)
ormula Donor Milk
→ 54.5 37 → 52 g/dl increase) (15 increase)
3







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### Human milk microbiome



- Microbial communities
  Abiotic factors
- pH, temperature, fluid dynamics

  - slga protein
  - HMO carbohydrates
- Clinical factors that impact microbiome Breast dysbiosis, mastitis
- Maternal antibiotics, other meds
- Edema, engorgement
- Maternal diet

Ruiz et al., 2019; Demmelmair et al., 2020

# Preterm milk microbiota

- 86 Preterm moms490 samples from weeks 1-8
- Individualized microbiota
- Changes over time
- BMI (pre-pregnancy)
- Mode of delivery
- Maternal antibiotics
  - Class .
  - Timing
  - Duration

## Secretory immunoglobulin A (slgA)

• Dominant antibody in human milk

ce: US Breastfeeding Committee

• Essential abiotic factor in infant micriobiome





Source: US Breastfeeding Committee















Nutrition shapes the microbiome					
	Breast Milk	Pasteurized Donor Milk	Formula		
Microbiota	Parent shares unique microbiota	No microbiota (can add probiotics)	Some contain probiotics (usually 1 strain)		
HMOs	Unique to mom 150+ types	100% retention of donors' HMOs 150+ types	Synthetic 2-3 types (Low concentration)		
Non-digestible carbohydrates (GOS, FOS)	0	0	Some contain GOS or FOS or mix		
sigA Antibody	Unique profile reflects mom's life history	70% retention of donors' sIgA*	0%		
pH, osmolality, fatty acids, growth factors	Shaped by evolution promote microbiome homeostasis	Human milk shared by milk donors is gently heat processed	Very different, many factors lacking		
*Only applies to milk that is Holder pasteurized. Significant loss of slgA occurs when milk is retort processed					



























# Give the Gift of Milk!



#### Help us save tiny lives by referring clients or friendsi Potential donors who comple a pre-screen will receive a FREE limited-edition bibl

hile supplies last.

#### Apply Here! https://www.milkbankwgl.org/ donate-milk/



- Increased Depot options
- Expanded courier service

Mo' Milk Campaign

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11. Importance of addressing lactation with bereaved mothers

"At the milk bank, we're known as 'Everett's family', and that's something so special and not true anywhere else." Kate, Everett's Mom

reg (2019)



### Adopting a Donor Identity

Overall, adopting a donor identity allowed mothers to transition from their pre-loss identities (e.g., "mothers to be") toward their new identity as bereaved mothers. As the findings demonstrate, donating in times of grief was both emotionally and physically healing.

Important considerations

- Milk donation is offered as a choice
- "Some mothers choose to pump and donate to a milk bank. If you would like more information..."
- Some mothers may need time to decide
- Keep milk safe in unit freezer
- There are no exclusions for bereavement donors- all milk is accepted
- There is no minimum donation- any milk is accepted
- Some mothers may not need a blood draw
- Contact Milk Bank WGL
- Bereavement brochures
  Bereavement in-services for staff
- In person and Virtual Support
- Private Star Placement Events
- Annual Candle Lighting Ceremony









# **Board of Directors**







Dr. Krystal

Illinois

Pediatrician









### Acknowledgements

THANK YOU:

- Generous milk donors
- Bereavement families
- Milk bank staff and volunteers
- Board of Directors
- Hospital and community supporters Thank you WALC!
- o Lactation consultants, nurses, physicians, peer counselors, doulas, palliative care, child life, dieticians, therapists...



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Oshkosh 2020, the last in-person WALC event!