

Abstracts



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Platform Abstracts

1. MATERNAL VITAMIN D SUPPLEMENTATION (VITD-S) DURING LACTATION: RESULTS OF A TWO-SITE RCT

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Background: AAP recommends all breastfed (BrF) infants receive vitD-S starting within 1st few days after birth, addressing infant but not mother's status.

Objective(s): To assess safety and effectiveness of maternal vitD-S of 6400 or 2400 IU/day alone compared with maternal and infant vitD-S of 400 IU/day.

Materials/Methods: Fully BrF women and infants at 4–6 wks in Charleston, SC and Rochester, NY randomized to Control 400 IU/day, 2400 IU/day or 6400 IU/day. Infants of Control mothers received 400 IU/day while infants of 2400 and 6400 IU groups received placebo. Outcome measure: serum 25(OH)D at 7 mos postpartum in both mother and infant. Participants/study team blinded to tx.

Results: 476 mother/infant dyads enrolled: 206 in 400 IU, 71 in 2400 IU, and 199 in 6400 IU group. 2400 IU group stopped in 2009 by DSMC as tx failed to increase infant levels. Maternal vitD status at baseline did not differ by tx: maternal 29.1 ± 13.9 (Control) vs. 30.2 ± 12.8 ng/mL (6400 IU) ($p=0.1$). $N=177$ mothers continued through 7 mos ($n=83$ 400 IU; $n=94$ 6400 IU grp). Maternal 25(OH)D differed between groups sustained to 7-mos postpartum ($p<0.0001$); no differences in infant 25(OH)D by tx: 45.2 ± 12.4 (400 IU group) and 43.2 ± 14.3 (6400 IU group; $p=0.4$). No differences in safety measures by treatment.

Conclusions: Maternal vitD-S w/6400 IU/day alone safely improved maternal vitD status during 6-mos of full BrF and was equivalent to maternal/infant vitD-S of 400 IU/d in achieving infant vitD sufficiency.

2. THE NEO-BFHI: DEVELOPMENT OF THE EXPANSION OF THE BABY-FRIENDLY HOSPITAL INITIATIVE INTO NEONATAL CARE

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Background: Since 1991, the WHO/UNICEF Baby-Friendly Hospital Initiative (BFHI) proposes in its Ten Steps to Successful Breastfeeding evidence-based standards for maternity units. These guidelines do not take into consideration the special needs of mothers and infants admitted to the Neonatal Intensive Care Unit (NICU).

Objective(s): To develop evidence-based guidelines, expand and adapt the BFHI to the NICU.

Materials/Methods: The Nordic and Quebec Working Group was formed with representatives from Sweden, Norway, Denmark, Finland and Quebec, Canada. The group has met eight times

since 2009. An international consultation attended by participants from 27 countries took place in Sweden in 2011. The group has published two peer-reviewed articles describing the expansion.

Results: New or adapted criteria cover aspects not addressed in the original Ten Steps. For example, use of the kangaroo position is promoted as the preferred routine place of care (Step 4) and infant stability as the only criterion for initiation of feeding at the breast (Step 5). Recognizing that most neonatal units have little or no space for parents to room-in, the expansion addresses practical opportunities for parents' unrestricted presence to avoid unnecessary separation (Step 7). Three Guiding principles were added to ensure that the recommended practices focuses on respect to mothers, a family-centered approach, and continuity of care in hospital and after discharge.

Conclusions: To complete the package and disseminate the expansion, the group is developing assessment and monitoring tools. The ultimate goal is to promote the new guidelines so they are adopted in the contributing countries and elsewhere.

3. EFFECT OF FOOD INGESTED PRIOR TO PUMPING ON NUTRITIONAL CONTENT OF EXPRESSED BREASTMILK

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Background: Although breast milk is the ideal food for most infants, it does not provide adequate protein for optimal growth of the premature infant and is usually fortified with protein to meet their increased growth requirements. A recent pilot study showed a significant increase in linoleic acid in breastmilk within a few hours of consumption of linoleic acid enriched food. No similar studies have been conducted analyzing changes in the protein content of breast milk in relation to maternal diet.

Objective(s): To determine if maternal food ingested shortly before expressing breastmilk will alter nutritional content.

Materials/Methods: Thirty mothers with infants at least 21 days old in the NICU were consented for the study. After only water intake for 3 hours prior to pumping, mothers expressed breastmilk in the NICU the same time of day for 4 different days within a 2-week period. After pumping, they were given a snack and pumped again 1 hour later. Snacks were either high in carbohydrate, fat, protein, or control (water) and order given was block randomized. Milk samples were analyzed using the Calais breastmilk analyzer for protein, fat, lactose and calories. Pre- and post-snack nutritional content was analyzed using paired t-test.

Results: Milk protein increased significantly following snacks high in carbohydrate and protein but not fat or water. Milk fat and calories increased significantly following all snacks including water.

Conclusions: Increased fat and calories is likely related to short duration between pumping and not type of snack as increase was seen after water ingestion. Increased protein cannot be explained by short duration between pumping, as it was not seen following water or high fat snack. The mechanism for increased milk protein is unknown but may be related to digestive processes specific to maternal protein and carbohydrate intake that signal more protein release into breastmilk. Finding ways to increase protein in breastmilk is important in supporting growth of premature infants in the NICU.

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4. EFFECT OF DELAYED CORD CLAMPING ABOVE VERSUS BELOW THE PERINEUM ON NEONATAL HEMATOCRIT OF TERM INFANTS BORN VIA VAGINAL DELIVERY AT 24 HOURS OF LIFE

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Background: Skin to skin contact at birth facilitates breastfeeding initiation. Delayed cord clamping is a delivery practice recommended to improve infant iron stores. Prior research on delayed cord clamping has been done below the maternal perineum. We wished to study delayed cord clamping on the maternal abdomen thus facilitating early skin to skin contact.

Objective(s): The purpose of this study was to determine if there is a difference in hematocrit at 24 hours of life in full term newborns with delayed cord clamping performed above versus below the perineum.

Materials/Methods: Forty-three term singleton pregnancies presenting for delivery were randomized to delayed cord clamping above or below the perineum. At 24 hours of life, neonatal hematocrit was determined and compared using statistical analysis. Secondary outcomes measured were phototherapy, transfusion, and NICU admission.

Results: Of 79 patients recruited, 43 were randomized to above and 36 were randomized to the below the perineum. Twenty-six patients in the above group and seventeen patients in the below group completed the study. The average neonatal hematocrit was 52.68 (above) versus 54.37 (below). There was no statistically significant difference. Similarly, no statistically significant difference was found in secondary outcomes. Three infants in the above group and one infant in the below group required phototherapy. None of the infants required transfusion. Two infants in the above group and one infant in the below group required NICU admission.

Conclusions: When comparing delayed cord clamping above versus below the perineum, there is no difference in the neonatal hematocrit at 24 hrs of life. This data supports the safety of immediate skin to skin contact at delivery while performing delayed cord clamping.

5. EXPANDING PHARMACISTS' ROLES IN PROMOTING AND SUPPORTING BREASTFEEDING THROUGH PARTNERSHIPS

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Background: As medication experts with high accessibility to expecting/new parents, pharmacists are ideally positioned to promote and expand support for breastfeeding; however, they have generally not promoted and supported breastfeeding.

Objective(s): Objectives of these exploratory studies were to (1) analyze existing contact pharmacists related to infant feeding and identify opportunities to expand their roles; (2) pilot test a one-credit continuing education(CE) online tutorial; (3) demonstrate the feasibility of a pharmacy-based weekly drop-in for breastfeeding mothers.

Materials/Methods: (1) We conducted a literature review and seven structured interviews of pharmacy and breast-

feeding experts to obtain their insights using flowcharts of possible contact opportunities: pre-pregnancy, prenatally, delivery, and postnatally. (2) We developed and pilot-tested a one-hour CE tutorial based on AAP/ABM policy statements and USBC recommendations. (3) We implemented weekly breastfeeding drop-ins at a pharmacy, collecting demographic and qualitative data to determine utility and benefits of the service.

Results: (1) Good matches between unmet needs and pharmacist capabilities were identified for health promotion campaigns, assistance with breastfeeding-related purchases, and provision of information, support, and referral. Absence of adequate breastfeeding knowledge was identified as a barrier. (2) 75% of 146 pharmacy students scored >90 on a 20-question posttest. The freely available tutorial has received CE accreditation. (3) The average number of mothers seen in the first 22 sessions is 1.8; qualitative data show improved customer loyalty.

Conclusions: Multi-sector collaborations can yield innovative ways to support breastfeeding. Available, accredited CE combined with a toolkit form the foundation for future research on the impact of pharmacists supporting breastfeeding.

6. "BREAST OR BOTTLE?" CHARACTERISTICS OF PATIENT-PROVIDER BREASTFEEDING DISCUSSIONS AT THE INITIAL PRENATAL VISIT

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Background: The American College of Obstetricians and Gynecologists (ACOG) recommends breastfeeding counseling commence at the first prenatal appointment and continue throughout pregnancy. Self-report data regarding frequency and content of such discussions are inconsistent.

Objective(s): To describe the observed characteristics of first prenatal visit patient-provider breastfeeding discussions.

Materials/Methods: Audio and transcribed text from 172 initial prenatal visits at a single clinic were reviewed for occurrence of breastfeeding discussions, timing and initiator of discussions, and adherence to ACOG prenatal breastfeeding recommendations. Conversations were qualitatively analyzed for breastfeeding-specific content.

Results: Breastfeeding discussions were infrequent (29% of visits), brief (m=39 seconds), and largely a recitation of breastfeeding "benefits" by the provider rather than an open dialogue. Breastfeeding was most often broached by providers during the breast exam in a manner that posited breastfeeding as a feeding preference rather than a health decision. <20% of visits incorporated any ACOG breastfeeding recommendations. Midwives were more likely than residents to initiate breastfeeding discussions (p=0.03) and tended to engage patients in more open discussions. There was no difference in whether breastfeeding was discussed based on patients' feeding plans (p=0.46).

Conclusions: Our data highlight the need to address provider and system-level barriers impacting subpar prenatal visit breastfeeding education. Further research is indicated to understand the impact of conversation content, style, and frequency on actual breastfeeding outcomes.

7. COST EFFECTIVENESS OF AN EXCLUSIVELY HUMAN DIET (EHD) TO PREVENT NECROTIZING ENTEROCOLITIS (NEC) IN INFANTS WITH BIRTHWEIGHT \leq 1250 GRAMS

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Background: NEC remains one of the most devastating diseases of prematurity. Eliminating sources of cow-milk proteins by feeding an EHD has been shown in a single RCT to decrease total and surgical NEC. However, many NICU's consider this therapy to be cost-prohibitive. While the cost is incurred by the hospital during hospitalization, the savings are distributed throughout the healthcare system.

Objective(s): To evaluate the cost-effectiveness of an EHD composed of mother's milk or donor milk fortified with a donor human milk-based human milk fortifier (HMF) versus a conventional diet (CD) of mother's milk or donor milk fortified with bovine milk-based HMF.

Materials/Methods: We compared the incidence of medical and surgical NEC in a prospective cohort quality improvement project comparing eras: CD (2004–2009) and EHD (2010–2012). Marginal cost of NEC was determined via a previously published net expected costs calculator given in 2011 \$USD. We compared hospital costs incurred to provide an EHD net savings in therapy attributable to NEC reduction.

Results: We observed reductions in total NEC (17.5% to 9.6%, $p < 0.0017$) and surgical NEC (7.3% to 2.3%, $p < 0.003$), subsequent to feeding an EHD vs. CD to 260 infants born \leq 1250 grams. The mean marginal cost of providing EHD to infants was \$11,685/patient. The net saving in medical costs attributable to reduce NEC rates was \$12,048 per patient (95% confidence interval; \$9327–\$14,768).

Conclusions: Providing EHD to high-risk infants appears to be cost neutral when considering the reduced cost of treating NEC. Baseline NEC rates, reimbursement rates and the ability to adhere to EHD feeding regimen should be factored in evaluating the economic value of EHD at a specific facility.

8. THE RELATIONSHIP BETWEEN WATER SUPPLEMENTATION AND BREASTFEEDING

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Background: Water supplementation of infants in hospital has a detrimental effect on breastfeeding rates. However, little is known about its later introduction or its subsequent impact on breastfeeding.

Objective(s): To assess the relationship between breastfeeding and giving water to infants during the first 17 weeks of life.

Materials/Methods: This retrospective cohort study included all women birthing in Queensland, Australia from 1st February to 31st May 2010. Women ($n=20,056$) were mailed a survey approximately 4 months postpartum. Surveys were completed in hard copy, online, or by telephone with interpreters if necessary.

Results: Complete data were available for 6470 women (response rate 32.2%). Water had been given to 13% of infants at 4 weeks and 35% (58% of formula fed and 24% of breastfed) at 17 weeks. Infants given water at 4 weeks had higher odds of receiving solids at 17 weeks (OR 2.01, 95% CI 1.60-2.51). Breastfed infants given water at 4 weeks had higher odds of being fully formula-fed (OR 2.40, 95% CI 1.97-2.92) at 17 weeks. Full (OR 4.09, 95% CI 3.48-4.82) or partial formula-feeding (OR 2.07, 95% CI 1.82-2.36) at 4 weeks predicted water supplementation at 17 weeks. Sociodemographic characteristics were also associated with water introduction by 17 weeks.

Conclusions: Many infants unnecessarily receive water in the early weeks postpartum. Understanding the relationship between water introduction and the addition of other foods and fluids enables the identification of modifiable barriers so that premature introduction of other foods and fluids to a breastfed infant's diet can be delayed.

9. DOES CANDIDA AND/OR STAPHYLOCOCCUS PLAY A ROLE IN NIPPLE AND BREAST PAIN IN LACTATION? RESULTS FROM THE CASTLE STUDY

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Background: Breastfeeding women experiencing burning nipple pain associated with radiating breast pain may be diagnosed as having nipple/breast Candida infection or thrush. However, the aetiology has been contentious as *Staphylococcus aureus* is often present in nipple and milk samples of women with nipple and/or breast pain.

Objective(s): To investigate Candida species and *Staphylococcus aureus* and the development of 'nipple and breast thrush/yeast' among breastfeeding women.

Materials/Methods: 360 nulliparous women recruited at >36 weeks' gestation; followed up in hospital, at home weekly until 4 weeks postpartum and by telephone at 8 weeks. Researcher-defined diagnosis of nipple/breast thrush: burning nipple pain and breast pain not associated with mastitis/engorgement.

Results: Women with researcher-defined nipple/breast thrush were more likely to have Candida spp. in nipple/breast milk/baby oral samples (54%) compared to other women (34%, $p=0.015$). *S. aureus* was common in nipple/breast milk/baby samples of women with/without these symptoms (82% vs 79%) ($p=0.597$). Time-to-event analysis examined predictors of nipple/breast thrush. Relative Risk of Candida spp. in nipple/breast milk/baby was 1.87 (95% CI: 1.10, 3.16, $p=0.018$). *S. aureus* colonisation was not a predictor of these symptoms (RR 1.53, 95% CI: 0.88, 2.64, $p=0.13$). Nipple damage was also a predictor of these symptoms, RR 2.30 (95% CI 1.19 to 4.43, $p=0.012$). In the multivariate model, with all three predictors, RRs were very similar to univariate RRs.

Conclusions: This large cohort study provides strong evidence that Candida spp. play a role in nipple and breast pain in lactating women.

10. BUYING HUMAN MILK VIA THE INTERNET: JUST A CLICK AWAY

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Background: For past centuries, infants have been fed the milk of mothers who are not their own by latching to another woman's breast. Today, the majority of women use electric pumps to extract milk, thus, an infant now may be fed another woman's milk via a bottle or cup. The internet is an emerging avenue to acquire

pumped human milk from a woman who is not the infant's own mother.

Objective(s): The purpose of our study was to participate in and describe the process of buying milk via the internet. Our goal is to help those involved with the clinical care, research, and public health policy of mothers and infants better understand that families may be buying milk in this way.

Materials/Methods: We anonymously bought 102 human milk samples via the internet. We characterized the outside box, packing materials, milk container, temperature and condition of the milk, and cost.

Results: We bought 2,131 ounces of milk at a total cost of \$8,306. Eighty-nine percent of the milk arrived above the recommended frozen temperature of -20°C ; 45% of was even above the recommended refrigerator temperature (4°C). The mean surface temperature of the milk samples in each shipment was correlated with the cost of shipping, time in transit, and condition of the milk containers.

Conclusions: The prevalence and potential risks of this practice currently are unknown. Research related to milk quality and infant outcomes related to milk buying via the internet is urgently needed.

Poster Abstracts

1. INCREASING OPPORTUNITIES FOR SKIN TO SKIN (S2S)

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Background: It is well known that S2S regulates an infant's blood sugar and temperature. S2S also stimulates feeding behaviors and when initiated early allows for early attempts at breastfeeding. On the pathway to becoming a Baby Friendly Hospital, members of the staff at Winchester Hospital sought to improve opportunities for babies to be placed S2S.

Objective(s): 1. To initiate S2S in the operating room after a C-section. 2. To increase S2S opportunities in the Special Care Nursery (SCN) and the Mother Baby Unit (MBU).

Materials/Methods: A Plan Do Study Act (PDSA) approach for testing a change was utilized. First, a questionnaire regarding S2S was distributed to each area of Maternal Child Health (Special Care Nursery 10 responses {38%}, Labor and Delivery 20 responses {50%} and Mother Baby Unit 11 responses {28%}.

Next, with a small group of willing nurses, physicians, and patients, S2S in the operating room just after C-section was initiated. A second initiative to promote S2S was kicked off on Mother's Day. Nurses in all areas were charged with reporting a "S2S Moment" prior to receiving a S2S Pin to place on their badge.

Results: Mothers are now routinely offered to have their infants placed S2S in the operating room while their surgery is completed. Infants leaving the operating room are almost always S2S on their mother's chest for transport. There has been an increase in the number of infants that have had procedures completed while S2S on the MBU.

Conclusions: A small initiative or test of change may result in a change in culture that will improve the outcomes for all of our mother baby dyads and families.

2. THE IMPLICATIONS OF MATERNAL MENTAL HEALTH IN THE DECISION OF BREASTFEEDING: A QUALITATIVE SYSTEMATIC REVIEW

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Background: The negative health consequences of postpartum mood disorders are well documented, as are the benefits of breastfeeding. Despite the detailed research related to these maternal and infant health outcomes, the relationship between maternal mood disorders and breastfeeding remain equivocal.

Objective(s): Qualitative systematic review was conducted to determine the mental health factors that need to be considered when recommending breastfeeding to new mothers.

Materials/Methods: Electronic searches in PubMed from 2000–2013, the Cumulative Index to Nursing and Allied Health Literature, and International Breastfeeding Journal. A hand search of selected specialist journals and reference lists of articles obtained was then conducted. A total of 15 articles were reviewed.

Results: The following mental health factors need to be considered when recommending breastfeeding: a. Pre-partum

mental health diagnosis of the mother and progress on pre-partum psychotropic medications. b. Risk/benefit analysis of starting psychotropic medications intra-partum or post-partum when breastfeeding is contemplated c. Relative safety and efficacy of the psychotropic medication intra-partum and post-partum.

Conclusions: Traditionally, psychiatric medications are withheld during pregnancy because of fear of teratogenic effects. Withholding these medications can further complicate the psychiatric disorder of those with previously diagnosed psychiatric disorders and may unravel psychiatric illnesses in those otherwise undiagnosed. The literature supports the need for a multidisciplinary team to assist these mother in arriving at the decision to breastfeed. Factors to be taken into consideration include: choice of pre pregnancy medication, effect of these medications pre-partum and risk/benefit analysis of continuing pre-partum medications.

3. IS MY BABY HUNGRY? FEEDING CUES IN A NORTH CAROLINA WIC POPULATION

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Background: Understanding infant feeding cues is important for on-demand feeding.

Objective(s): To measure understanding of feeding cues among WIC participants in central North Carolina.

Materials/Methods: We conducted a longitudinal cohort study of WIC participants in Alamance County, North Carolina. Participants completed questionnaires at WIC visits during pregnancy and at 1, 3 and 6 months postpartum. For this study, we analyzed 5 statements about infant feeding cues, which participants rated on a 4-point Likert Scale. We used chi square tests to determine whether responses at 1 month postpartum varied by maternal race and ethnicity.

Results: At the one-month visit, 106 women completed the study questionnaire, of whom 51 were non-Hispanic white (NHW), 26 were non-Hispanic black (NHB) and 19 were Hispanic (H). Most participants (93%) agreed that "You know a baby is hungry when he sucks on his hands," "You know your baby is full when he turns his head away" (85%), and "Your baby knows when he is full" (85%). However, Hispanic women were more likely to agree that "If your baby is crying, he must be hungry" (74%) compared with NHB (50%) and NHW women (41%), $p=0.045$, and that "If you give a baby a bottle, you should make sure he finishes it" (37%) compared with NH women (16%), $p=0.04$.

Conclusions: We found that Hispanic ethnicity was associated with bottle-emptying and with perceiving crying as indicative of hunger. Addressing these perceptions may improve understanding of infant cues among Hispanic WIC participants.

4. NORTH PHILADELPHIA BREASTFEEDING PROGRAM

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Background: Persistent infant and maternal health disparities exist in North Philadelphia. A 1-year W.K. Kellogg planning grant provided a unique opportunity for stakeholders to develop a culturally relevant, evidence-based program to address these

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disparities for African American and Latina women. A 3-year program grant was awarded in July 2012.

Objective(s):

- Improve health outcomes in North Philadelphia by increasing breastfeeding rates.
- Increase community capacity to support birthing and breastfeeding women.
- Help shift community perceptions on breastfeeding.
- Support Temple University Hospital's efforts to improve their breastfeeding practices.

Materials/Methods: Trained doulas and Certified Lactation Counselors use a home-visiting model to support families during pregnancy labor, childbirth, and for 6 months postpartum, including hand-on labor support. An annual free community doula training is conducted. Newly trained doulas are matched with pregnant women from North Philadelphia providing at least one prenatal visit, labor and birth support and one postpartum visit. IBCLC consultations are offered to women who need expert support. A collaborative doula project and Breastfeeding Support Group has been implemented at Temple University Hospital. Program staff conduct breastfeeding workshops at pre-natal clinics, community organizations, schools and hospitals.

Results: Staff Doulas supported 38 women; 32 gave birth; 70% enjoyed skin-to-skin; 87% initiated breastfeeding. Three women received IBCLC home visit consultations. 16 multi-cultural women trained as Community Doulas. Community doulas supported 16 pregnant women; 10 gave birth with 100% breastfeeding initiation rate.

Conclusions: A multi-faceted, culturally sensitive approach is imperative to address the many barriers women in North Philadelphia face to having healthy birth and breastfeeding outcomes.

5. WORKING TOGETHER FOR A BREASTFEEDING FRIENDLY PHILADELPHIA

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Background: The Breastfeeding Friendly Philadelphia campaign was established in 2010 to address Philadelphia's status of having the lowest breastfeeding rates in the nation.

Objective(s): To improve breastfeeding support for women by addressing key barriers that lead to poor breastfeeding rates: trouble initiating breastfeeding; inability to sustain breastfeeding.

Materials/Methods: Offer guidance to hospitals with formation of Multi-Disciplinary Breastfeeding Task Forces and ongoing technical support towards becoming Baby Friendly. Organized 1st Philadelphia Hospital Breastfeeding Promotion Summit in November 2011, which hosted representatives from seven birthing hospitals, public health administrators and national breastfeeding experts. Promotes the Business Case for Breastfeeding by conducting outreach and technical assistance to employers.

Results: A key outcome was the formation of the Philadelphia Multi-Hospital Breastfeeding Task Force. Hospitals rotate hosting quarterly meetings of this Task Force, which enhances the supportive nature of this work. This group has been effective in creating a city-wide learning collaborative to change hospital breastfeeding practices. Five of the 7 Philadelphia birthing hospitals entered the pathway to Baby Friendly Hospital designation; 3 banned formula bags. They also share strategies for increasing skin-to-skin contact. Thirteen employers were designated as Breastfeeding Friendly Employers and serve as a resource and model to other employers.

Conclusions: This collaborative approach successfully built a foundation to normalize breastfeeding, so that its many benefits can be experienced across a large urban environment. This work has the potential to impact the health of 19,000 babies and their mothers each year!

6. TAPPING POWERFUL RESOURCES: COMMUNITY-BASED DOULA PROGRAMS

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Background: Community-based doula (CBD) programs serve communities that are plagued by racial and ethnic health disparities in infant mortality, low-birth weight, prematurity, teen pregnancy, and other indicators of health status. Many are less likely to breastfeed their babies and experience the health benefits to mother, baby, community and society. CBDs develop ongoing relationships with expecting mothers and families, linking mothers to prenatal care, increasing access to and utilizing health care services with weekly home visits, both prenatal and postpartum, including attendance during the labor and birth. To evaluate CBD programs, HealthConnect One (HC One) introduced Doula Data, a web-based data and evaluation system, in 2010 and is currently being used by CBD programs around the US.

Objective(s): Attendees will be able to: 1. Describe two beneficial outcomes of CBD programs; 2. Discuss implementation of a CBD program.

Materials/Methods: HC One's CBD model is an evidence-based approach to supporting new families, particularly in underserved communities. The time immediately surrounding labor and delivery is a critical period in the development of a young family. Women in difficult circumstances (adolescents, women with language barriers, women in low-income communities) are particularly vulnerable during this period, but may also be open during this time to interventions which support their new roles and competencies. Programs which use doulas for support in childbirth have demonstrated fewer labor and delivery complications, fewer medical interventions, and increased well-being for both mothers and babies. Mothers who receive emotional and educational support during pregnancy, labor, delivery and the early postpartum period are more knowledgeable and confident, and are better able to bond with and care for their children. All organizations replicating this model agree to five essential components which help to ensure quality and great exceptional outcomes.

Five Essential Components

HC One's CBD programs:

1. Employ women who are trusted members of the target community
2. Extend and intensify the role of doula with families from early pregnancy through the first months postpartum
3. Collaborate with community stakeholders/institutions and use a diverse team approach
4. Facilitate experiential learning using popular education techniques and the HC One training curriculum
5. Value the CBDs work with salary, supervision and support

What do HC One CBDs do?

Each CBD spends about 100 hours with each family they serve, providing:

- _ **Pregnancy and childbirth education**
- _ **Early linkage to health care and other services**, including prenatal, post-partum and infant care services, with case management
- _ **Encouraging parental attachment**: talking, reading and playing with the baby, before and after birth
- _ **Labor coaching**: breathing and relaxation techniques; pain management; support for decision-making; problem-solving; explaining hospital procedures
- _ **Breastfeeding promotion and counseling**, before and after the birth
- _ **Parenting education**: realistic expectations for infant development and care

Results: CBD program support leads to healthy mothers and infants. This includes improved breastfeeding, fewer preterm births and C-sections, shortened labor, and lowered risk of infant acute illnesses.

The following outcomes provide an example of a program with 66 participants showing that the breastfeeding outcomes exceed many Healthy People 2020 goals. Results - Benefits: Low-birth weight 4.5% (3/66); 7.8% C-section, 21.2% (14/66) (1st birth); Epidural 30.3% (20/66); Breastfed ever 95.4% (62/66); Breastfed at 6 months 24.1% (15/62); Breastfed at 3 months (exclusive) 76.2% (32/42); Breastfed at 6 months (exclusive) 46.7% (7/15).

Conclusions: CBD programs assist communities in moving toward equity with a vehicle to increase breastfeeding initiation, duration and exclusivity; increase appropriate prenatal, post-partum and pediatric care; as well as decrease the number of low birth weight newborns.

7. EFFECTS OF SWADDLING ON EARLY MOTHER-INFANT INTERACTION

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Background: Swaddling is still being recommended by some professionals to calm babies and keep them warm. However, this is not based on evidences and even more, it could be detrimental to their health and also for the early mother-infant relationship and the initiation of breastfeeding.

Objectives: The objective of this research was to compare the influence of birth practices (*apparel*: clothes, swaddling or skin-to-skin, and *separation*: separation, skin-to-skin, separation and re-union 2 hours later) on mother-infant interaction within the first days after birth.

Materials/Methods: This study is part of a one year longitudinal randomised controlled trial focusing on the effects of perinatal practices (apparel and separation) on many physiological, psychosocial variables and on breastfeeding, with 176 completely normal mother-infant dyads. Intent of this part of the research was to assess mother-infant interaction from videos filmed on postpartum day 4. A protocol for the assessment/coding of the affective quality of maternal behaviors indicative of early mother-infant interaction was developed and interculturally validated. Results were then compared with birth randomization, as to explain the impact of the birth practices.

Results: Findings indicate that separation and swaddling at birth interfere with mother-infant interaction during a breastfeeding episode at postpartum day 4. The mothers significantly demonstrate more roughness in their behaviors with their infants when babies are swaddled and even more if they are separated. Results also show evidences of a sensitive period for separation at birth.

Conclusions: Encourage immediate and uninterrupted skin-to-skin contact at birth, and rooming-in without interruption during the postpartum period as recommended by WHO/UNICEF.

Submitted for an oral presentation.

8. ENGAGING THE COMMUNITY FOR A PLANNED BREASTFEEDING CAMPAIGN

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Background: Although breastfeeding is recommended exclusively for the first six months of life, with continuation for one year, the Mid-South has low breastfeeding rates, with marked racial disparities.

Objective(s): To establish baseline data to determine the efficacy of a breastfeeding media campaign, using input from focus groups within the target population of low income African American women.

Materials/Methods: A convenience sample completed surveys to assess breastfeeding attitudes and practices, and also to ascertain whether they had recently seen, heard, or read something about breastfeeding in a pre-test, post-test intervention study.

Results: Baseline surveys were completed in Fall 2012. Participants (n=133) ranged in ages from 15–50+ years; 89.4% had seen, heard, or read something about breastfeeding within the last year. Among those with children, 64% had breastfed at least one child, while 60% of participants said breastfeeding or breast milk feeding was the best way to feed a baby. 83% strongly agreed that breastfeeding is important for a child's long-term health, but only 55% said they would breastfeed a new baby.

Conclusions: Most participants in the sample had recently seen, heard, or read something about breastfeeding. While the importance of breastfeeding has penetrated the target population, many potential mothers still do not plan to breastfeed their own new baby. The survey will be repeated 6 months following the launch of the media campaign, to evaluate changes in breastfeeding attitudes, beliefs, and practices, and whether the target population recalls seeing the images and messages from the media campaign.

9. THE NEO-BFHI: DEVELOPMENT OF AN ASSESSMENT TOOL TO MEASURE COMPLIANCE WITH BABY-FRIENDLY PRACTICES IN NEONATAL UNITS

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Background: Since 2009, a Nordic and Quebec Working Group has been working on an adaptation of the Baby-Friendly Hospital Initiative for neonatal units (Neo-BFHI), including the development of an assessment tool to evaluate units/institutions seeking certification.

Objective(s): To develop an assessment tool to measure compliance with the adaptation of the Neo-BFHI, and to evaluate the tool's feasibility, acceptability and comprehensibility.

Materials/Methods: The tool was pilot-tested in three different neonatal units in Quebec, using the same process for assessing BFHI compliance in regular maternity units. This involves interviews with at least 10 managers/staff and 25 mothers, and observations of units.

Results: Observations and interviews with staff were successfully completed within 2–4 visits to the units. In total, 32 managers/staff responded to the questionnaire (mean duration of 35 minutes). The majority of participants strongly/somewhat agreed that: they felt comfortable answering (85%), the length of interview was acceptable (84%); the questions were clear and understandable (88%), presented in a logical order (97%) and easy to answer (91%); and that the questionnaire should be administered face-to-face (82%). Interviews with mothers are on-going.

Conclusions: The results indicate that it's feasible and acceptable to use NICU managers/staff as a source of information to certify neonatal units as "Baby-Friendly." Upon completion of pilot-tests in Quebec and elsewhere, the adapted Neo-BFHI standards and criteria and the finalized assessment tool will be made available as a certification program and disseminated globally.

10. BFHI IN PUERTO RICO: BARRIERS IDENTIFIED BY PEER COUNSELORS OF THE WIC PROGRAM

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Background: The BFHI increases the rates of initiation and duration of breastfeeding. Puerto Rico does not have a single baby-friendly hospital. 80% of mothers in Puerto Rico are participants of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

Objective(s): Qualitatively explore barriers identified by a group of Peer Counselors of the WIC Program for the implementation of the BFHI in Puerto Rico.

Materials/Methods: A qualitative design was used as part of a training workshop to collect data. Of the 84 participants 58 answered the sociodemographic questionnaire. 84 participants were divided into 10 subgroups. The method of unstructured interviews with "casual focus groups" was used. Each group discussed one of the ten steps of the BFHI.

Results: Over sixty-five percent (65.5%) of participants were over 30 years of age, 79.3% lived with a partner, 62.1% had more than two years of college education. The findings show that the barriers are related (a) to lack of support, (b) non-skilled staff in breastfeeding, (c) intimidation regarding the health of the baby (d) lack of hospital policies, (e) patterns of intimidation to pregnant women and families, (f) limited access to educational materials and (g) laws that support breastfeeding.

Conclusions: To solve many of the problems associated with the implementation of the BFHI, it is needed to reinforce strategies among peer counselors that enable them to improve the process of empowering women. We recommend that they be allowed to visit mothers during the hospital stay.

11. THE IMPACT OF NICU ADMISSION ON BREASTFEEDING IN THE FIRST HOUR OF LIFE

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Background: Breastfeeding (BF) in the first hour of life has been demonstrated to increase the duration of optimal BF through infancy. Although BF is important for vulnerable infants, such as those admitted to the Neonatal Intensive Care Unit (NICU), it is often difficult to achieve in the first hour as this is a critical time period for evaluation. This, however, should be achievable in asymptomatic term infants admitted to the NICU.

Objective(s): To explore factors associated with successful BF in the first hour of term asymptomatic infants admitted to the NICU.

Materials/Methods: We prospectively evaluated breastfeeding initiation for 50 asymptomatic term infants admitted to the NICU to rule out sepsis (cases) and 50 healthy infants admitted to nursery (controls), matched for gestational age (GA), birth weight (BW) and mode of delivery. In-hospital breastfeeding practices were explored by interviewing labor and delivery staff. Data was analyzed by chi-square, t-test and regression analysis.

Results: Mean GA and BW were 39.0±1.9 weeks and 3331±375 grams, respectively. The percentage of infants who breastfed in the first hour was lower in cases than controls (29% vs. 62%, p=0.001, OR=0.245, CI: 0.096-0.616). The rate differed by admission type and mode of delivery: NICU & C-section: 10% and nursery & vaginal delivery: 67%. NICU admission (p<0.0001) and C/S (p=0.012) increased time to first BF. Maternal request and fatigue were the most important factors delaying BF.

Conclusions: BF in the first hour of life is achievable in asymptomatic term infants admitted to NICU, however the rate remains low. We speculate that simple initiatives to ameliorate maternal concerns and education by staff could correct this problem.

12. COLLABORATIVE IMPLEMENTATION OF THE TEN STEPS

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Background: Tennessee Initiative for Perinatal Quality Care (TIPQC) is a statewide quality improvement collaborative project to address Tennessee's low breastfeeding rates.

Objective(s): To improve the health of Tennessee infants and mothers by increasing breastfeeding rates through systematic implementation of processes with high reliability that promote and support breastfeeding in the delivery setting.

Materials/Methods: A toolkit was created using the evidence-based practices of the Ten Steps to Successful Breastfeeding and the USBC Toolkit, "Implementing the Joint Commission Perinatal

Care Core Measure on Exclusive Breast Milk Feeding.” Eleven hospitals across the state of Tennessee are participating in the project since July 2012. Centers collected baseline exclusive breastfeeding rates at hospital discharge, and are now implementing one or more of the Ten Steps. Reliability of implementation is monitored by process measure audits. Web-based data-entry through REDCap provides on-demand run-charts to each center. Monthly webinars facilitate sharing of best practices between geographically distant centers, as well as sharing of the state-wide aggregate data.

Results: Baseline aggregate data showed exclusive breastfeeding at discharge was 35%. Initial process measure reporting demonstrates variable success with data-driven implementation of the Ten Steps. Data from over 20,583 maternal-infant dyads (approximately 25% of Tennessee births) highlight improvement opportunities on all of the Ten Steps.

Conclusions: In June 2013, regional learning sessions focused on the use of PDSA (Plan-Do-Study-Act) methodology using process measures to speed implementation of the Ten Steps. This project’s preliminary data demonstrates the initial implementation of evidence based practices to increase breastfeeding rates in a QI paradigm.

13. MULTIDISCIPLINARY TEAM APPROACH TO IMPROVE BREASTFEEDING

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Background: We formed a multidisciplinary breastfeeding team which included members from Obstetrics, Pediatrics, NICU, Nursing and Social Work. We initiated numerous steps to improve breastfeeding.

Objective(s): Retrospective cohort study to demonstrate dramatic improvements in breastfeeding initiation and exclusive breastfeeding from 2007 when a multidisciplinary team was assembled and a multifaceted approach was utilized to improve breastfeeding.

Materials/Methods: Retrospective review comparing early latch (within 1 hour of delivery) and exclusive breastfeeding from January 2007 to December 2012 and exclusive breastfeeding rates monthly utilizing The Joint Commission (TJC) standards from January 2012–March 2013.

Results: We compared the early latch rates on approximately 2000 deliveries annually from 2007–2012. The rates increased from 39% in 2007 to 82% in 2012. The exclusive breastfeeding rates utilizing The Joint Commission definition (exclusive breastfeeding in the first 48 hours after delivery) improved from 10% to 40%.

Conclusions: Hospitals which are interested in rapid improvement of their breastfeeding rates and consider baby friendly status need a multifaceted and multidisciplinary approach to breastfeeding.

14. BARRIERS TO BABY FRIENDLY: ONE HOSPITAL’S JOURNEY

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Background: Beth Israel Medical Center in New York City is in its second attempt toward designation as a Baby Friendly hospital.

Here, a board-certified obstetrician and lactation program manager discuss the actions and events on our “long and winding road.”

Objective(s): We identified several barriers to breastfeeding conducive hospital culture. Targets for action included formula give-aways, staff knowledge deficits that confounded rooming-in and exclusivity, pediatric leanings toward supplementation with little or no medical indication, and inadequate administrative support among others.

Materials/Methods: Since originally obtaining a BFHI certificate of intent a decade ago, efforts have been focused primarily on staff training and policy revision under the auspices of a multidisciplinary task force. Two grants were obtained which provided funding and technical assistance to progress through the Baby Friendly 4-D Pathway. Provider and nursing education were accomplished through a variety of means including in-house lectures, clinical experience, and online courses.

Results: Successes include banning formula gift bags, adoption of a comprehensive breastfeeding hospital policy, and dispensing of formula through a pharmacy regulation system and only under physician orders. Challenges still to be addressed include purchasing formula and feeding supplies; pediatric “buy-in” related to the importance of exclusivity and eliminating unnecessary supplementation; further patient education aimed at expectations around rooming-in; and translating attitudinal changes to departments beyond maternal-child health.

Conclusions: While gains have been made, much work remains to be done to accomplish the true culture change required to attain Baby Friendly status and truly promote, support and protect breastfeeding.

15. POST DELIVERY WEIGHT LOSS FOR EXCLUSIVELY OR NEARLY EXCLUSIVELY BREASTFED INFANTS IN A SUBURBAN, NON-TEACHING, LOWER MINORITY, BABY-FRIENDLY HOSPITAL

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Background: Previously, the American Academy of Pediatrics had advised an increased level of concern for weight loss in the newborn period of greater than 7% as it relates to supplementation in breast fed infants. A recent published report (Preer et al, 2012) from an Urban, Teaching, Baby-Friendly Hospital with a high Medicaid and Minority population reported greater weight loss in breastfed newborn infants delivered by cesarean birth. Our Baby-Friendly Hospital is suburban and serves a population of approximately 47% Medicaid in Clearwater, FL. African American minority births are only 9%. The assistance of a Lactation consultation program with highly motivated Mother-Baby Nurses help Morton Plant Hospital achieve remarkable success with exclusively or nearly exclusively breastfeeding. Only about 20–25% of our mothers choosing to breast feed ever supplement (usually limited to 2–4 feeds) while in the hospital. Of note, we rarely use weight loss as an indication to supplement unless it exceeds >10–12%. This setting and approach, therefore, affords us a significant opportunity to collect data on weight loss in the same group of breastfeeding infants.

Objective(s): We sought to determine the difference in average weight loss between infants delivered by C-section and vaginal births in our institution, which is demographically different than the type of birth institution in the previously published report (Preer et al, 2012).

Materials/Methods: We performed a retrospective chart review of 651 Exclusively or Nearly Exclusively Breastfed Infants (as defined above) who delivered during the calendar year 2010. Average weight loss was calculated, and multivariate regression analysis was performed.

Results: The average weight loss for the 651 babies was 6.03% (d2) and 7.21% (d3). Babies delivered by C-section lost significantly more weight on Days 2 and 3. The average weight loss for babies delivered vaginally was 5.70% (d2), and 6.41% (d3). The average weight loss for C-section babies was 6.60% (d2), and 7.50% (d3). Using the AAP threshold of 7% to define *significant* weight loss after birth in breastfed infants, 21% of babies delivered vaginally lost more than 7% of birth weight. Significantly more C-section babies (52%) exceeded this threshold at some point before discharge.

Conclusions: Since our hospital serves about 47% Medicaid with typically complete prenatal care and fewer minority families, our findings probably indicate that social demographics did not play a role in the previous published findings of an Urban, Baby-friendly, teaching hospital (which served a higher proportion of minority patients who might have also had fragmented prenatal care). Of note, supplementation at 7% weight loss which has been an interpretation of some clinicians would result in greater than one-half of the babies delivered by cesarean being exposed to formula supplementation.

16. DEVELOPMENT OF A TRIMESTER-BASED PRENATAL BREASTFEEDING EDUCATION CURRICULUM IN NEW YORK CITY

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Background: Structured prenatal education has been found to improve initiation and continuity of breastfeeding, but few formal curricula are publically available.

Objective(s): The goals were to provide a robust educational tool for progressive use during prenatal care that was consistent with known evidence and protocols, including those of the Baby-Friendly Hospital Initiative.

Materials/Methods: Staff from the Bureau of Maternal, Infant and Reproductive Health conducted a literature search about breastfeeding prenatal education and searched for existing curricula. Staff also networked with breastfeeding educators and reviewed established protocols and guidelines. As no published curricula were identified, a trimester-based curriculum was developed using existing and some novel materials. The structure of the curriculum was designed to facilitate teaching by prenatal staff, regardless of formal training on breastfeeding.

Results: The trimester-based curriculum is a spiral-bound tool that contains short lessons for use at each prenatal visit, or at group teaching sessions. Each lesson has key messages with visual content for the patient; the teacher has lesson-specific teaching points and additional information within the tool. Related handouts are available for patients to take home after in-office discussion. In a short evaluation period, staff who implemented the curriculum provided largely positive feedback on content and usefulness.

Conclusions: This trimester-based prenatal breastfeeding education curriculum will be presented and is available online at <http://www.nyc.gov/html/doh/downloads/pdf/ms/motherguide.pdf>

17. USING QI TO INCREASE BREASTFEEDING RATES

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Background: The Baby-Friendly hospital initiative has been shown to increase overall and exclusive breastfeeding initiation and duration but uptake of this designation in the US has been slow until recently. Improvement science and quality improvement methodology offers unique opportunities to use rapid cycle changes necessary for adoption of more efficient and sustainable practices that align with the Ten Steps to Successful Breastfeeding.

Objective(s): Objective 1: Identify emerging lessons regarding exclusive breastfeeding support in hospitals based on data from the Best Fed Beginnings (BFB) initiative. Objective 2: Describe how to use quality improvement methodology to help birthing centers support exclusive breastfeeding. Objective 3: Define how physicians can participate in QI, improve breastfeeding care, and model system-wide evidence based practices.

Materials/Methods: The BFB initiative is helping hospitals improve exclusive breastfeeding rates by transforming maternity practices using quality improvement (QI) strategies. BFB, a collaborative project between the CDC and NICHQ (National Initiative for Children's Healthcare Quality) is a nationwide QI initiative engaging 89 hospitals to increase the number of Baby-Friendly hospitals in the United States. Physicians are essential in the implementation of these new practice changes.

Results: Participation in the project has been high, with 88% of teams represented on all Action Period Call, nearly 750 posts/replies on the Improvement Lab, and multiple examples of Plan-Do-Study-Act (PDSA) cycles involving physicians that led to improved practices, reduced unwanted variation in practice patterns, and supported optimal breastfeeding care. At mid-point exclusive breastfeeding has increased from 39% to 55%, and formula supplementation decreased from 58% to 44%.

Conclusions: A national collaborative of 89 hospitals using QI and involving physicians has improved maternity care practices related to breastfeeding. Physicians have played key roles in partnering with hospital senior leadership, becoming Baby-Friendly champions, providing physician education, as well as facilitating the work of the BFB team lead.

18. THE INFLUENCE OF PRECONCEPTION INSURANCE STATUS ON BREASTFEEDING INTENTION IN PREGNANT WOMEN

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Background: Disparity in breastfeeding is a major problem in the United States. Despite the increasing rates of breastfeeding initiation, the rates among underserved women and racial minorities remain relatively low. Although studies have examined barriers to breastfeeding, there is limited literature identifying factors contributing to the disparity in breastfeeding. This study

examines the influence of marital status and preconception insurance status on breastfeeding intention among women in their third trimester of pregnancy.

Objective(s): To examine the association between preconception insurance status and breastfeeding intention among pregnant women in their third trimester of pregnancy.

Materials/Methods: Baseline data from a prospective cohort study at a large inner-city University hospital was analyzed. Data was collected from 174 pregnant women in their third trimester. Breastfeeding intention was measured using the Infant Feeding Intentions (IFI) Scale. A composite score was created using the IFI scale and that variable was further dichotomized as low and high intention to breastfeed. Multiple logistic regression was conducted and OR with 95% confidence interval was calculated.

Results: The majority of the women were African American (51%), married (57%), employed (54%), reported <\$25k income (55%), and were on Medicaid (43%). Only 28% intended to breastfeed their baby. Adjusting for marital status and intention of pregnancy, women who had Medicaid/insurance prior to pregnancy were more likely to intend to breastfeed (OR=3.89, 95% CI=1.23-13.39) as compared to uninsured women.

Conclusions: Having Medicaid prior to pregnancy is positively associated with intention to breastfeed. Policy makers should be aware of the impact of pre-pregnancy access to care on breastfeeding intention.

19. BREASTFEEDING SUMMIT 2012: RECLAIMING AN AFRICAN AMERICAN TRADITION

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Background: In the US, breastfeeding rates among African American women continue to lag behind those of other races/ethnicities.

Objective(s): Reaching Our Sisters Everywhere, (R.O.S.E) conducted a two-day summit at the Morehouse National Center for Primary Care to find ways to improve access to breastfeeding in the African American (AA) community, reclaim the AA breastfeeding experience, and work to reform healthcare through breastfeeding.

Materials/Methods: ROSE is at the forefront of a movement to encourage African American mothers to embrace breastfeeding as a cultural and social norm. AA women initiate breastfeeding at about 58%; by 6 months that rate has dropped to about 28%.

Results: Former Surgeon General Dr. David Satcher stated the importance of every child having a healthy start in life, which includes breastfeeding. Dr. Satcher reminded us that after several attempts, we now have health care reform that provides incentives for preventive services and support for community programs that support breastfeeding. Dr. Michal Young discussed breastfeeding as the first food, the first immunization and stated that breast milk is the best thing, next to mother's love, that a mother can give to her baby. Dr. Flora Ukoli described her research in Tennessee on obesity and breastfeeding barriers. Dr. Jacqueline Grant described the impact of the Centering Pregnancy Program in a public health department resulted in an increase in breastfeeding initiation rate from 39% to 75%.

Dr. Joshua Johannson described the importance of Baby Friendly Hospital Initiative to the AA community.

Conclusions: Due to the summit, national connections have been made and projects have begun.

20. DC BREASTFEEDING PROMOTION MOTHER BABY SUMMIT: ELICITING COMMITMENT TO CHANGE

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Background: The DC Breastfeeding Promotion Mother Baby Summit was developed in response to a recommendation from the District of Columbia Perinatal Lactation Quality Care Collaborative (PLQCC). The Summit's goals were to encourage collaboration between hospitals to enhance breastfeeding support in DC and to obtain a commitment to change from participants.

Objective(s): (1) Determine whether conference participants would commit to a measurable change in their facility's breastfeeding practices or resources; (2) Determine whether changes identified by the participants were made within 3 months after the Summit.

Materials/Methods: The Summit was held October 26, 2012. A total of 26 attendees participated in the conference and included representatives from 7 of 8 birth facilities in DC, the American Academy of Pediatrics, the Department of Health, and the American Congress of Obstetrics and Gynecology. Presentations were tailored to areas of weakness identified in the CDC Maternity Practices in Nutrition and Care DC report. Participants were asked to identify areas of change they would achieve and specific resources they would access.

Results: 50% (13/26) of attendees completed a commitment to change form. Of these, 69% responded to a follow-up survey sent electronically with 78% (7/9) reporting implementing changes/accessing resources. Changes included: joining DC Breastfeeding Coalition, implementing Perinatal Care Core Measure, and pursuing BFHI designation. All respondents reported intentions to make additional changes.

Conclusions: The Summit encouraged commitment among birth facilities in DC to implement evidence-based maternity care practices and utilize resources to improve breastfeeding.

21. KNOWLEDGE, ATTITUDES AND PRACTICES OF BREASTFEEDING AMONG MOTHERS ATTENDING MCH CENTERS

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Background: Inadequate knowledge, or inappropriate attitudes of breastfeeding may lead to a decline in the practice of breastfeeding both in terms of prevalence and duration.

Objective(s): To evaluate the knowledge, attitudes and practices of breastfeeding among mothers of infants during the first 2 years of life attending Mother and Child Healthcare (MCH) centers.

Materials/Methods: The study included 500 mothers of children in the first 2 years of life recruited from an MCH in Giza, Egypt. Mothers were interviewed using a questionnaire about knowledge, attitudes and practices concerning breastfeeding. Scores were interpreted as poor, average or good when they were <50%, 50%–<75%, 75%–100% of the total score, respectively.

Results: Breastfeeding Knowledge was good in 70.2%, average in 29.8%, and poor in 0% of mothers. Attitudes were average in 60.2%, good in 38.8%, and poor in 1%. Practices were average in 59.4%, poor in 38.2%, and good in only 2.4%. Of the socio-demographic characteristics, education followed by age then residence showed the strongest relation with Knowledge ($t=-6.000, -4.698, 4.447$ respectively) and all were very highly significant ($p=0.000$). Education followed by residence then antenatal care had the strongest correlation with Attitudes ($p=0.000, 0.001, 0.003$ respectively). Residence followed by income then antenatal care had the strongest relation with Practices ($p=0.000, 0.018, 0.041$ respectively).

Conclusions: The highest mean values were recorded for knowledge followed by attitudes then practices. Highest knowledge, attitudes and practices scores were in age group (26–30), non working mothers, highly educated mothers, residents of urban areas, mothers who considered their income just satisfactory and mothers who had antenatal care.

22. TRUE PARTNERS: HOSPITAL-BASED BREASTFEEDING PROGRAM DEVELOPS FRUITFUL COMMUNITY RELATIONSHIPS

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Background: Barriers exist to collaborations between hospitals and community organizations, including lack of awareness, lack of resources, and lack of financial incentive.

Objective(s): St. John Mother Nurture Project is a comprehensive breastfeeding support program, spanning the inpatient and outpatient services at a Detroit teaching hospital. Our objective is to develop innovative initiatives in corroboration with our neighboring community organizations. The product is a true partnership between the hospital and the community organization that transcends a list of resources to be given at discharge.

Materials/Methods: N/A

Results: Examples of programs we have developed include 1) A breastfeeding champion program at a WIC office which engages male breastfeeding champions in the Baby Shower format, 2) A new busy breastfeeding support group at an inner city health clinic where, previously, breastfeeding rates were extremely low, 3) The development of a hospital-based lactation consultant training program for minority women with candidates recruited and supported by the community partner.

Conclusions: We identify 5 strategies for the fruitful engagement of community partners. 1) Look around you. Become aware of community organizations in your neighborhood. 2) Come to their table. Ask to attend or sponsor their events. 3) Invite them to yours. Host a meeting or open house for community agencies. 4) Share your resources: Offer observerhips (sanctioned by HR) for partners to observe your hospital lactation practice. Observerhips may contribute to training programs for their community workers. Share your spaces. Offer your work spaces for the use of community organizations. 5) Avoid duplication of services by

acquiring an understanding of what they offer as you develop your own program initiatives.

23. BARRIERS AND CONTRIBUTORS TO BREASTFEEDING AND EARLY INFANT FEEDING PRACTICES IN NEW HAMPSHIRE WIC MOTHERS

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Background: Despite the benefits associated with breastfeeding, rates in the United States continue to be below targets established by *Healthy People 2020*, especially for economically disadvantaged women.

Objective(s): The purpose of this study was to identify factors influencing a woman's decision to breastfeed and early infant feeding practices in New Hampshire WIC mothers.

Materials/Methods: Information was gathered from 6 focus groups with health professionals and existing literature that informed the development of a 14-page scripted survey to assess barriers and contributors to breastfeeding. The survey was administered to 296 WIC mothers in southern New Hampshire.

Results: Women who reported a planned pregnancy were more likely to breastfeed than those who reported an unplanned pregnancy (82% vs. 72%, $p=0.04$). A significant relationship was found between positive beliefs about breastfeeding as well as mother's age and breastfeeding duration ($p<0.001$). Having breastfed in public was also significantly related to breastfeeding duration ($p<0.001$). Reasons for discontinuing breastfeeding were perceived insufficient milk supply, work/school schedule and finding it inconvenient/overwhelming. An exploration into early infant feeding practices revealed that 38% of mothers introduced solid foods and 32% introduced other liquids besides breast milk or formula prior to 6 months.

Conclusions: This research advances the understanding of breastfeeding initiation and continuation among WIC mothers. Findings suggest education on early infant feeding practices and lactation support could play a strategic role in improving breastfeeding rates in southern New Hampshire.

24. MAKING IT WORK: CLOSING THE GAP IN BREASTFEEDING SUPPORT FOR LOW-INCOME WORKING MOMS

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Background: Many breastfeeding women returning to work after maternity leave find that the challenges are great. For women working in hourly positions in low-wage and non-office job settings (such as retail stores, restaurants, cleaning industry, education institutions, and manufacturing plants), the challenges can be even greater, and infant formula is often perceived as the solution. The Affordable Care Act enacted in 2010 requires employers of hourly workers to provide reasonable time and private space that is not a bathroom for nursing women to breastfeed or express their milk during the work period. The *Healthy People 2020* national objectives now include national targets to increase the number of worksites providing lactation support services, and the Surgeon General's *Call to Action to Support Breastfeeding* and *National Prevention Strategy* call on employers to comply with the federal legislation. Yet despite these significant national policy initiatives, the Society for Human Resource Management 2013 *Employee Benefit Report* found that only 34% of employers provide

a room for women to express milk, and only 8% provide counseling and education for employees. The numbers are even lower among smaller businesses and those in more challenging worksite settings. To address the Surgeon General's *Call to Action to Support Breastfeeding* and reduce racial and ethnic disparities among working women, a proactive approach is critical to engage community businesses and support networks for new moms. This session, "Making it Work: Closing the Gap in Breastfeeding Support for Low-Income Working Moms," provides strategies to address common obstacles in challenging worksite environments, with creative solutions for both new mothers and their employers. The session includes the roles of physicians and other health care professionals in advocating for the needs of working moms in the community, and new national level resources from the U.S. Department of Health and Human Services that can be used to engage employers in improving breastfeeding support for their workers.

Objective(s): 1. Name two major barriers to breastfeeding among women returning to work in hourly job positions. 2. Identify at least three practical solutions to help mothers continue breastfeeding after returning to work. 3. Name two strategies for physicians and other health care professionals to engage community employers to improve breastfeeding support.

Materials/Methods: This interactive presentation developed by the U.S. Department of Health and Human Services Office on Women's Health addresses current national legislation affecting working mothers, hundreds of solutions for businesses employing low-wage or hourly workers in all industry types, and ways to use new resources from HHS to engage employers in increasing support services that support nursing moms.

Results: National attention on breastfeeding support in the workplace has reached an all-time high, with national legislation requiring employers to support breastfeeding employees, and new resources designed for employers, employees, and providers.

Conclusions: The lessons learned from contacts with hundreds of businesses across the U.S. provide important perspectives for health care professionals to build partnerships within communities to improve support for working mothers. These include strategies for time and space to express milk a work, bottom-line benefits (such as lower absenteeism and turnover rates and lower health care costs), and ways to offer technical assistance to enable businesses to implement basic accommodations for breastfeeding employees.

25. THE NEW HAMPSHIRE TEN STEPS TO SUCCESSFUL BREASTFEEDING COLLABORATIVE: A STATEWIDE QUALITY IMPROVEMENT INITIATIVE

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Background: Despite moderate adoption of Baby Friendly Hospital practices in New Hampshire (NH), many hospitals are still not achieving all Ten Steps.

Objective(s): To increase the Baby Friendly Hospital (BFHI) Ten Steps in all 20 New Hampshire (NH) birthing hospitals, and to thereby increase rates of in-hospital any and exclusive breastfeeding.

Materials/Methods: Following a baseline 2010 needs assessment of perinatal breastfeeding support, we conducted two statewide, Institute for Healthcare Improvement-model collaborative workshops, with 17 hospitals attending. Six hospitals participated in an intensive collaborative including site visits, provision of educational materials, and targeted staff and provider education. In 2013, we used descriptive and multivariable statistics to analyze interval Ten Steps improvement and in-hospital breastfeeding trends.

Results: Staff education showed the greatest change, with progress from 1 to 6 hospitals meeting Step 2 (P=0.04). Step 6 (giving only breastmilk) improved from 4 to 6 hospitals, and limiting use of artificial nipples (Step 9) increased from 9 to 11 hospitals; neither was statistically significant. Skin-to-skin, showing mothers how to breastfeed, and rooming-in showed no change [Steps 4, 5, and 7]. The 6 hospitals in the intensive collaborative had the largest increase in the number of steps achieved (average 1.5 new steps), compared to already Baby-Friendly hospitals (0.5 new steps), and the remaining hospitals (loss of 0.7 steps). In-hospital breastfeeding rates (both any and exclusive) remained stable during the two-year period.

Conclusions: A local improvement collaborative facilitated increases in breastfeeding best practices. In a state with already high breastfeeding rates, there was no improvement in rates of in-hospital breastfeeding.

26. BREASTFEEDING THROUGH THE AGES: 18TH CENTURY FRANCE

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Background: The study of the history of wet nursing, the second oldest profession, is an intriguing and at times shocking endeavor. 18th century France serves as a unique time period. Foundling hospitals had become increasingly common to care for abandoned infants of the time. Wet nurses cared for these abandoned infants, either in the hospital itself or in the home of the wet nurse.

Objective(s): To review and discuss the trends in wet nursing and the fatal introduction of breast milk substitutes.

Materials/Methods: Review of published literature on the topic of the history of wet nursing and infant feeding.

Results: The study of the history of wet nursing, the second oldest profession, is an intriguing and at times shocking endeavor. 18th century France serves as a unique time period. Foundling hospitals had become increasingly common to care for abandoned infants. Wet nurses cared for these abandoned infants, either in the hospital itself or in their home. During the 18th century, rates of infant abandonment were high and wet nurses were becoming increasingly overworked and underpaid. French foundling hospitals explored other methods of infant feeding, including animal milk and pap. Pap was a breast milk substitute made from bread soaked in water/milk. Feeding horns or a "pap boat" could be used to deliver these breast milk substitutes, often made of wood, bone, porcelain or glass. This fatal transition to pap for infant feeding contributed to the shockingly high infant mortality rate, which approached 100% in some facilities. With the creation of the Bureau of Wet Nurses, assuring an adequate workforce and improved pay structure for wet nurses, mortality rates of wet-nursed infants fell considerably (to 31% between 1770-1776).

Conclusions: The introduction of breast milk substitutes has occurred in centuries past, often with fatal outcomes. Only

through the study of our history can we hope to avoid repeating these mistakes.

27. PROGRAMMATIC NUTRITION AND LACTATION SUPPORT IN THE NICU AND POST-DISCHARGE FOR VERY LOW BIRTH WEIGHT PRETERM INFANTS

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Background: The protective effects of breastmilk feeding for premature infants include reduced risk of infections and NEC and improved growth and developmental outcomes.

Objective(s): To determine the rates of BM feeding at NICU discharge and after discharge for infants <32 weeks and/or <1500 grams after implementation of multidisciplinary NICU and post-discharge nutrition/lactation programs.

Materials/Methods: At UCSD, we implemented two programs to improve infant nutrition and increase breastmilk feeding. SPIN (Supporting Preterm Infant Nutrition) incorporates standardized education, nutrition, feeding and maternal support. PINC (Preterm Infant Nutrition Care) provides lactation/nutrition support after discharge. We reviewed charts of infants born from February 2011–2012. We evaluated feeding parameters and referral to PINC. BM feeding rates for infants followed in PINC at 6 months chronological age were ascertained at developmental clinic.

Results: Of the 121 infants born <32 weeks and/or <1500 grams that survived to discharge, 109 were discharged from UCSD. Only two infants did not receive maternal or donor milk for initiation of feeds. Seventy-seven (71%) infants were receiving BM at discharge. Formula feeding at discharge was associated with longer hospitalization. Thirty mother infant pairs (38 infants) attended PINC. These mothers had higher levels of education and were predominately covered by private insurance. The rate of BM feeding at 6 months chronological was 76% (22/29) for those seen in developmental clinic.

Conclusions: Highly motivated mothers are able to provide BM for their infants after discharge and can progress to exclusively feeding at the breast.

28. REASONS FOR FORMULA SUPPLEMENTATION IN BREASTFEEDING (BF) MOTHERS IN THE INPATIENT SETTING

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Background: Formula supplementation in BF mothers (BF+F) & exclusive formula feeding (EFF) are common practices despite significant public health measures promoting the health benefits of BF. Our institution has joined the national trend of discontinuing free formula samples at discharge, as well as received funding to become a U.S. Baby-Friendly Hospital. Despite these efforts, EFF and BF+F persist.

Objective(s): To determine the reasons potentially amenable to interventions that parents choose to either exclusively formula feed (EFF) or supplement BF with formula (BF+F) in order to increase exclusive BF (EBF) rates. We hypothesize that a wide array of factors, including economic, educational, religious and cultural backgrounds and influences of health care providers, are likely contributory.

Materials/Methods: Two surveys were created for postpartum mothers: 1 for EFF mothers & a 2nd for BF mothers (EBF or BF+F). All mothers delivering at our institution were asked to participate.

Results: The 457 surveys analyzed to date show a statistically significant increase in formula usage with the following: single marital status, lower educational background, Catholic (EFF) v. Jewish religion (BF+F), US-born, plan to BF+F and being offered formula without asking. Increased EBF was found in mothers who were BF in their own infancy and those non-US born. The most common reasons cited for formula use by BF mothers were perception of low milk supply, need to rest and plan to BF+F after discharge.

Conclusions: Our data highlights reasons mothers choose to use formula, despite efforts to promote EBF. Future BF education should focus on maternal supply, improved rest of BF mothers and effects of inpatient formula use. Single mothers and those with less education may benefit from increased educational efforts. Despite perception of increased BF support among providers, further staff education is crucial to increase EBF rates.

29. AMLODIPINE EXPOSURE THROUGH BREASTFEEDING IN A 32 WEEK PRETERM NEWBORN

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Background: Amlodipine is a relatively newer dihydropyridine derivative class of Calcium Channel Blocker with a long duration of action. Systematically designed studies and information about breast milk levels do not exist and only isolated case reports exist in literature addressing its safety during breastfeeding. As a result, LactMed recommends using amlodipine with caution and to use an alternate antihypertensive drug if possible.

Objective(s): To assess safety of maternal Amlodipine use while breastfeeding.

Materials/Methods: We report a case study where this 32 week preterm newborn was exposed to Amlodipine through breast milk.

Results: Baby MCD was born at 32 weeks gestation to mother with malignant hypertension, retinal detachment, severe pre-eclampsia. Neonatal problems included RDS, CPAP use for 2 days, hyperbilirubinemia, apnea of prematurity, and hypermagnesemia. Baby was started on minimal formula feeds at the age of 2 days. Postpartum, mother was placed on Amlodipine and Labetolol for hypertension. Mother was extremely invested in breastfeeding. Following risk-benefits discussion, mutual decision was made to use breast milk for nutritional needs and observe for any side effects. Baby was exclusively fed expressed breast milk from day 7 through 20. Baby's blood Amlodipine level 4 days after exposure was 0. Mother was able to discontinue Amlodipine. Subsequent nutrition was through breast milk and 22 calorie formula, because of diminished breast milk production. Baby did not experience any seizures or growth issues. Apnea episodes started before Amlodipine exposure and did not get worse with Amlodipine. Growth velocity at chronologic age of 2 months was 0.974 gm/kg (weight), 1.4 cm/week (length), 0.695 cm/week (head circumference).

Conclusions: Use of Amlodipine while breastfeeding can be monitored using clinical parameters (apnea and seizures), blood levels (done several days after exposure, because of long half life of the drug), and growth parameters.

30. SKIN-TO-SKIN CONTACT AFTER DELIVERY: NURSE EDUCATION AND PERSPECTIVES

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Background: Skin-to-skin contact (SSC) between a mother and newborn has many health benefits for both participants, and labor and delivery staff can play a pivotal role in facilitating this experience for patients.

Objective(s): We aimed to assess nurse knowledge and confidence before and after an educational and introductory period of SSC on labor and delivery. We sought to identify nurses' concerns, challenges and strategies relating to SSC.

Materials/Methods: We conducted a questionnaire of obstetric nurses (N=37) prior to a training period and new hospital protocol dictating SSC after delivery. A follow-up questionnaire was repeated after this intervention (N=30).

Results: The majority of nurses felt confident and knowledgeable in SSC and understood its benefits for their patients, although a small portion felt SSC did not have a strong relationship with patient outcomes and felt their own knowledge (29% before and 27% after) and confidence (24%, 23%) of SSC was not strong. Most nurses were comfortable with SSC in all complicated situations posed to them: mothers on methadone (83%, 81%), with history of herpes (94%, 100%), hepatitis C (91%, 85%), twins (86%, 92%), diabetes (94%, 96%) and chorioamnionitis (77%, 92%). Most nurses felt comfortable providing routine care for patients during SSC. Nurses frequently cited patient preference, health concerns, lack of patient education, family interference, institutional policies and other nursing responsibilities as challenges to SSC.

Conclusions: While most nurses expressed readiness to provide SSC care, the minority who felt unprepared and were unknowledgeable could benefit from further training and support. Nurses need training to assess when to delay SSC and appear to be uninformed of a few hospital policies and rationale on when to postpone SSC. Patient, family and staff education, re-evaluation of institutional practices and problem-solving strategies to address individual needs of patients could alleviate challenges of SSC.

31. FORMATIVE RESEARCH TO DEVELOP BREASTFEEDING PROMOTION MESSAGES IN THE WORLD'S BUSIEST BORDER CROSSING

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Background: Breastfeeding rates in Mexico are one of the lowest of Latin America with 14.4% of exclusive breastfeeding under six months. Many factors influence mother's infant feeding decisions including cultural and social determinants. Women across cultures are more likely to breastfeed when approaches that take into account the contexts in which they live are utilized.

Objective(s): Our objectives were to evaluate obstacles to breastfeeding in low-income communities in Tijuana and develop specific, culturally appropriate messages to promote breastfeeding.

Materials/Methods: We used qualitative methods to assess individual, group and societal factors within a "Socio-ecological

model" in 4 low-income communities in Tijuana. We conducted, recorded and transcribed focus groups and interviews with mothers, fathers and grandparents and interviews with key informants. An interdisciplinary group of researchers coded transcripts into themes. Messages were designed by a panel of nutrition and public health experts and women supporting breastfeeding.

Results: A total of 132 subjects participated in 6 focus groups (n=59) and 49 interviews with mothers, fathers and grandparents; and 24 interviews with key informants. Breastfeeding experience in this migrant community is influenced by the clash of traditional and modern ideas about infant feeding and women's role in society. Analysis revealed 19 themes; we used the most relevant for mothers to develop 10 messages to promote breastfeeding in this population; 6 Individual: Enough milk, Pain, Esthetics, Comfort, Baby behavior, Maintenance; 1 Group: Group Support; and 3 Societal: Migrant Experience, In Public and Cost.

Conclusions: Low-income women are aware of breastfeeding benefits but socio-cultural and practical challenges make success difficult. We developed 10 messages based on the main breastfeeding obstacles these women face in their lives. Next steps involve message testing and strategizing to incorporate messages into communication channels. We hypothesize they will constitute an effective community-based intervention.

32. EXPLORING THE RELATIONSHIP BETWEEN BREASTFEEDING, AIRWAY DEVELOPMENT, SLEEP BREATHING DISORDERS, BEHAVIORAL ISSUES AND MALOCCLUSION

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Background: The largest percentage of head growth occurs between 0 and 24 months of age. Children who are not breastfed are at greater risk of having underdeveloped maxilla and mandibles. Greater than 75% of children today have malocclusions related to having smaller upper and lower jaw bones. This results in a reduced airway size and a sleep breathing disorder at an early age. Sleep breathing disorder children are 50% more likely to be diagnosed with ADD/ADHD. Dental professionals are in a unique position to help these children develop a proper airway and therefore, live a healthier life.

Objective(s): 1- The origins of malocclusion and early recognition; 2- The importance of breastfeeding for the proper development of the maxilla and mandible; 3- The role breastfeeding plays in proper airway development; 4- The impact bottle feeding has on a child's airway; 5- The difference between nasal breathing and mouth breathing; 6- The resulting sleep breathing disorders impact on a child's behavior (ADD/ADHD); 7- The importance of treating a malocclusion as early as possible (it is not just about straightening the teeth).

Materials/Methods: Ten years of clinical experience delivering interceptive orthodontic care with the primary goal of developing an appropriate airway for the child's overall health. The following materials and methods were used on all children treated:

- Medical and dental histories
- Photographic and radiographic diagnostic records
- Orthodontic measurements
- Airway evaluations
- Detailed sleep breathing questionnaires
- Interceptive orthodontic treatment techniques

Results: The interceptive orthodontic care provided to over 1000 children will show the conversion from mouth breathing to nasal breathing, retraining of the tongue, proper development of the maxilla, mandible and airway, eradication of the sleep breathing disorder and finally the correction of the malocclusion.

Conclusions: While corrective, interceptive orthodontic techniques exist, breastfeeding is the most important mechanism that allows for optimal maxillary and mandibular growth. This results in a nasal breathing pattern with a properly functioning tongue, and a fully developed airway. A child who is not breastfed long enough is more likely to experience an underdeveloped maxilla, mandible and airway and suffer from the consequences of the resulting sleep breathing disorder.

33. BED-SHARING MOTHERS' MOTIVES AND DECISION MAKING: IMPLICATIONS FOR HEALTH CARE PROFESSIONALS

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Background: Controversy exists within the healthcare arena concerning the practice of mothers sharing their beds with their sleeping babies. The phenomenon of maternal-child bed sharing is a topic worthy of further study because of the discrepancy between the public health recommendations for safe infant sleep endorsed by the AAP and federal health agencies, and the actual infant sleep environments and practices in many families.

Objective(s): The purpose of this grounded theory study was to understand mothers' motives for sleeping with their babies and to generate a theoretical model that explains mothers' decision-making process.

Materials/Methods: 24 bed-sharing mothers were interviewed in-depth about their bed sharing practices, motivations, and experiences. Interview transcripts were qualitatively analyzed through constant comparison until theory from the data were generated.

Results: 7 thematic motives emerged; they were (a) child's physical needs and safety, (b) child's emotional security, (c) child's sleep, (d) maternal sleep, (e) nighttime breastfeeding, (f) maternal psychological security, and (g) maternal pleasure. A grounded theory that described the decision making process utilized by mothers who bed share was presented. Mothers moved through the process of recognizing needs, making decisions, attending to needs through bed sharing, and evaluating effects in order to meet their children's needs as well as their own. A basic social process of getting through the night intact was described. Many mothers did not disclose their bed-sharing practices with health care providers.

Conclusions: Motives for mothers to bed share with their babies are interrelated and change over time. Within a complex context, mothers make either intentional or unintentional decisions to bed share in order to meet the needs of their babies and themselves. Understanding how and when mothers make their decisions to bed share may help health care providers promote child safety.

34. AFRICAN AMERICAN WOMEN'S PERCEPTION OF BREASTFEEDING OVER THE YEARS

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Background: The purpose of this study is to further investigate reasons why such low rates of breastfeeding exist among African American women. The WHO promotes breastfeeding as an effective and efficient nutritional source for infants and children; however, African American women are breastfeeding at significantly lower rates than Caucasians, Asians, and Latino women. Breastfeeding decreases the risks of obesity, infections, diabetes, celiac disease, and infant mortality; additionally, it increases maternal-infant bonding and allows mothers to experience long- and short-term benefits of breastfeeding. Historically, breastfeeding was a very popular practice among Black women prior to slavery, but when Black women were used as "wet nurses" to breastfeed the children of slave owners, Black infants were not able to receive the nutritional and bonding benefits of breastfeeding. Later in the 1930s and 1940s, infant formula manufacturers became popular. Mostly upper class families were purchasing infant formulas, which made African American women want to buy formula to feed their children also, so they could be a part of the "elite crowd." Then formula companies started providing free samples of their products to hospitals and partnered with WIC, which resulted in infant formula being very accessible. A nationally representative survey of WIC participants showed that some barriers to breastfeeding among African American women included concerns about nursing in public, lack of knowledge about breastfeeding, and breastfeeding interfering with other activities.

Objective(s): Although breastfeeding is recognized as the standard nutritional source for infants; AA women have the lowest breastfeeding rates. Our qualitative study will investigate the reasons for these low rates by identifying: 1) Historical influences of breastfeeding on AA women, 2) Barriers that affect AA women's choice to breastfeed, 3) Negative and positive breastfeeding experiences among AA women, and 4) Culturally sensitive interventions to help improve AA breastfeeding rates.

Materials/Methods: AA women, ages 18-89, affiliated with the Portsmouth City, Virginia WIC were recruited to participate in focus groups. Participants also completed a non-identifiable demographic information survey. All focus groups were audio-recorded and coded for themes. The EVMS IRB approved this study.

Results: Deterrents to breastfeeding include family barriers, partners' feelings of sexuality, lack of breastfeeding education, historical reasons, lack of exposure to breastfeeding role models, lack of AA BF women in the media, and poor access to breastfeeding materials. Positive breastfeeding influences include benefits for mom and baby, social support, and the motherly instinct to provide. Some women felt that WIC, as a provider of free formula, sends mixed messages to new mothers.

Conclusions: AA women face many unique barriers to breastfeeding. The thoughts, ideas, and passion of these women to change the culture of breastfeeding within their population are encouraging and should be considered to guide policy change.

35. BREASTFEEDING EDUCATION INITIATIVE FOR MEDICAL STUDENTS AT UNIVERSITY OF ILLINOIS AT CHICAGO

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Background: Presently, opportunities to study breastfeeding medicine are rare or non-existent at medical institutions. The Surgeon General's Call to Action to Support Breastfeeding notes this deficit as a major barrier to increasing breastfeeding frequency and duration, and recommends that breastfeeding content be improved in both graduate and undergraduate medical education.

Objective(s): Implement a curriculum open to interested 3rd and 4th year medical students that will 1. improve breastfeeding knowledge and attitudes of medical students, especially those interested in providing primary care to mothers and infants and 2. fulfill the Academy of Breastfeeding Medicine recommendations for key preclinical and clinical educational objectives.

Materials/Methods: Our curriculum is designed by clinical medical students in cooperation with UIC faculty in Pediatrics, OB/Gyn, Lactation, and Midwifery. The curriculum will provide a wide variety of experiences and educational opportunities as follows: 1. Online curriculum for self study: Wellstart breastfeeding curriculum; 2. Recommended textbook: Breastfeeding Handbook for Physicians; 3. Interdisciplinary faculty participation from OB/Gyn, Pediatrics, Lactation, Midwifery; 4. Community/field experiences with breastfeeding support groups, and agencies that promote breastfeeding; 5. Students will also complete a project to present to peers and/or the Chicago Region Breastfeeding Task Force.

Results: The developed curriculum was approved by the curriculum committee at The University of Illinois Chicago College of Medicine. A survey will be offered to all medical students and a post-elective follow up survey will be completed by students participating in the elective to assess the effectiveness of the rotation.

Conclusions: The elective titled, "Breastfeeding Medicine" will provide the student with a unique experience that will fulfill ABM recommendations for education of clinical medical students.

36. PHYSICIAN MOTHERS AND BREASTFEEDING – DO GOOD INTENTIONS COUNT?

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Background: Previous studies suggest that while female physicians have excellent breastfeeding initiation rates, their continuation rates are lower than the general population. However, because of lack of data about breastfeeding intentions of surveyed mothers, definitive conclusions could not be made regarding whether the drop in physician mothers' breastfeeding rates after return to work resulted from their decision to wean earlier than recommended or whether it reflected influence of workplace-related factors that discouraged breastfeeding maintenance despite maternal intention to continue.

Objective(s): To explore physician mothers' infant-feeding intentions and behavior, breastfeeding advocacy, and work-related predictors of breastfeeding duration.

Materials/Methods: We conducted 2 institutional cross-sectional surveys, using a convenience sample of physician volunteers, at Johns Hopkins University (JHU) and University of Florida (UF). REDCap electronic data capture tools were used for data collection and management.

Results: Data on 238 children were obtained from 50 physicians, mainly affiliated with JHU, and 80 physicians, mainly affiliated with UF. While mothers intended to breastfeed 56% of the infants for at least 12 months and 97% of infants were breastfed at birth, only 34% continued to receive breastmilk at 12 months. Longer breastfeeding duration had a statistically significant association with breastfeeding advocacy among patients, colleagues, and housestaff. We identified potentially modifiable work-related predictors of breastfeeding duration.

Conclusions: Physician mothers reported intention to breastfeed as well as awareness of benefits of breastfeeding and current recommendations. While intentions and knowledge correlated with breastfeeding initiation practices, breastfeeding maintenance was then determined by interaction of personal and work-related factors. The discrepancy between maternal duration goal and actual breastfeeding duration suggests that work-related factors not only influence breastfeeding behavior, but might have a larger impact than education and intentions on breastfeeding duration. The significant relationship between potentially modifiable, organizational factors with variation in breastfeeding behavior supports the importance of work-related factors in breastfeeding maintenance among physician mothers and highlights the association between physicians' personal breastfeeding success and their clinical breastfeeding advocacy.

37. LINGUAL FRENOTOMY CURRICULUM FOR PEDIATRIC RESIDENTS

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Background: Although controversy exists in the medical community as to the short and long term impact of ankyloglossia, recent studies have shown that ankyloglossia can cause ineffective latch, inadequate milk transfer, maternal nipple pain, and, ultimately, early weaning of breastfeeding (Ballard 2002). Newborns with ankyloglossia and concerns of feeding difficulties and nipple pain during breastfeeding are often referred to otolaryngologists and pediatric dentists for treatment as many general pediatricians lack the training. However, this procedure should in fact be within the scope of training of pediatricians and pediatric residency programs.

Objective(s): No formalized curriculum currently exists to date. Our goal was to formulate an educational curriculum to provide pediatric residents the training to perform lingual frenotomies.

Materials/Methods: Pediatric residents from the Children's Hospital of The King's Daughters voluntarily participated in the pilot curriculum. Residents completed a 15-item pretest assessing their baseline knowledge of breastfeeding, ankyloglossia, and lingual frenotomies. The residents then attended a lecture given by a general pediatrician, followed by a workshop given by an otolaryngologist to receive hands-on training on performing lingual frenotomies. Clay and foam models were made to simulate the texture of human tissue and anatomic features of ankyloglossia. Lastly, the participating residents completed a 15-item post-test. The mean pre- and post-test scores were compared using paired t-test analysis.

Results: Thirty-nine residents completed the pre-test, and 19 residents completed the entire curriculum. There was a statistically significant difference between the pre-test scores and

post-test scores, with a mean difference of 1.79 with SD = + / - 1.72 (p = 0.0003).

Conclusions: Incorporating a lecture within the construct of the resident education curriculum and providing a hands-on, interactive workshop significantly improved the learners' knowledge of ankyloglossia and indications for performing lingual frenotomy. With continued training, pediatric residents will be able to perform this procedure as community pediatricians.

38. WORK-PLACE PREDICTORS OF BREASTFEEDING DURATION AMONG FEMALE PHYSICIANS

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Background: Despite excellent breastfeeding initiation rates, physician mothers in the United States are at risk of premature breastfeeding cessation. Improving breastfeeding duration of physician mothers requires identification of modifiable work-related and institutional factors that impact their breastfeeding duration.

Objective(s): To identify work-related predictors of breastfeeding duration among physician mothers.

Materials/Methods: Data on 238 children were obtained from 50 physicians, whose main affiliation was with Johns Hopkins University (Baltimore, MD), and 80 physicians, whose main affiliation was with University of Florida (Gainesville, FL). We used a mixed linear model to determine which variables were significant predictors of breastfeeding duration, when controlling for maternal demographics and taking into account the clustering of observations on study location and mothers.

Results: While physician mothers intended to breastfeed 56% of the infants for at least 12 months and 97% of infants were breastfed at birth, only 34% continued to receive breastmilk at 12 months. Duration of lactation among physicians correlated with the following work-related factors: 1) not having to make up missed call/work that occurred as result of pregnancy or maternity leave, 2) length of maternity leave, 3) sufficiency of time at work for milk expression, and 4) perceived level of support for breastfeeding efforts at work from colleagues, program director, or chiefs.

Conclusions: Our findings support the importance of work-related factors in breastfeeding maintenance among physician mothers and suggest that a tailored intervention, providing time and institutional encouragement, might result in significant improvement in their breastfeeding duration.

39. ROUTINE, PRIMARY-CARE BASED INTERVENTIONS TO INCREASE BREASTFEEDING: RESULTS OF TWO RANDOMIZED CLINICAL TRIALS

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Background: Suboptimal breastfeeding is associated with increased morbidity for mothers and infants. US Breastfeeding rates

fall short of Healthy People 2020 targets of 46%, and 26% respectively. There are also substantial disparities, with the lowest breastfeeding rates seen among non-Hispanic Black, younger and less educated mothers.

Objective(s): Determine effectiveness of pre- and postnatal interventions to increase breastfeeding.

Materials/Methods: Two randomized controlled, single-blind trials conducted at urban ob/gyn practices in Bronx, NY. PAIRINGS: 2 arms, usual care vs. pre- and postnatal visits with a Lactation Consultant (LC) and electronically prompted anticipatory guidance from prenatal care providers (EP). BINGO: 4 arms, usual care, LC alone, EP alone, or LC+EP. Study staff assessed infant feeding at 1, 3 and 6 months postpartum via phone interviews, along with qualitative data at 6 months.

Results: For BINGO's primary outcome of breastfeeding intensity at 3 months, high intensity was greater for LC+EP (17.3% vs. 8.1%, OR=2.72, 95% CI=1.08-6.84) and LC (20.5% vs. 8.1%, OR=3.22, 95% CI=1.14-9.09) groups vs. usual care, but not for the EP group. For PAIRINGS' primary outcome of exclusive breastfeeding at 3 months, intervention rates exceeded usual care, (16.0% vs. 6.2%, OR=2.86, 95% CI=1.21-6.76). Qualitative data (n=67) found that the intervention groups recalled more detailed discussion of breastfeeding with providers vs. Controls, and perceived interventions to be effective. Follow-up interviews amplified the intervention's effects. EPs appeared to influence initiation, while LCs helped overcome barriers and sustain breastfeeding.

Conclusions: Professional LCs integrated into routine care alone, and combined with EP guidance from prenatal care providers, increase breastfeeding intensity at 3 months postpartum. Recent legislation mandating reimbursement for breastfeeding support provides opportunities for implementing interventions.

40. BREASTFEEDING IS NEGATIVELY AFFECTED BY PRENATAL DEPRESSION AND REDUCES POSTPARTUM DEPRESSION

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ABSTRACT WITHDRAWN

41. CHILD SURVIVAL AND THE HEALTH OF THE PREVIOUS CHILD AS PREDICTORS OF BIRTH SPACING PRACTICES AMONG COUPLES IN NIGERIA

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Background: Worldwide, women differ widely in their birth spacing practices. A variety of factors influences women's births spacing practices, including the health status of her previous child as well as her personal characteristics.

Objective(s): This study focused on the relationship between child survival and health of the previous child factors and birth spacing practices among couples in Nigeria. A descriptive research survey design was employed in the study. The setting of the study was in Ibadan, Oyo State, Nigeria.

Materials/Methods: A total of 200 couples men and women in Ibadan constituted the sample for the study. Their ages ranged between 32 years and 45 years with a mean age of 38.5 years and

standard deviation of 11.2. The two instruments used were author-constructed questionnaires with 0.59 and 0.61 reliability coefficient, respectively. The data obtained were analyzed using multiple regression statistics.

Results: The results indicated that significant relationship exist between birth order ($B=0.404$; $t=6.059$; $p<0.05$), sex of child ($B=0.181$; $t=2.648$; $p<0.05$), mother's age at birth ($B=0.213$; $t=3.354$; $p<0.05$), index of household wealth ($B=0.135$; $t=2.146$; $p<0.05$), and the length of the preceding birth interval ($B=0.146$; $t=2.284$; $p<0.05$), but not with rural/urban residence, mother's education and type of provider of parental care. The results also indicated that a combination of the independent variables significantly predicted birth spacing practices (F-ratio of 31.084; $p<0.05$ alpha level).

Conclusions: Based on the findings, it was recommended that counseling psychologists, social workers, midwives, and others in the helping profession should take cognizance of those variables that have been found to influence birth spacing practices among couples.