Top 10 New Lactation Tidbits

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#1 The Zn of insufficient milk

- When your interventions do not always help increase milk production it may be genetic!
- Mutation of the protein ZnT2 which transports zinc in specific body tissues
  - Low Zn in milk
  - Reduced mammary gland development
  - Functional problems
- ZnT2 transports zinc by importing it into vesicles -- small organelles within the cell -- that then secrete zinc into the breast milk.
- Zinc is also necessary to trigger the growth of mammary glands, mammary epithelial cells and secretion pathways.
- Without functional ZnT2, zinc accumulates in the cytoplasm, becoming toxic to the cell.
References


#2 The magic of colostrum: oral immune therapy

- The immune response is blunted and underdeveloped in the premature infant, but human milk supports the infant's growth, function, and effectiveness.

- Thus, own mother's colostrum (OMC) administered oropharyngeally has potential to deliver oral immune therapy (C-OIT) even before enteral feedings have begun.

- Colostrum interacts with lymphoid tissue in the oropharynx and gut.
References

Pletsch D, Ulrich C, Angelini M, Fernandes G, Lee DS. Mothers' "liquid gold": a quality improvement initiative to support early colostrum delivery via oral immune therapy (OIT) to premature and critically ill newborns.

#3 Explosion of breastfeeding interest

- CDC
- Baby Friendly Hospital Initiative
- Research- 39,273 citations for “breastfeeding” on Pub Med
- Donor human milk for NICU infants
- More milk banks opening
- Legislation and policy improvements at state and federal levels
- Baby Cafes
- Approach to breastfeeding support
  - More diversity, equity in breastfeeding support
  - More evidence-based
#4 Social and electronic media for breastfeeding education and support

- Engaging millennials by meeting them where they hang out!
- Facebook, Twitter, Pinterest, blogs, apps, You Tube, Instagram, Brelfies
- Web cams for distance consultations
- Mothering message boards
#5 Musical sucking

- Concept of entrainment
  - the synchronization of organisms to an external rhythm
- Music therapy improves sucking in preterm infants
  - LATCH scores are higher
  - Sucking activity is strengthened
  - Sucking activity is increased
  - Improves volume of intake
References

#6 The Bibi Cam

- BiliCam is a smartphone-based non-invasive medical device that uses the on-device camera to monitor jaundice in newborns.
- It requires a color calibration card that can be printed by the user at any of the color-calibrated printers such as FedEx Kinko’s, CVS, etc.
- The technology is based on the analysis of newborns’ images collected in a standardized way on the phone.
- The color data in the image are used to estimate the bilirubin level.
BiliCam: Using Mobile Phones to Monitor Newborn Jaundice
Lilian de Greef, Mayank Goel, Min Joon Seo, Eric Larson, James W. Stout, James A. Taylor, Shwetak N. Patel
The 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2014)
Increased milk volume seen in mothers using acupressure.

The acupoints used were GB20 (in a depression between the upper portion of the sternocleidomastoid muscle and the trapezius on the same level with GV16), acupoint LI4 (on the dorsum of the hand, between 1\textsuperscript{st} and 2\textsuperscript{nd} metacarpal bones), and acupoint SI1 (1 cun posterior to the corner of the nail on the upper side of the little finger).

The mothers were educated to press the acupoints in both sides of the body three times a day, each time for 2-5 min, and for 12 sequential days.

The level of pressure was so as to pail the nail of the pressing thumb.
# 8 Here’s a new idea!

3D printer for custom fit flange?

- Better fit by customizing the flange to the breast?
- As 3D printing processes improve, maybe we can take advantage of new technology to help avoid problems and increase efficiency
- Modular pumps and pump parts
Adapter for open systems from 3D printer

http://www.openbreastpump.org/

- 3D printable pump parts
- Use of silicone diaphragms on "open system" pumps could potentially help combat milk contamination
- Still in the testing phase
This smartphone-controlled device communicates with pump hardware via Bluetooth and is compatible with many collection systems.

It will allow the smartphone controlled pump to change the rhythm of its pumping action.

Plus, there's an intuitive
#9 Warm those shields

- Using a warm breast shield with an electric breast pump was comfortable and improved the efficiency of milk removal.
- Resulted in a shorter time to remove 80% of available milk
- Higher percent of available milk removed compared with an ambient temperature breast shield
#10 Laughter, melatonin, eczema, & sleep

- Patients with atopic eczema complain of sleep disturbances
- Melatonin is involved in sleep
- Laughter increases breastmilk melatonin levels
- Allergic responses of infants to latex and house dust mites were reduced by feeding with breast milk after laughter of mothers
- Maybe a laughing mother at night breastfeeding will also help babies sleep!
It's not the breastmilk that has a vitamin D deficiency, it's the dietary vitamin D recommendation for the lactating mother!

The common notion that low concentrations of vitamin D in human milk is a defect in design has prompted the recommendation for vitamin D supplementation for breastfeeding infants starting within days after birth.

This misconception was revealed in a study that supplemented the lactating mother with 6400 IU of vitamin D per day. The problem is not in the composition of human milk but in the dietary vitamin D recommendation for the lactating mother. The current recommendation of 400 IU per day for the lactating woman is insufficient to maintain blood concentrations of the parent vitamin D compound. This results in minimal vitamin D transfer into breastmilk. The resulting deficiency in the breastfed infant, especially darker-pigmented infants, can be significant.

With appropriate vitamin D intake, the lactating mother can fully transfer to her milk the vitamin D required to sustain optimal vitamin D nutrition in the nursing infant with no additional supplementation required for the infant.