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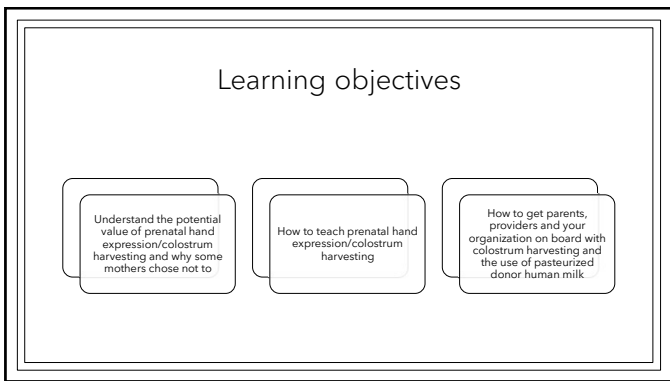
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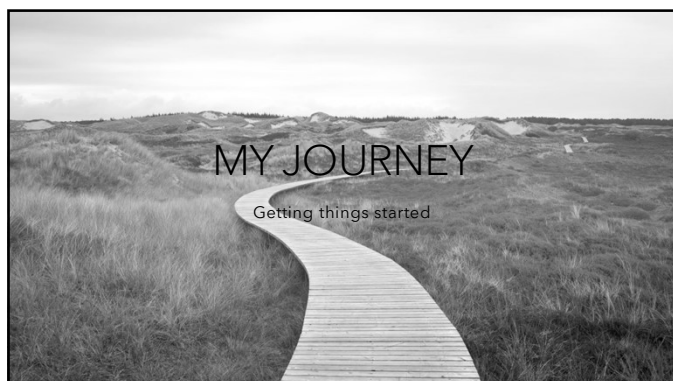
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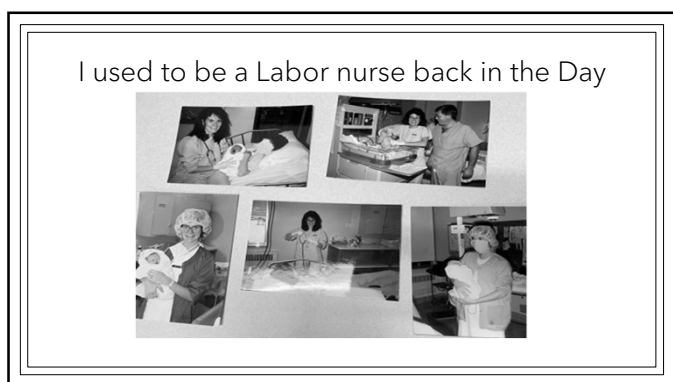
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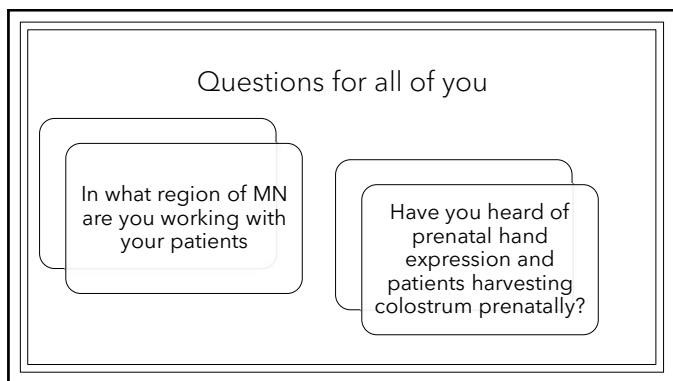
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How does this apply to a patient during labor/birth?



Potential benefits



Endogenous oxytocin vs. exogenous oxytocin

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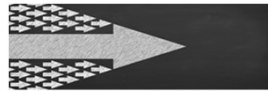
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### Giving Labor a little nudge

What did 5 articles have to say



Common take aways:

- Nipple stimulation can be applied during labor for accelerating latent phase and reducing oxytocin infusion.
- Nipple stimulation can be applied as a non-pharmacological and non-invasive method allowing patient to control her own labor progression more effectively.
- In one study they found that after-birth pain was significantly lower and the number of breastfeeding during the 24 h after delivery was significantly higher in the breast stimulation group compared to the control group.
- Nipple stimulation is purported as a natural and inexpensive method for inducing labor, but its use is understudied.

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### What's so great about colostrum???

- Human breast milk (HBM) is essential for the infant's growth and development right after birth and is an irreplaceable source of nutrition for early human survival. Various infant formulas have many similarities to HBM in many components, but there is no perfect substitute for HBM.
- Colostrum contains bioactive components with immune enhancing properties: Immunoglobulins, lactoferrin, lysozyme, lactoperoxidase, α-lactalbumin, β-lactoglobulin, or fat that carries important vitamins and polyunsaturated fatty acids
- Colostrum has all the nutrients that a baby needs in the first few days of life. **It's also packed with nutrients and vitamins to strengthen their baby's immune system. The flow of colostrum from the nipples are slow so baby can learn to breastfeed.**
- Colostrum is in the breast as early as 16 weeks. Lactogenesis is the process of developing the ability to secrete milk and involves the maturation of alveolar cells. It takes place in 2 stages: secretory initiation and secretory activation. Stage I lactogenesis (secretory initiation) takes place during the second half of pregnancy.

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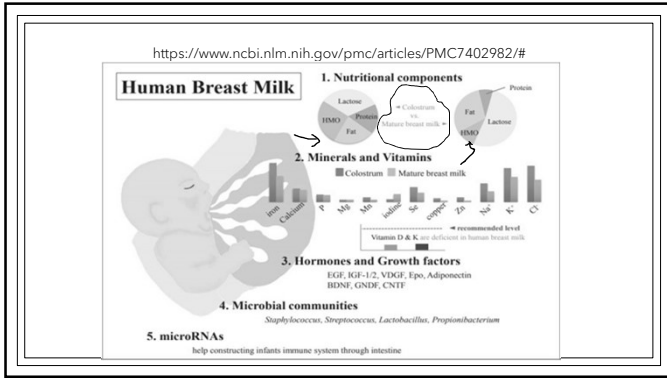
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HMO, it's not a type of insurance 🌈

- Human milk oligosaccharides (HMOs) are the third most abundant component of breast milk, after lactose and lipids. HMOs in the human breast milk are a complex mixture of more than 200 non-digestible and non-nutritional carbohydrates. Among the various compositional differences between human breast milk and cow milk, one of the major differences is the presence of HMOs in human milk, which are virtually absent in cow milk and infant formula.

Pediatr Gastroenterol Hepatol Nutr. 2019 Jul; 22(4): 330–340.

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**Terminology**

Removing milk from the breast during pregnancy has interchangeable names/titles

1. Prenatal Hand Expression
2. Antenatal milk expression (AME)
3. Colostrum Harvesting

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## Getting Folks on Board

- Patient
- Providers
- Childbirth Educators
- WIC
- Public Health
- Community
- Lactation consultants
- Nurses

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## Finding some evidence

In a randomized controlled trial published in Oct. 2019

- Women perceived multiple benefits of AME (antenatal milk expression), most notably that it increased their confidence that they would be able to make milk and breastfeed successfully postpartum.
- Women expressed some concern that no/little milk expressed could be indicative of postpartum milk production problems. Regarding implementation, women found that the AME protocol fit well into their daily routine.
- There was mixed feedback regarding comfort with practicing AME in the presence of partners.
- Reasons for postpartum use of AME milk varied; barriers to provision included inadequate milk storage options at the birth hospital and unsupportive hospital providers/staff.

*"It gave me so much confidence": First-time U.S. mothers' experiences with antenatal milk expression* Maternal Child Nutr. 2019 Oct;15(4):e12824. doi: 10.1111/mcn.12824. Epub 2019 May 23.

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## To harvest or not ???

I start this discussion at 28-week prenatal visit if possible  
Educate to help make decision, utilize handout  
Discussion with provider

**Benefits:**

- to have colostrum for managing infant hypoglycemia
- avoid use of formula for supplementing
- avoid early weaning ( 2-3-fold-risk of early breastfeeding cessation assoc. with formula supplementation in hospital)
- Teaches mother to learn how to do hand expression

**Concerns:**

- That it will cause PTL (preterm labor)
- Can lead to doubt in mothers' ability if she does not get any colostrum when trying to harvest
- No established evidence to support that this leads to onset of Lactogenesis 2 (milk coming in)

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**FUN FACT**

I saw my first patient to teach her prenatal hand expression on 2.5.20



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**SUPPLIES TO ACCOMPLISH THIS**

Costs: 1-2 ml sized syringe/caps, 0.13 cents,  
Ziploc Bags, .06 each,  
Med cups 0.56/100

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**Prenatal Hand Expression:**

Patient education handout

**What is prenatal hand expression?**  
Hand expression means you are using your hands to compress your breasts in a way that colostrum comes out. Hand expressing before your baby is born is called prenatal hand expression. For many mothers, this can be done safely in the final few weeks of pregnancy.

**Discussion with your healthcare provider**  
You should not attempt this without first discussing it with your prenatal care provider. It may not be recommended if you are at risk of preterm labor or have certain other risk factors such as placenta previa. It is advised for mothers to wait until **37 weeks** before starting to express colostrum.

**Why should I consider prenatal hand expression?**  
If your baby is experiencing difficulties with breastfeeding or needs to be supplemented for medical reasons, you may be asked to express some fresh colostrum to give to your baby. You may be able to use the colostrum you have expressed prenatally. This can help limit the need for formula. There are reasons why women may need to consider supplementing their baby's feeds.

They include women who have risk factors such as:

- Breast hypoplasia (limited breast development)
- Previous breast surgeries
- Obesity
- Diabetes
- High blood pressure
- History of PCOS (polycystic ovarian syndrome)
- Have a history of low milk supply
- Have certain endocrine disorders

Colostrum helps your baby stay healthy. It helps to colonize your baby's gut with healthy bacteria that protect against allergies and disease. It contains the perfect balance of proteins, fats, and micronutrients needed for human babies. Colostrum can also help baby pass the first meconium stools, which can be very sticky.

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<p>Prenatal Hand Expression: Patient education handout</p>	<p><b>How to hand express your colostrum</b> It is better to express your colostrum by hand than to use an electric or manual breast pump. Colostrum will be produced in very small quantities. It can stick to the bottles or pump parts and be hard to collect.</p> <ul style="list-style-type: none"> <li>• Always wash your hands before expressing it.</li> <li>• Applying a warm compress to your breast or expressing after a warm bath or shower can help the flow of colostrum.</li> <li>• Get yourself comfortable. Try sitting and leaning slightly forward.</li> <li>• Start with a gentle breast massage, stroking from the back of your breast towards the nipple to encourage the let-down reflex.</li> <li>• Put your thumb above the nipple and your first few fingers below the nipple. You will be cupping the breast in a 'C' shape.</li> <li>• Move your thumb and fingers a few centimeters back from the nipple.</li> <li>• Press in towards your chest, press your fingers together, and draw them forwards.</li> </ul>
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<p>Prenatal Hand Expression: Patient education handout</p>	<ul style="list-style-type: none"> <li>• Repeat this process, building up a rhythm.</li> <li>• Colostrum should start to arrive drop by drop. (Initially, it may just be a glisten on the end of your nipple, and it may take a few days of practice before drops appear)</li> <li>• Colostrum can vary in appearance. Sometimes it may appear thick and yellow and at other times pale white and thin.</li> <li>• Collect the colostrum into a clean container, like a syringe (1ml or 2ml syringe).</li> <li>• If nothing happens, adjust your finger position slightly to find the spot that works for you. You should not be pinching the nipple or sliding the fingers uncomfortably over the skin.</li> <li>• Rotate the position of your fingers and thumb around the areola (imagine a clock face) and repeat the expressing process to stimulate and remove colostrum from different parts of your breast.</li> <li>• Express each breast twice during each session.</li> </ul>
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<p>Prenatal Hand Expression: Patient education handout</p>	<ul style="list-style-type: none"> <li>• <b>Storage of human breast milk.</b></li> <li>• For complete colostrum and breastmilk storage guidelines, refer to the handout "Human Milk Guidelines for the Healthy Term Infant".</li> <li>• You must label your colostrum.</li> <li>• You must use the labels provided by your clinic. These labels will have your name, birth date, and medical record number printed on them. This is important because it will be part of the safety check process in the hospital.</li> <li>• Make sure to write the date and time you collected your colostrum on the label, then stick the label onto the syringe.</li> <li>• Colostrum can be collected two or three times each day. Start with doing 5 minutes/breast. May repeat.</li> <li>• Collect the colostrum into a clean container, like a small medicine cup, then draw up using a syringe (1ml or 2ml syringe). If getting large amounts, you can pour the colostrum into a breast milk freezer bag.</li> <li>• You will need to store the syringe in the refrigerator between uses. At the end of the day, the colostrum can be frozen. Place the syringe into a freezer bag before putting it into the freezer.</li> <li>• You can take syringes of frozen colostrum into the hospital using a freezer block and insulated bag. The syringe can be thawed either running warm tap water or in a breast milk warmer. A microwave or boiling water should never be used since hot spots may occur.</li> <li>• Thaw only what a baby will use. Once thawed, it should be used within 24 hours.</li> <li>• It is a good idea to mention your colostrum stores on your birth plan and make sure hospital staff are aware of your wishes.</li> <li>• Prenatal hand expression gives you a back-up if things don't go according to plan. Many families find this reassuring. You can start your breastfeeding journey knowing how to hand express and have confidence in how your breasts work.</li> <li>• Hand Expression Video Link: <a href="https://vimeo.com/95196007">https://vimeo.com/95196007</a></li> </ul>
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## How to do hand expression-Video

<https://vimeo.com/65196007>  
<https://bfmednet.com/All-Resources/Videos/The-Basics-of-Breast-Massage-and-Hand-Expression-handouts-parents-lactationtraining.com>  
 -Hand expression pictorial handout  
<https://globalhealthmedia.org/videos/how-to-express-breastmilk/>  
 Online video education provides *unique advantages* for instruction over traditional face to face format

- **Privacy**
- **Convenience**
- **Play-pause-replay ability**

*Keep in mind:*  
 Difficult to find a prenatal expression video, most videos are with mothers in lactogenesis 2 already.  
 O'Sullivan, T., Cooke, J., McCafferty, C., Gigla, R., Online Video Instruction on Hand Expression of Colostrum in Pregnancy is an Effective Educational Tool. *Nutrients*. 2019 Apr 19;11(4):883. doi: 10.3390/nu11040883.

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## Testimonials

**Nurses:** I recently worked with a handful of breastfeeding mothers who had met/worked with you and came in with several syringes, even some with bags of colostrum. It's been amazing! You can tell that these moms just feel more relaxed and prepared when it comes to jumping into breastfeeding their babies and keep up on the hand expression. I can't believe the difference in the amount of EBM these moms have been getting because they started hand expression and learned this from you. I'm not the only nurse who has noticed this and I just wanted to thank you for your work. Mom's feel good to have this great gift of EBM for their baby.

**Providers:** I have noticed in the hospital, when I review instructions for home about breastfeeding and supplementing, the patients mention that they met with lactation prenatally and they are excited and seem more motivated and confident about breast milk feeding.

**Parents:** I wanted to reach out to you and thank you for teaching me about harvesting colostrum. I brought my four bags worth to the hospital, and everyone was very happy as well as impressed with how much I harvested. I'm so fortunate to have had harvested colostrum. My son had high levels of bilirubin in which we were able to use it all to make sure we knew how much he was taking in on top of breast feeding. We ran out just barely toward the end of our week stay.

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CentraCare  
 James White, MD, MEd, FACLP, CentraCare - Park Clinic, Jackson HI & Murray, Health, St. Louis, Missouri  
 Tawana "Taw" Newsome-Dunbar, MD, FACP, CentraCare - St. Louis Hospital, St. Louis, Missouri

**Promoting Population Health Through Antenatal Milk Expression (AME)**

**Disclosure Statement**  
 We have no financial conflicts of interest.

**Introduction:**  
 Population health involves the promotion of health and prevention of disease within a community. Breastfeeding is a key component of population health and is a modifiable risk factor for chronic disease. The World Health Organization (WHO) recommends exclusive breastfeeding for the first 6 months of life. Breastfeeding is associated with numerous health benefits for both the infant and the mother. However, breastfeeding rates are low, particularly in low-income and minority populations. This is due to a variety of factors, including lack of knowledge, social norms, and structural barriers. Antenatal Milk Expression (AME) is a technique that allows women to collect and store colostrum before birth. This can be used to supplement breastfeeding or to provide a source of breast milk for the infant if the mother is unable to breastfeed. AME is a safe and effective way to increase the amount of breast milk available to the infant. It is also a way to ensure that the infant has access to the most nutrient-rich breast milk possible.

**Benefits of AME:**  
 Increases the amount of breast milk available to the infant. This can be used to supplement breastfeeding or to provide a source of breast milk for the infant if the mother is unable to breastfeed. AME is a safe and effective way to increase the amount of breast milk available to the infant. It is also a way to ensure that the infant has access to the most nutrient-rich breast milk possible.

**AME Concerns:**  
 AME is a safe and effective way to increase the amount of breast milk available to the infant. It is also a way to ensure that the infant has access to the most nutrient-rich breast milk possible.

**Learning Objectives:**  
 By the end of this presentation, you will be able to:

**Introduction:**  
 Breast milk is the most ideal source of nutrition for infants. It contains all the nutrients and antibodies that a baby needs to thrive. However, many women are unable to breastfeed for various reasons. AME allows women to collect and store colostrum before birth, which can be used to supplement breastfeeding or to provide a source of breast milk for the infant if the mother is unable to breastfeed. AME is a safe and effective way to increase the amount of breast milk available to the infant. It is also a way to ensure that the infant has access to the most nutrient-rich breast milk possible.

**Objectives:**  
 By the end of this presentation, you will be able to:

**Lactation Clinic Walk-As You Read**

**Conclusion/Message/Implications:**  
 AME is a safe and effective way to increase the amount of breast milk available to the infant. It is also a way to ensure that the infant has access to the most nutrient-rich breast milk possible.

**References:**  
 1. World Health Organization. *Infant and Young Child Feeding: Guidelines: Full Breastfeeding Consensus Document*. Geneva: WHO, 2002.  
 2. American Academy of Pediatrics. *Breastfeeding and the Use of Human Milk*. Washington, DC: AAP, 2012.  
 3. Centers for Disease Control and Prevention. *Breastfeeding: The Facts*. Atlanta: CDC, 2011.  
 4. World Health Organization. *Global Strategy for Infant and Young Child Feeding*. Geneva: WHO, 2002.  
 5. American Academy of Pediatrics. *Exclusive Breastfeeding for 12 Months: Benefits and Best Practices*. Washington, DC: AAP, 2012.

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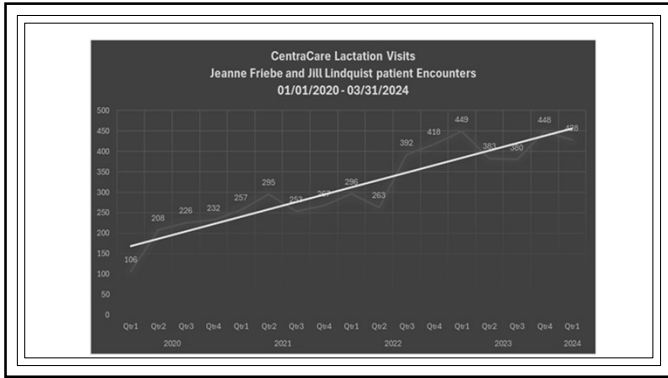
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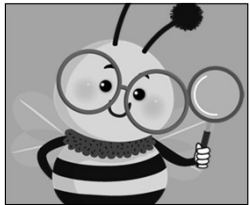
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### Is AME effective ?

- We wanted to investigate this technique
- There is limited research on effectiveness and overall impact on breastfeeding outcomes
- We decided to study this further with our patients at the CentraCare OB clinic in hopes to publish results

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**Our Study**

**"Antenatal Milk Expression Treats Hypoglycemia and Helps You Sustain Terrific Breastfeeding for a Long and Uninterrupted Extent": the "AMETHYST BLUE" Study**

IRB study modules required	Application to the IRB	Create a consent form
Recruit participants parameters/criteria • Primiparous • Intending to breastfeed	Group size 100 AME 100 non-AME	Analyzing the Data

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## Other interesting things about breast milk The Fatwa

- FATWA for use of PDHM for Muslim Babies was signed.
- The Minnesota Islamic Council issued a fatwa (religious clarification) encouraging the use of pasteurized donor human milk for babies, particularly preterm, low birth, and ill babies, when mother's milk is not available. The ruling comes after extensive discussions between Islamic scholars, Muslim leaders in the Twin Cities and experts from Children's Minnesota (<https://childrensmn.org>)
- MN Health Fairview(<https://www.mhealthfairview.org>)
- The Minnesota Milk Bank for Babies (<https://www.mnmilkbank.org>).
- Minnesota Breastfeeding Coalition (<https://www.mnbreastfeedingcoalition.org>)and
- Brighter Health of M(<https://brighterhealthmn.com>).

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- ◆ This is the FATWA that was signed: <https://www.youtube.com/watch?v=1cvP6nOBwEA>
- ◆ *In the Name of Allah, Most Gracious, Most Merciful. All Praise due to Allah, the Lord of the Worlds; and may His blessings and peace be upon our Prophet Muhammad and upon all his Family and Companions.*
- ◆ Muslim families not wanting to use PDHM due to concerns about milk kinship.
- Islamic Beliefs About Milk Kinship and Donor Human Milk in the United States - PubMed ([nih.gov](http://nih.gov))

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## The History The Journey

- On October 5<sup>th</sup>, 2023, members of the Minnesota Islamic Council met with medical experts to discuss and give guidance to Muslim families on the use of pasteurized donor human breastmilk, which is widely available at hospitals for premature and sick babies.
- Members of an accredited milk bank also provided details on the safety of donated human milk by explaining the collection, heat-treatment, and testing process.
- Important factor for the sharia**
  - Milk sharing is regarded as a virtue in Islam. Breastfeeding is strongly encouraged, and many verses in the Quran emphasize this. For example, Surah Al Ahaq Ayah 46 states: "And we enjoined upon man to his parent's good treatment. His mother carried him with hardship and gave birth to him with hardship, and his gestation and weaning (period) is thirty months." This emphasizes that for a mother to breastfeed her child is considered a very virtuous act.
  - In accredited milk banks across the country like Minnesota's, breastmilk is pooled from 3-5 donors. This makes it less likely that a baby will be fed a large amount from one donor. In addition, there is a legal prohibition of disclosing the identity of the milk donors that is applied in the milk banks. These factors, decrease the likelihood of the establishment of kinship. Surah: Al Baqarah, Ayah 233 Allah says, "Mothers (should) suckle their children for two years, for one who wants to complete the period of suckling."
  - For some babies, human breastmilk serves therapeutic/medicinal purposes and is preventing dangerous illnesses from forming in the baby's digestive system, according to the Fatwa Committee's decision. Regardless of the donor's religious beliefs, the use of heat-treated donor milk for that specific reason aligns with Islamic Sharia's law goals, which prioritize the preservation of human life. Surah: Al- Ma'idah Ayah 32 "Whoever saves one-it is as if he had saved mankind entirely."

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After 3 days of deliberation with more than 10 Islamic scholars, imams, and professors of Islamic studies, this council reached the verdict on Monday, October 9<sup>th</sup>, 2023:

- The benefits of pasteurized donor human breastmilk are such that all babies, particularly preterm, low birth weight, and ill babies should be given this milk when that of their own mother is not available.
- Additionally, we have ruled that the identification of the donor mother is not a necessity as that violates the privacy of the uncompensated donor.
- Signed under seal this 16<sup>th</sup> of November 2023.
- Dr. Mohamed Mahad-Imam Masjid Nurulman

Links The full video of the event. (679) Fatwa encourages Muslim families to use donor milk - YouTube

❖ Decree encourages Minnesota Muslim women to use donated breast milk for vulnerable kids | MPR News

❖ Minnesota fatwa condones donated breast milk for Muslim newborns | kare11.com

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**More work to be done**

- Educational materials development like handouts, videos and promotion of this.
- Raising awareness will more likely lead to success.
- Plan for public domain to make more accessible to anyone.




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Remember, a very important first step for baby is skin to skin time; first with mom then dad too!




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**The Association Between Breastfeeding and Risk of Cardiovascular Disease Among Women with a History of Type 2 Diabetes or Gestational Diabetes**

By Anne Eglash MD, IBCLC, FABM

**#LACTFACT**

**Breastfeeding reduces the risk of cardiovascular disease among women with a history of type 2 diabetes or a history of gestational diabetes.**

*Lifetime Duration of Breastfeeding and Cardiovascular Risk in Women with Type 2 Diabetes or a History of Gestational Diabetes: Findings From Two Large Prospective Cohorts*

Diabetes Care 2024 Feb 20; dc231494. doi: 10.2337/dc23-1494.

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**What do you think are accurate statements regarding duration of breastfeeding and risk of heart disease and stroke among women with a history of type 2 diabetes or gestational diabetes?**

**Choose 1 or more:**

A. The greater the number of cumulative months of breastfeeding, the greater the protection from heart disease.

B. The greater the number of cumulative months of breastfeeding, the lower the risk of stroke.

C. Among women with a history of gestational diabetes, the number of months of exclusive breastfeeding was more protective from heart disease as compared to any breastfeeding.

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**Correct Answers: A and C (not B)**

Home - The Institute for Breastfeeding and Lactation Education (IBLAE) ([lacted.org](http://lacted.org))

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<p>Donor Human Milk for the High-Risk Infant: Preparation, Safety, and Usage Options in the United States. Pediatrics. 2017 Jan;139(1):e20163440. doi: 10.1542/peds.2016-3440.</p>	<p>Evaluating antenatal breastmilk expression outcomes: a scoping review. Int Breastfeed J. 2021 Mar 12;16(1):25-40e. doi: 10.1186/s13006-021-00371-7.</p>	<p>Integrative Review of Antenatal Milk Expression and Mother-Infant Outcomes During the First 2 Weeks After Birth. Journal of Obstetric, Gynecologic &amp; Neonatal Nursing (jognn.org)</p>
<p>Mary K. Heid Prenatal Hand Expression of Breast Milk to Reduce Formula Use Postnatally. A Capstone Report Submitted in partial fulfillment of the requirements for the degree of Master of Science in Dietetic Practice University of Washington 2019. Capstone Faculty Advisor: Michelle Averill, PhD, RD. Nutritional Sciences Program School of Public Health.</p>	<p>Nurse-Driven Initiative to Increase Exclusive Human Milk Feeding by Using Pasteurized Donor Human Milk to Treat Hypoglycemic Term Neonates. Nurs Womens Health. 2019 Aug 23;03(3):16-22. doi: 10.1016/j.nwh.2019.05.001. Epub 2019 Jun 26.</p>	

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