Supporting Breastfeeding Among Mothers with Diabetes

Christy Porucznik, PhD, MSPH, LLL Leader
Disclosures

• No relevant financial relationships to disclose.
• Active with the Utah Breastfeeding Coalition and La Leche League.
• Serve as a volunteer Leader with La Leche League of Salt Lake City and as the media spokesperson for La Leche League of Utah.
• Founder and Co-Director of the Salt Lake Mothers’ Milk Donation Center and serving on the task force to start a milk bank in Utah.
Learning Objectives

• Breastfeeding duration and exclusivity recommendations
• Community support matters for breastfeeding continuation
• Some reasons breastfeeding is important
  – for mothers
  – and babies

• Special considerations for diabetic mothers
• Donor milk for medically fragile babies
Breastfeeding Communities

• Humans are primates
• We learn by seeing
• If women don’t see breastfeeding in their families or communities...
  – Why would they do it?

• We are all part of the community and can encourage breastfeeding friendly communities!
WHO Recommendation

• Exclusive breastfeeding for the first six months
• Continued breastfeeding with introduction of complementary foods through the first 2 years and as long as mutually desired by mother and child

• AAP – similar except encourages continuation through the first year rather than 2 years
Birth Facility and Community

• The first few days of life are very important for getting breastfeeding off to a good start
• Successful latching in the hospital does not ensure perfect success for the rest of the nursing relationship
• Can be new challenges with each developmental stage, both intrinsic (teething) and extrinsic (society)
Breastfeeding Intentions

• 85% intend to breastfeed exclusively for at least 3 months --- 45% did
• 57.8% intended to breastfeed for at least 5 months --- 24.9% did
• 32.4% of mothers who intended exclusive breastfeeding met their goal
• 1.1% intended <1 month exclusive breastfeeding, but 41.6% stopped within 1 month

WHY AREN’T WOMEN REACHING THEIR GOALS?
• Perceived low milk supply
• Difficulties with employment
• Difficulties with friends or family
• Discomfort
• Concern about nursing in public
• Actual low milk supply

Insufficient INFORMATION and SUPPORT!
• Where do mothers get information?

• Where do mothers get support?

• Is there a difference between information and support?
How can community help?

• Both by providing information and support

• Example: perceived low milk supply
  – Help women understand that babies nurse frequently and that increased nursing doesn’t mean she doesn’t have enough milk, it likely means that baby is growing
• Example: actual low milk supply
  – Often caused by breastfeeding management style
  – Such as feeding on a schedule (Every x hours) or on the clock (for x minutes on a side) rather than responding to baby’s cues
  – Or frequent pacifier or swaddling use which my mask nursing cues
  – Milk supply is a demand-and-supply situation, the more the baby demands the more the breasts will supply ---- if the cues are followed
La Leche League

• Founded in 1956 by 7 mothers in Illinois
  – Helping friends, wrote a pamphlet which grew into a book, now in its 8th edition
• Non-profit, non-sectarian, international volunteer organization with chapters around the world
• Member-supported organization
  – Women can access all LLL services without charge or membership
• LLL services available to all
• LLL Leaders offer information and support
  – Meetings
  – Phone
  – Email
  – Text
  – Facebook
  – In person with home visits
What happens at a meeting?

• Meetings are discussion circles of mothers and all women are welcome to attend
  – Expectant moms
  – Nursing moms
  – Grandmothers
  – Interested women

• There is generally a discussion topic related to the theme and then question and answer time

• It is **not** intended to be a class!
How to reach LLL

- [http://www.lllusa.org/UT/Utah](http://www.lllusa.org/UT/Utah)

- Salt Lake group has 12 Leaders & 3 meetings a month
  - 2 targeted for the 1st year
  - 1 targeted for older nurslings

- Groups throughout the state, mostly on the Wasatch Front
Breastfeeding and Gestational Diabetes (GDM)

• Women who experience GDM are at high risk for subsequent development of Type 2 Diabetes (T2D)
  – Longer duration of lactation improves long term glucose response (doi: 10.1530/EJE-12-0939)
  – and reduces risk for T2D (doi: 10.2337/db12-0393)

• Breastfeeding during an oral glucose tolerance test (2 hours) among women who had GDM associated with lower plasma glucose and insulin concentrations (doi: 10.1097/AOG.0b013e31825b993d)
Type 1 Diabetes (T1D) and Breastfeeding

• Breastfeeding can help manage T1D
  – “Immediately after delivery the insulin requirement declines to approximately 60% of the prepregnancy dose, and remains 10% lower than before pregnancy during breastfeeding.” (doi: 10.1038/nrendo.2012.154)

• T1D mothers need support to manage their own diabetes care with infant care (doi: 10.1186/1746-4358-7-20) (doi: 10.1186/1472-6874-11-10)
For Baby...

• Systematic review of relationship between breastfeeding and T1D in infants
  – “short duration and/or a lack of breastfeeding may constitute a risk factor for the development of T1D later in life” (doi: 10.1111/j.1753-4887.2012.00513.x)

• Among small for gestational age babies, those breastfed had body growth and composition similar to appropriate for gestational age babies while formula fed babies experienced endocrine abnormalities (doi: 10.2337/db11-1797)
For Children

• Prevention and treatment of parental nutritional disorders and promotion of breastfeeding should reduce risks of obesity and T2D in children.
  – (doi: 10.1007/s11892-011-0246-3.)

• Within a cohort of Indian children, longer duration of breastfeeding associated with better glucose tolerance at age 9.5 years
  – (doi: 10.1007/s00125-011-2254-x)
For Children of Diabetic Mothers

• “Adequate breastfeeding protects against childhood adiposity and reduces the increased adiposity levels associated with exposure to diabetes in utero. These data provide support for mothers with diabetes during pregnancy to breastfeed their infants in order to reduce the risk of childhood obesity.”

– doi: 10.2337/dc10-1716
For Children of Pediatric Onset T2D Mothers

• Babies born to mothers with pediatric onset T2D had highest rates of pediatric T2D ever reported (cohort of 1st Nations in Canada)
Gut Microbiome

• Composition of gut microbiota is linked to health in later life
• Aberrant microbiota associated with systemic problems including inflammatory conditions, diabetes, and allergic conditions
• Babies born normally and breastfed have more favorable gut microbiota than babies born surgically and artificially fed (doi: 10.1111/j.1440-1754.2012.02489.x)
Special Challenges

• Association between maternal overweight and breastfeeding difficulties
  – Including delayed lactogenesis
  – Shorter duration of breastfeeding
    • Social & biological mechanisms not well described
  – doi: 10.1089/jwh.2010.2248

• Problems establishing breastfeeding associated with shorter duration breastfeeding in T1D moms (doi: 10.2337/dc10-1916)
Delayed Lactogenesis

• Refers to a longer than expected time from birth to when a mother perceives her milk to have come in
• Colostrum is present
• Baby may need bridge nutrition until mom’s milk is available
  – Donor milk is an option
  – Preferred over use of artificial milk
Human Milk Banking: Past, Present, and in our Future

Slides developed by:
Jerald King, MD
Division of Neonatology
University of Utah
Learning Objectives

1- Review the evidence for the safety of donor human milk

2- Review the evidence for benefit from the use of donor human milk

3- Provide an update of plans for a donor human milk bank in Utah

Got Milk?

Got Breast Milk?
Milk Bank Donor Requirements

- In good health. Non-smoker.
- Negative tests for viruses (Prenatal results NOT used).
- No medications while donating except: vitamins, minerals, food supplements, progestin-only birth control, thyroid, insulin
- No recent blood transfusion (4mo) or transplant (12mo)
- Limited use of caffeine and < 2 oz alcohol/day
- Will donate a minimum of 100 oz

<table>
<thead>
<tr>
<th>Item</th>
<th>Responses</th>
<th>%</th>
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<tr>
<td>Age</td>
<td>25-29</td>
<td>18</td>
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<td></td>
<td>30-34</td>
<td>48</td>
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<tr>
<td></td>
<td>35-39</td>
<td>25</td>
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<td>Education</td>
<td>No degree</td>
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<td></td>
<td>College degree</td>
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<td>Employment</td>
<td>Full Time</td>
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<tr>
<td></td>
<td>Part Time</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Not Employed</td>
<td>35</td>
</tr>
<tr>
<td>Household Income</td>
<td>&lt; $50,000</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>$50,000-$100,000</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>&gt; $100,000</td>
<td>41</td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td>91</td>
</tr>
</tbody>
</table>

- **Exercise**
  - ≥ 2 times/wk (77%)
- **Eat Healthy**
  - Often (38%)
  - Nearly Always (42%)
- **Drink Alcohol**
  - Not (28%)
  - Once/mo (38%)

Mother’s Milk Bank at Austin, TX
Screening Tests

- Screening uses highly sensitive and specific assays evaluated and validated for blood screening:
  - HIV antigen-Antibody or HIV Antibody
  - HTLV-I/II Antibody enzyme immunoassay
  - HBsAg; HCV antigen-Antibody or HCV antibodies
  - CMV total antibody enzyme immunoassay
  - Treponemal Ab or enzyme immunoassay (not RPR or VDRL)

Pre-donation testing does not ascertain the infectious status of the donation
How is Donor Milk Processed?
http://www.milkbankcolorado.org/

Milk from 3-5 donor mothers is thawed, transferred to glass flasks, and mixed.
How is Donor Milk Processed?
http://www.milkbankcolorado.org/

Four ounce glass bottles are filled with the pooled milk
How is Donor Milk Processed?

http://www.milkbankcolorado.org/

Milk is gently heated in a shaking water bath using the Holder Method of pasteurization.
Pasteurization

A process to reduce the number of viable pathogens so they are unlikely to cause disease (if stored correctly and consumed before expiration date):

**Holder pasteurization**
reliably eliminates bacteria and inactivates HIV and CMV

Thermal Death Profile during pasteurization at 62.5° C

How is Donor Milk Processed?

http://www.milkbankcolorado.org/

Milk samples are cultured to check for bacteria

Milk is frozen and quarantined until results are known.
How is Donor Milk Processed?

http://www.milkbankcolorado.org/

Culture-negative milk is stored at -4°F until ordered or for up to 6 months.
## Storage Procedures

<table>
<thead>
<tr>
<th>Location</th>
<th>Temperature</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator</td>
<td>39°F or 4°C</td>
<td>5 days</td>
</tr>
<tr>
<td>Freezer compartment of a refrigerator</td>
<td>5°F or -15°C</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Freezer compartment of refrigerator with separate doors</td>
<td>0°F or -18°C</td>
<td>3–6 months</td>
</tr>
<tr>
<td>Chest or upright deep freezer</td>
<td>-4°F or -20°C</td>
<td>6–12 months</td>
</tr>
</tbody>
</table>

The immunoprotective constituents are stable if these guidelines are followed.
Milk is shipped frozen overnight to hospitals or homes
Human Milk Content

- Breastfed milk
- Expressed breast milk
- Donor milk

The composition of breastfed milk varies with the stage of lactation, within feedings, diurnally, among mothers, and in response to the feeding habits of babies, thus adjusting to individual growth and development needs and a changing microbial environment.
Types of Donor Milk Available

- **Early Full Term**: from first 7-10 days post partum - 2 oz bottles (when available)

- **Preterm**: for infants under 1500 grams and/or less than 36 weeks gestation - 2 oz bottles (when available)

- **Full Term**: (20 cal or higher) for infants at or over 36 weeks gestation - 4 oz bottles (Also used routinely for premies when preterm not available)

- **Non-fat**: for chylolothorax therapy (0.0 - 0.3% fat) - 2 oz bottles

Each Batch is Analyzed for Macronutrient Content
Donor Milk Content is Measured

But is not on the label

Near-Infrared Human Milk Analyzer
Donor Milk is Safe

It tastes just like mom’s milk. . .

mmmm...mmm
Bring it on!
Nutrient Content of Human Milk after Pasteurization

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Amount remaining (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IgA (secretory)</td>
<td>72 - 83</td>
</tr>
<tr>
<td>Lysozyme</td>
<td>40 - 57</td>
</tr>
<tr>
<td>Lactoferrin</td>
<td>14 - 25</td>
</tr>
<tr>
<td>*Carbohydrates</td>
<td>100</td>
</tr>
<tr>
<td>*Fats</td>
<td>100</td>
</tr>
<tr>
<td>*Proteins</td>
<td>100</td>
</tr>
<tr>
<td>*Oligosaccharides</td>
<td>100</td>
</tr>
</tbody>
</table>

*Based on Lawrence (1999) & Van Zoeren-Grobben et al. (1987)
Composition of Cow’s Milk formulas

Based on nutrient content of human milk at 1-3 mo

- **Protein**: nonfat bovine milk and whey concentrate
- **Fat**: blend of vegetable oils
- **Carbohydrate**: corn syrup solids and lactose
- **Vitamin and mineral mix**

- **Additional ingredients** are based on the manufacturer: iron (1959), taurine (1984), DHA (2000), leutien (2012)

Content is regulated by the FDA and is based on the AAP Committee on Nutrition recommendations
Infections influenced by Infant Diet

<table>
<thead>
<tr>
<th>Infection</th>
<th>↓%</th>
<th>Qualifiers</th>
<th>OR*</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Otitis Media</td>
<td>23</td>
<td>Any BF</td>
<td>0.77</td>
<td>0.64-0.91</td>
</tr>
<tr>
<td>Acute Otitis Media</td>
<td>50</td>
<td>3-6 mo</td>
<td>0.50</td>
<td>0.36-0.70</td>
</tr>
<tr>
<td>Upper Respiratory</td>
<td>63</td>
<td>&gt; 6 mo, exclusive</td>
<td>0.30</td>
<td>0.18-0.74</td>
</tr>
<tr>
<td>Lower Respiratory</td>
<td>72</td>
<td>&gt; 4 mo, exclusive</td>
<td>0.28</td>
<td>0.14-0.54</td>
</tr>
<tr>
<td>RSV bronchiolitis</td>
<td>74</td>
<td>&gt; 4 mo</td>
<td>0.26</td>
<td>0.074-0.9</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>64</td>
<td>Any BF</td>
<td>0.36</td>
<td>0.32-0.40</td>
</tr>
</tbody>
</table>

*Pediatrics 2012;129:e827-841*
### Diseases and Conditions influenced by Infant Diet

<table>
<thead>
<tr>
<th>Condition</th>
<th>↓%</th>
<th>Qualifiers</th>
<th>OR*</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>40/28</td>
<td>&gt; 3 mo</td>
<td>0.60</td>
<td>0.43-0.82</td>
</tr>
<tr>
<td>Inflammatory Bowel</td>
<td>72</td>
<td>Any BF</td>
<td>.69</td>
<td>0.51-0.94</td>
</tr>
<tr>
<td>Obesity</td>
<td>24</td>
<td>Any BF</td>
<td>.76</td>
<td>0.67-0.86</td>
</tr>
<tr>
<td>Celiac disease</td>
<td>52</td>
<td>&gt; 2 mo</td>
<td>0.48</td>
<td>0.40-0.89</td>
</tr>
<tr>
<td>Type 1 diabetes</td>
<td>30</td>
<td>&gt; 3 mo, exclusive</td>
<td>0.71</td>
<td>0.54-0.93</td>
</tr>
<tr>
<td>Type 2 diabetes</td>
<td>40</td>
<td>Any BF</td>
<td>0.61</td>
<td>0.44-0.85</td>
</tr>
<tr>
<td>Leukemia (ALL/AML)</td>
<td>20/15</td>
<td>&gt; 6 mo</td>
<td>0.85</td>
<td>0.73-0.98</td>
</tr>
<tr>
<td>SIDS</td>
<td>36</td>
<td>Any &gt; 1 mo</td>
<td>0.64</td>
<td>0.57-0.81</td>
</tr>
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</table>

*Pediatrics 2012;129:e827-841*

There are no studies of long-term development on a diet of exclusive donor milk.

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Formula milk</th>
<th>Donor breast milk</th>
<th>Risk Ratio</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td></td>
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<tr>
<td>Lucas 1984a</td>
<td>4/76</td>
<td>1/83</td>
<td></td>
</tr>
<tr>
<td>Lucas 1984b</td>
<td>5/173</td>
<td>2/170</td>
<td></td>
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<tr>
<td>Schanler 2005</td>
<td>10/88</td>
<td>5/78</td>
<td></td>
</tr>
<tr>
<td>Tyson 1983</td>
<td>1/44</td>
<td>0/37</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>381</strong></td>
<td><strong>368</strong></td>
<td></td>
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</tbody>
</table>

NEC (7.7%) or death > 14d, 173/1272 (13.6%)

Each 100 ml/kg increase in HM intake during the first 14 d was associated with decreased risk of NEC or death. (HR 0.87 (95% CI 0.77, 0.97)
Too few studies with donor milk

- Most infants are breastfed or are fed expressed milk
  - Mother’s won’t accept a randomized, controlled trial to not BF
- Donor milk has mostly been used to meet temporary needs
  - Insufficient supply or BF contraindication (used as a replacement)
  - Hypoglycemia or jaundice (used as a supplement)
- Donor milk has been viewed as the same as breast milk
  - Investigators call BM and donor milk “human milk”

In NICU practice, donor milk is usually just a means to achieve an exclusive human milk diet
Why use an **Exclusive** Human Milk Diet?

- 70% reduction in the incidence of NEC
  - *J Pediatrics* 2010;156:562-7

- Lower LOS and total expected costs of hospitalization

- Improved Neurodevelopmental outcomes
  - *Pediatrics* 2006;118(1)

- Reduced adult and pediatric diseases and conditions
  - *Pediatrics* 2012;129:e827-841
Use of Donor Human Milk is Increasing

![Graph showing increasing use of donor human milk from 1986 to 2010 with R² = 0.8327]
When use Donor Milk?

And for How Long?

- As a temporary supplement
  - Insufficient expressed breast milk
  - Hypoglycemia
  - Breastfeeding jaundice

- As a replacement
  - No breast milk
  - Contraindication to breastfeeding

- All preterm infants

- “The potent benefits of human milk are such that all preterm infants should receive human milk.”

- “If mother’s own milk is unavailable despite significant lactation support, pasteurized donor milk (appropriately fortified) should be used.”

- “Discontinue disruptive hospital policies . . . that provide commercial infant formula without a medical indication.”

I can’t believe they fed me formula
Donor Human Milk

- Donor milk has the same content as breast milk, except:
  - some protein fractions are reduced by pasteurization
  - future pasteurization techniques will likely reduce this effect

- It can be ordered by type (early, preterm, term, fat free)
  - content does not adapt to individual needs

- It is safe
  - If HMBANA guidelines are followed, there have been no documented cases of disease transmission
Human Milk Banking

1909 First milk bank opens in Austria

1919 First milk bank opens in US – distributes unprocessed milk to ill and premature infants

1985 Human Milk Banking Association of North America established (HMBANA)

1980’s Advent of AIDS, many milk banks close

1990 HMBANA publishes first milk banking standards
Human Milk Banking Association of North America  www.HMBANA.org
## Utah Milk Bank Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Organization</th>
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</thead>
<tbody>
<tr>
<td>Jerald King, MD</td>
<td>AAP Utah BF Coordinator</td>
<td></td>
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<tr>
<td>Judy Harris, RD</td>
<td>State BF Coordinator</td>
<td></td>
</tr>
<tr>
<td>Karin Hardman (LLL)</td>
<td>President Utah BF Coalition</td>
<td></td>
</tr>
<tr>
<td>Christy Porucznik, PhD (LLL)</td>
<td>Redwood Donor Center</td>
<td></td>
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<tr>
<td>Gary Chan, MD</td>
<td></td>
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<tr>
<td>Bob Christensen, MD</td>
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<tr>
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<tr>
<td>Teri Kiehn</td>
<td>IHC Women’s and Children’s</td>
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<tr>
<td>Lori Galvez, RD</td>
<td>Utah Co WIC Program</td>
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<tr>
<td>Ellen Lechtenberg, RD</td>
<td>Primary Children’s</td>
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<tr>
<td>Phillis Crowley, MS, RD</td>
<td>State Nutrition Coordinator</td>
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<tr>
<td>Shannon Clegg, RN, MBA</td>
<td>Lactation Consultant</td>
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<td>Deanne Francis, RN</td>
<td>Lactation Consultant</td>
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<tr>
<td>Becky Hatfield</td>
<td>Parent to Parent</td>
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<tr>
<td>Tawna Burton</td>
<td>March of Dimes</td>
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<tr>
<td>Marla Raff</td>
<td>Utah Co Health Dept</td>
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<tr>
<td>Amber Ryckaert, RN, QI Specialist</td>
<td></td>
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<tr>
<td>Elizabeth Smith, MPH, Perinatal Ed</td>
<td></td>
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<tr>
<td>Mavis Tayler, NNP</td>
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## Utah Milk Bank 501c3 Officers

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<tbody>
<tr>
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<tr>
<td>Becky Hatfield</td>
<td></td>
<td>Parent to Parent</td>
</tr>
<tr>
<td>Tawna Burton</td>
<td></td>
<td>March of Dimes</td>
</tr>
<tr>
<td>Marla Raff</td>
<td></td>
<td>Utah Co Health Dept</td>
</tr>
<tr>
<td>Amber Ryckaert, RN</td>
<td></td>
<td>QI Specialist</td>
</tr>
<tr>
<td>Elizabeth Smith, MPH</td>
<td></td>
<td>Perinatal Ed</td>
</tr>
<tr>
<td>Mavis Tayler, NNP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Guidelines for the Establishment and Operation of a Donor Human Milk Bank

List the number of level III NICU’s and their bed capacity
List the current amount of donor human milk dispensed
List the birth rate and breast feeding rate
Obtain letters of support from the medical community
Obtain letters of intent to stock donor milk from hospitals
Create a list of potential/engaged financial sponsors
Obtain at least $5,000 start-up funding
Draft a design of your milk bank facility
Chart a time line for the development of your milk bank
Donor Milk Donated - 2011

Utah 38,382 oz

Idaho 14,242 oz
Donor Milk Dispensed - 2011

Utah 38,382 oz
  21,568 oz

Idaho 14,242 oz
  2,980 oz
Hit the lecture circuit

So far, all medical directors have been supportive
The Cost to Use

Breast milk (no cost)

Expressed ($15/mo pump)

Donor ($3.50/oz + shipping)

Commercial ($30.00/oz)

Prolact+H₂MF ($6.25/mL)

Prolacta.com

EPF ($1.18/oz)

Alimentum ($1.77/oz)

Elecare ($2.48/oz)

HMF/packet ($1.08 Abbott, $1.50 Mead Johnson)

www.abbottstore.com

www.BabyWuvinc.com
The Cost to Not

If 90% of US families followed guidelines to BF exclusively for 6 mo, the US would annually save $13 billion from reduced medical and other costs. Bartick, M. Pediatrics 2010;125:e1048 (2007 dollars)

<table>
<thead>
<tr>
<th>CDC Report Card 2007</th>
<th>Initiation</th>
<th>Any BF 6 mo</th>
<th>Any BF 12 mo</th>
<th>Exclusive 3 mo</th>
<th>Exclusive 6 mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>75%</td>
<td>43%</td>
<td>22%</td>
<td>33%</td>
<td>13%</td>
</tr>
<tr>
<td>Utah</td>
<td>90%</td>
<td>58%</td>
<td>35%</td>
<td>41%</td>
<td>16%</td>
</tr>
<tr>
<td>Idaho</td>
<td>89%</td>
<td>53%</td>
<td>31%</td>
<td>42%</td>
<td>22%</td>
</tr>
<tr>
<td>AAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90%</td>
</tr>
</tbody>
</table>

Health care costs for newborns are three times lower for babies whose mothers participate in the company’s employee maternity and lactation program. www.surgeongeneral.gov/topics/breastfeeding/

<table>
<thead>
<tr>
<th>Costs for extremely premature infants</th>
<th>BOVINE</th>
<th>HUMAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplements/infant</td>
<td>195</td>
<td>10,321</td>
</tr>
<tr>
<td>Baseline Hospitalization (EP, no NEC)</td>
<td>207,378</td>
<td>207,378</td>
</tr>
<tr>
<td>Medical NEC ($74,004/EP infant)</td>
<td>11,798</td>
<td>1,798</td>
</tr>
<tr>
<td>Surgical NEC ($198,000/EP infant)</td>
<td>12,583</td>
<td>1,798</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$ 231,954</td>
<td>$ 223,787</td>
</tr>
<tr>
<td>Net Savings per EP Infant Admitted</td>
<td></td>
<td>$ 8,167*</td>
</tr>
</tbody>
</table>

(*p<0.0001, 95% confidence interval, $4,405–$11,930)

“The analyses presented in this article may assist healthcare providers and institutions to justify an increased use of human milk and human milk products to promote better health outcomes in EP infants.”
Donor Milk Donated - 2011

Utah 38,382 oz
One Donor Center

Idaho 14,242 oz
Individual donations

Establish a donor center in association with each level III NICU
Time Line

Jan-Jun 2013 – 501c3 status, HMBANA application, $5,000 seed money, new donor centers requested

Jul-Dec 2013 – HMBANA mentor, business plan, Board, website for donations, donor centers open

Jan-Jun 2014 – founding sponsors identified, more donor centers open, foundation organized

Jul-Dec 2014 – location identified, design developed, sponsors/grants sought, more donor centers open
Time Line

Jan-Jun 2015 – construction documents, equipment list/vendors finalized, media plans, volunteer staff

Jul-Dec 2015 – construction/remodel begins, employees hired, equipment/supplies purchased, techs trained, more donor centers open, publicity campaign, donated/dispensed milk = 60,000 oz

Jan-Jun 2016 – milk bank opens, foundation raises 10% towards operational reserve and year-end balance positive (10%) or else . . .
Dr King seeks funding on the PGA tour

Unorthodox style not withstanding
What You Can Do

Talk to your medical director, nurse manager, administrators:

The American Academy of Pediatrics recommends human milk for all preterm infants.

Why aren’t we doing this better?
Consider these Suggestions:

Only 27% of NICU infants receive all BM to discharge

Make lactation support a part of parent interactions

- Educate all mothers on the value of human milk
- Explain the need for breastfeeding mothers to pump and express milk early and often (8-12 times daily)
- Know they are doing it and doing it effectively

Encourage exclusive human milk feedings as you would treatment for presumed sepsis

Maintain a stock of donor milk for quick availability

Encourage all breastfeeding mothers to be donors
Help Mothers to Know:

Infant feeding should not be considered as a lifestyle choice but rather as a basic health issue.