

*HMBANA Donor Screening
Standards:
Assuring Safety for the Vulnerable*

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Overview

- Purpose of Guidelines related to donor screening
- Influence of regulators, advisors, and infants
- Milk donors screening standards
- What are some specific challenges?
- Q and A

Purpose of Screening Guidelines

- Create **baseline** of safety
- **Minimize** liability
- Reflect latest clinical studies and standards of care
- Establish clarity on the uniqueness of the milk bank industry
 - Different from informal sharing
 - Different from blood banks
 - Different from any other tissue industry, and yet related

Milk Banking Regulation/Oversight

- HMBANA
- Federal Oversight – US FDA and Health Canada
 - Food/Biologics regulations
 - Bioterrorism Act
- State Depts. of Health and state laws
- Local Boards of Directors and Advisory groups
- Other advisory groups - AABB, CDC

Who really oversees?







US Food and Drug Administration

- U.S. Food and Drug Administration (FDA) Title 21 of Food and Drugs, Part 110 – Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food
- Reflection of US FDA research – daily notices of hearings, research, standards, and suggestions

“Revised Recommendations for Reducing the Risk of Zika Virus Transmission by Blood and Blood Components,” published August 26, 2016

FDA works to ensure hand sanitizers are safe and effective for regular use, alert April 11, 2019.

- Milk bank visits

Centers for Disease Control & Prevention

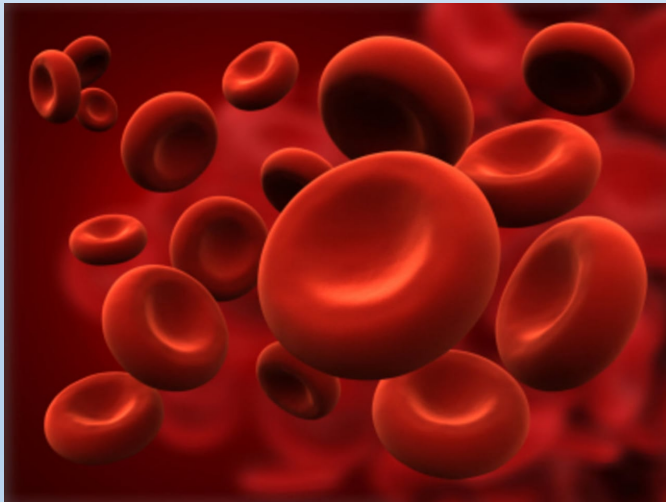
- U.S. Centers for Disease Control and Prevention (CDC) advice on thawing, storing, expressing milk
- Advice on informal sharing
- Advice on inadvertent sharing of milk
- Information on newest threats, e.g. ebola, zika
- Recommendations for breastfeeding moms related to
 - Disease states
 - Medications
 - Vaccines
- Communication is 2-way

AABB

- Blood and tissue industry standards

Association Bulletin #16-07 Date: September 28, 2016 To: AABB
Members From: Donna M. Regan, MT(ASCP)SBB – President Miriam A.
Markowitz – Chief Executive Officer Re: Updated Recommendations for
Zika, Dengue, and Chikungunya Viruses

- Is milk the same or different?



What level of safety?



Who are the Donors

- Healthy moms of healthy babies
- Healthy mom of ill full-term or preterm infants
- Bereaved moms
- Surrogate moms



KEY: healthy

Beginning the Relationship

- Trust is key, and intentional
- Mom should initiate the contact
- Listening is key
- Language
- In-person or on the phone

Expectations of Donors

- “Triple Screen” – personal interview, provider statements, & blood testing
 - Checks and balances for verification
 - ‘Friendly’ wording to relay judgment-free information
 - No mandate on how to ask questions, but Committee provides a draft questionnaire for guidance on wording, content, and sequence
 - Studies test how people share truthful and accurate information – non-threatening environment; repetitive questions asked in different ways

Expectations of Screeners

- Testable knowledge
 - Current Guidelines
 - Current screening forms and their rationale
 - Chain of communication for questions
 - Milk bank director
 - Milk bank medical director or advisory board (for interpretation questions, not to fill in a gap)
 - Guidelines chairperson, committee member, or HMBANA administrator

Verification of Donors

- Health care provider statements
- Serological testing
- Communication every 2 months minimally



Serological Screening

Required Screening	Standard Screening	Diagnostic Test-Optional
Hepatitis B	HBsAG	HBV DNA
Hepatitis C	HCV Ab	Anti-HCV-EIA, etc. or HCV RNA
HIV 1,2,0	HIV 1/0/2 Abs	Western Blot
HTLV I,II	HTLV I/II Antibodies	Western Blot
Syphilis	RPR or VDRL (nontreponemal)	FTA-ABS, TPPA (treponemal)

Screening Outcomes

- Permanent Deferral
- Temporary Deferral
- Inconclusive
 - Answers vary
 - Refusal to answer all questions
 - Incomplete screening
 - Equivocal results on blood exam
 - Etc.

Reasons for Deferral

- Medication use - #1
- Herb use - #2
- Travel restrictions - CJD
- History of, or partner with, hepatitis B or C
- Transfusion at birth
- Provider alert
- Positive diagnostic blood test OR positive screening blood test in bank that doesn't to confirmation
- Smoker of any kind

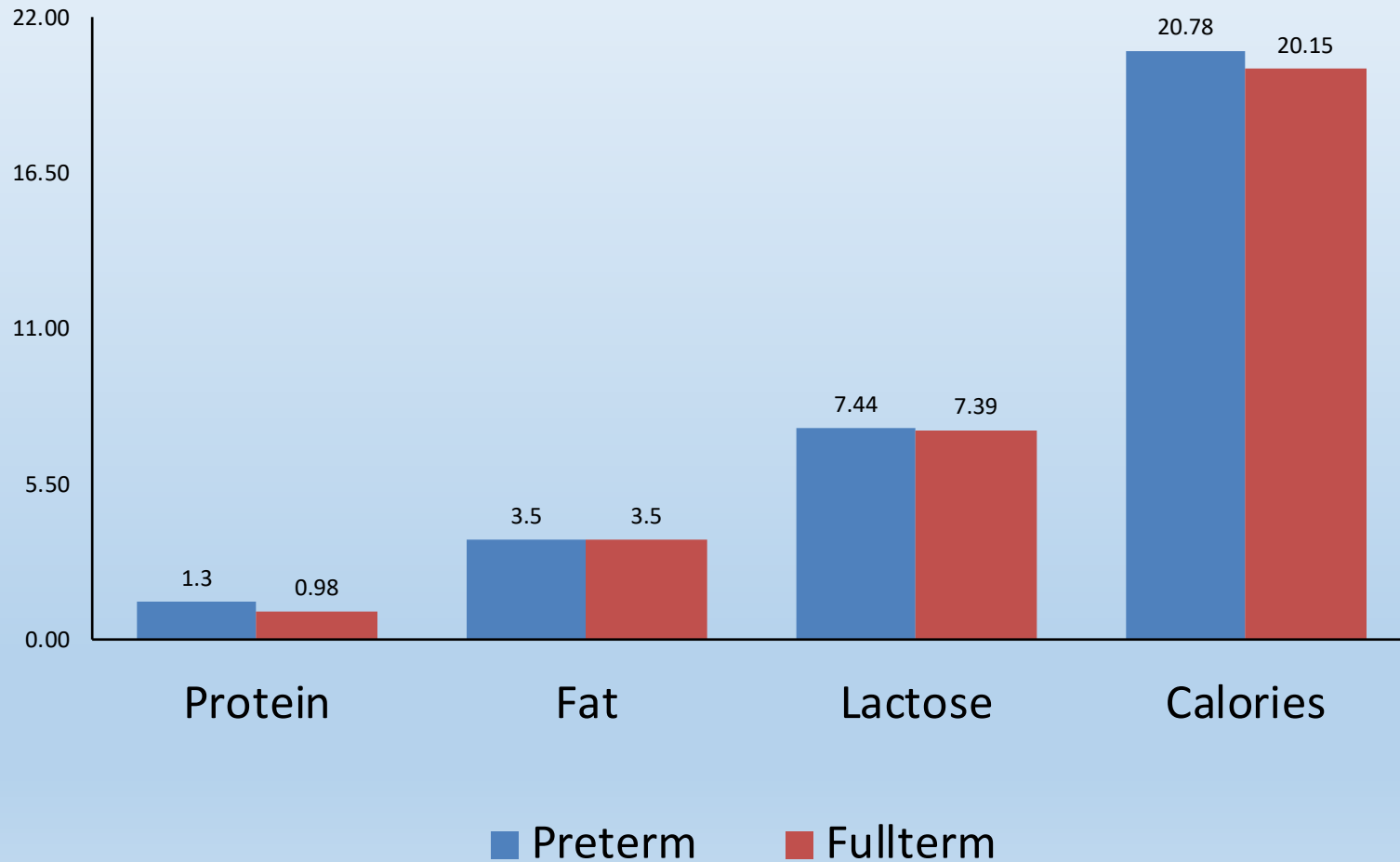
Preterm and Term Terminology

- Initially added in 1998 to Guidelines to help hospitals know what they needed
- Clinical data complicates terms by providing a window of differences not related to gestational age as much as lactational age of mothers' infant

Effect of Gestational and Lactational Age on the Human Milk Metabolome

- Results differentiated content of early term milk (colostrum) from mature term milk, and early preterm milk (colostrum) from mature preterm milk
- Colostrum from term moms contains more valine, leucine, betaine, and creatinine, but less glutamate, caprylate, and caprate than term
- Colostrum from preterm moms (<37wks) contained more oligosaccharides, citrate, and creatinine; caprylate, caprate, valine, leucine, glutamate, pantothenate increased over time
- Preterm milk resembled term milk at 5-7 weeks!
- *Sundekilde, et al. Effect of gestational and lactational age on the human milk metabolome. Nutrients 2016*

Nutritional Variation – 4 Years



Milk Already Expressed and Stored

- This is most often the case
- Recall is key – is donor confident of memory?
- Medication date or name confusion? Pharmacies have records that donor can access
- Alcohol usage
- Vaccination recall – OB record critical
 - What to do about discrepancies?

Viral Transmission Restrictions/ Allowances

- Investigation is key
- In some cases, strong clinical studies examine viruses specifically exposed to processes used by milk banks (CMV)
- In other cases, theories must be derived from known qualities of the virus
- In all cases, the Guidelines Committee accesses published clinical data, US Food and Drug regulations and standards for ANY industry, and CDC and AABB guidance

West Nile Virus

- Big increase in North America in early 2000's – worrisome enough to cause blood industry to test all their donors
- Physical characteristics of the virus reveal that it is a lipid-enveloped virus from the family of Flaviviridae viruses
 - Heat sensitive
- What happens if it shows up on blood testing or in a would-be donor's history?
 - 70-80% infected will not show any symptoms

Rubella Vaccine

- Immunity is not long-lasting; all pregnant women are tested for immunity and vaccinated as appropriate
- Transmitted via breast milk whether administered intranasally or subcutaneously
- In 16 breastfeeding mothers receiving the vaccine, 56% of infants shed virus via nasopharynx and throat
 - No clinical symptoms for 20 weeks follow-up
 - Viral shedding continued on and up to three weeks, but in one case 34 days
 - Is there an implication for later reaction to vaccination in the children?
- Losonsky, et al. Effect of immunization against rubella on lactation products. J of Inf Dis; 145(5): May 1982.

Medications & Milk

- Factors promoting transference
 - Fat solubility
 - Molecule size
- Factors affecting potency
 - Gestational age of baby
 - Size of baby
 - Mechanism of medication
 - Mix of medications - maternal or infant
- Best source: www.infantrisk.com

Meds, Allowances, Restrictions

- Medication Sub-committee formed
- Experts in neonatology and pharmacology joined by members of the Guidelines committee
- Two goals: protect the babies; protect the reputation of HMBANA
- Common donor meds prioritized for review, e.g.,
 - Selected analgesics (acetaminophen, ibuprofen)
 - Antibiotics, Antihistamines, Aspirin & NSAIDs

Medication Committee – year 1

- Reviewed for transference via milk, e.g., lipophilic? Molecular size? Absorbed by maternal GI system? Dilution effect of pooled milk?
- Results:
 - Acceptable meds increased from 8 to 50+
 - Standardized deferral times for common meds
 - Extended deferral: MMR vaccine
 - No deferral: proton pump inhibitors; non-sedating antihistamines; specific SSRIs (nortriptyline, sertraline, paroxetine, fluvoxamine)

Review of Studies

- Literature review of 53 case reports and 16 studies
 - Serious acute adverse drug reactions from drugs in milk appear to be rare
 - Infants under 2 months, especially those under 1 month (63% of all adverse rxns), appear to be most susceptible
 - Free iodine (topical and systemic), opioids, and the simultaneous use of multiple CNS drugs are of concern (opioids, antidepressants, anticonvulsants, antipsychotics, lithium, sedatives)
-
- Anderson, P, Manoguerra A, Valdes V. A. Review of Adverse Reactions in Infants from Medications in Breastmilk. Clinical Pediatrics 2015

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What about the herbs?

- No regulation
- No data on individual package
- No clinical studies
- Differentiate between spices and supplements
- What about those teas?

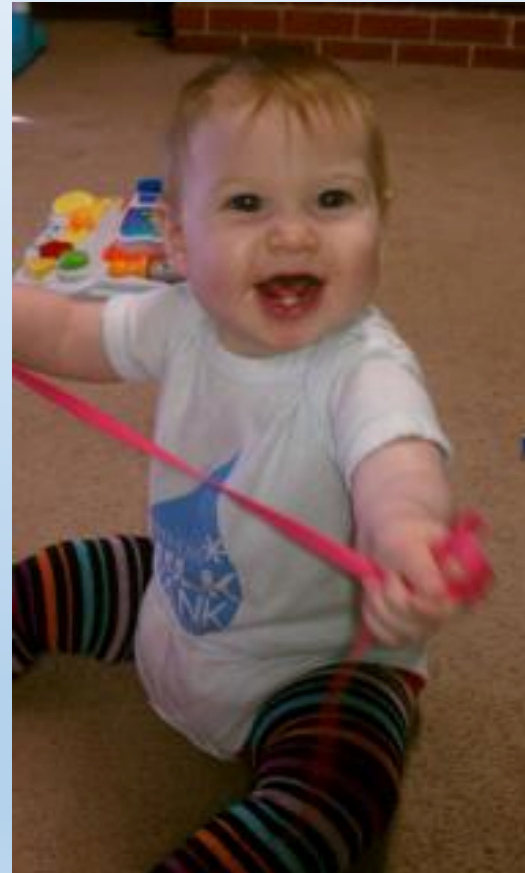
What about the vitamins?

- Normal doses in general okay
- Mega doses not okay – B and D are exceptions
- Vitamins w herbs?????
- Source for RDIs (prev RDAs):

<https://www.ncbi.nlm.nih.gov/books/NBK56068/table/summarytables.t2/?report=objectonly>

Donor Approval: Not Just A Point In Time, but a critical one

- Ongoing – with significant education re proper collection, storage, and transportation methods
- Methods of communication – personal & group support
- Review and approval of prospective donor files, including serology results, **REQUIRES** licensed providers' sign-off, as of April 11, 2019



Measurements of Success

- Absence of negative outcomes in past 34 years of contemporary milk banking, BUT this is no guarantee for the future
- Growth
 - Use of donor milk
 - Hospitals using donor milk
 - Numbers of milk banks
 - Numbers of milk donors

Meeting these Challenges

- Constant vigilance of clinical data
- Internal and external research
- Positive relationship with FDA, CDC, and AABB
- Ability to react quickly, e.g., ebola, zika

Conclusion

- “Human milk is vital to the survival of vulnerable neonates and plays an important role in addressing the substantial burden imposed by NEC on affected families and in reducing health care costs associated with NEC.”
 - Former U.S. Surgeon General, *Call to Action*, 2011

Thank You

- For taking care of neonates and their families
- For your support of safe, scientific milk banking



Be in Touch!

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