Research Roundup
A review of interesting or groundbreaking literature!

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Disclosure Information

The following planners, faculty and others in control of content have declared no relevant financial relationships with ineligible companies:

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REVIEW
Human milk oligosaccharides: Every baby needs a sugar mama
Neurodevelopmental outcomes were assessed between 6 and 24 months of age and included the following domains: (1) cognitive; (2) language; (3) fine and gross motor skills; and (4) social-emotional.

Overall, studies found significant associations between exposure to HMOs during breastfeeding and neurodevelopmental outcomes in infants.

Most studies reported that exposure to specific and total fucosylated and sialylated HMOs during early lactation (i.e., 1 month) was associated positively with measures of cognitive, language, and motor skill development in later infancy (i.e., 18 to 24 months).
Background: Women of childbearing age in Western societies are increasingly adopting vegetarian diets. These women are sometimes rejected as milk donors, but little about the composition of their milk is known.

Purpose: The present study aimed to compare the intake, nutritional status, and nutritional composition of human milk from omnivore human milk donors (Donors) and vegetarian/vegan lactating mothers (Veg).

Methods: Milk, blood, and urine samples from 92 Donors and 20 Veg were used to determine their fatty acid profiles, as well as vitamins and minerals.

<table>
<thead>
<tr>
<th>Infant Characteristics</th>
<th>Donors (n=92)</th>
<th>Veg (n=20)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>5.9±1.2</td>
<td>5.9±1.2</td>
<td>0.976</td>
</tr>
<tr>
<td>Length (cm)</td>
<td>49±1.6</td>
<td>49±1.6</td>
<td>0.687</td>
</tr>
<tr>
<td>Birth weight (kg)</td>
<td>3.5±0.5</td>
<td>3.4±0.5</td>
<td>0.105</td>
</tr>
<tr>
<td>Gestational age (weeks)</td>
<td>39±1.4</td>
<td>39±1.5</td>
<td>0.658</td>
</tr>
<tr>
<td>Gender of infant</td>
<td>50 males, 42 females</td>
<td>9 males, 11 females</td>
<td>0.297</td>
</tr>
</tbody>
</table>

human milk donors (Donors) and vegetarian/vegan lactating mothers (Veg).
Early pumping frequency and coming to volume for mother’s own milk feeding in hospitalized infants

- OBJECTIVE: To identify daily pumping frequencies associated with coming to volume (CTV: producing > 500 milliliters of milk per day by postnatal day 14) for mothers of infants in the neonatal intensive care unit (NICU).

- STUDY DESIGN: We compared demographics and daily pumping frequencies for mothers who did and did not experience CTV. RESULTS: Of 427 mothers who produced milk, 201 (50.1%) experienced CTV. Race, insurance, delivery type and birthweight were associated with CTV. For mothers who experienced CTV, average pumping episodes increased daily, stabilizing at 5 pumping episodes per day by postnatal day 5 (5 × 5). Women who experienced CTV were also more likely to have pumped between 0100 and 0500 (AM pumping). In multivariable analysis birthweight, 5 × 5 and AM pumping were each independently associated with CTV. CONCLUSION: Supporting mothers of NICU infants to achieve 5 or more daily pumping sessions by postnatal day 5 could improve likelihood of achieving CTV.
Comparison between the for-profit human milk industry and nonprofit human milk banking: Time for regulation?

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Abstract

Human milk (HM) is a highly evolutionary selected, complex biofluid, which provides tailored nutrition, immune system support and developmental cues that are unique to each maternal-infant dyad. In the absence of maternal milk, the World Health Organization recommends vulnerable infants should be fed with screened donor HM (DHM) from a HM bank (HMB) ideally embedded in local or regional lactation support services.

However, demand for HM products has arisen from an increasing awareness of the developmental and health impacts of the early introduction of formula and a lack of prioritization into government-funded and nonprofit milk banking and innovation. This survey of global nonprofit milk bank leaders aimed to outline the trends, commonalities and differences between nonprofit and for-profit HM banking, examine strategies regarding the marketing and placement of products to hospital and public customers and outline the key social, ethical and human rights concerns. The survey captured information from 59 milk bank leaders in 30 countries from every populated continent.
Comparison between the for-profit human milk industry and nonprofit human milk banking: Time for regulation?

Abstract cont.
In total, five companies are currently trading HM products with several early-stage private milk companies (PMCs). Products tended to be more expensive from PMC than HMB, milk providers were financially remunerated and lactation support for milk providers and recipients was not a core function of PMCs. Current regulatory frameworks for HM vary widely, with the majority of countries lacking any framework, and most others placing HM within food legislation, which does not include the support and care of milk donors and recipient prioritization.

Regulation as a Medical Product of Human Origin was only in place to prevent the sale of HM in four countries, export and import of HM was banned in two countries. This paper discusses the safety and ethical concerns raised by the commodification of HM and the opportunities policymakers have globally and country-level to limit the potential for exploitation and the undermining of breastfeeding.

Principal risks of human milk commercialization

- **Equity**: Access based on ability to pay, companies can charge families up to $2000 per month.
- **Safety**: Potential for fraud to divert events to non-profit makers, with reduced availability of DHM to NICUs.
- **Exploitation**: Lack of transparency and ability for donors to consent.
- **Disconnection from support**: Milk banks exist without hospital or community donation support settings, ensuring emotional breastfeeding is prioritized and donors are used appropriately.

Prevalence and Predictors of Breastfeeding Duration of 24 or More Months

Breastfeeding is associated with reductions in morbidity and mortality among mothers and children. The Dietary Guidelines for Americans, American Academy of Pediatrics, and World Health Organization recommend exclusive breastfeeding for 6 months, with continued breastfeeding for at least 1 (Dietary Guidelines for Americans) or 2 years (American Academy of Pediatrics, World Health Organization), while complementary foods are introduced.

Benefits of longer breastfeeding durations have been documented; however, limited studies describe US breastfeeding duration past 18 months. Using data from a nationally representative survey, we examined the prevalence and predictors of breastfeeding duration ≥24 months. Only 11.5% of US children breastfed for ≥24 months. Breastfeeding rates decline sharply by child age, especially at 6 and 12 months. Results indicated significant differences in breastfeeding ≥24 months by maternal age, caregiver marital status, child race, and household income level. The strength of this analysis is the ability to assess longer breastfeeding duration among a nationally representative sample. Limitations include potential recall bias among mothers of older children and the heterogeneity of the non-Hispanic, other race group. Programmatic interventions and policies aimed at supporting breastfeeding duration could help persons who desire to breastfeed for ≥24 months.
**Clinical Care Points**

- Address infant feeding plans early during prenatal care, ideally starting with the initial prenatal care visit.
- Prenatal care providers should engage the systematic structured learning about breastfeeding from reputable resources. Some recommendations include the breastfeeding curriculum from AAP, ACOG Breastfeeding Toolkit, and the Academy of Breastfeeding Medicine Education page. Links are provided below. If available, shadowing a lactation professional may provide additional insights and skills.
- Educate parents about breastfeeding. Suggested education subjects include breastfeeding as the recommended form of infant feeding, recommended duration of 24 months, health benefits to parent and infant, practical aspects, and realistic description of early breastfeeding.
- Best available evidence indicates that interventions to support breastfeeding are most effective when delivered in a longitudinal manner and incorporating multiple approaches (e.g., lactation specialist consultation plus breastfeeding education from MD).
Clinical Care Points

- Work collaboratively with lactation specialists and peer counselors.
- Provide patients with information about community resources for breastfeeding support.
- Inform patients about benefits available through their insurance and federal and state benefits.
- Review patients’ medical history and medications and address any concerns regarding breastfeeding.
- Support patients with anticipated challenges by addressing possible problems and creating a positive plan. When exclusive breastfeeding is not possible, educate patients about health benefits of any breastfeeding or human milk feeding.
- Promote implementation of Ten Steps to Successful breastfeeding.
- Help patients initiate breastfeeding or milk expression as early as possible and ideally in the first hour after birth.

Association Between State Paid Family and Medical Leave and Breastfeeding


- Cross sectional study in the “Green Journal” using 2016-2019 data from PRAMS (Pregnancy Risk Assessment Monitoring System) for 43 states and Washington, DC.
- Describes the association of state paid family and medical leave with breastfeeding rates, postpartum depression rates, and attendance at postpartum visit.
- Used logistic and Poisson regression models to control for sociodemographic factors.
- Special sensitivities were applied to Medicaid deliveries.

Association Between State Paid Family and Medical Leave and Breastfeeding

- Only 1 in 4 people have access to paid family and medical leave. (only 1 in 10 low-income adults)
- Paid family and medical leave is different from job protection afforded by the Family and Medical Leave Act (FMLA) which is unpaid job protection for up to 12 weeks following the birth of a child and other qualifying medical events.
- Only 56% of working Americans qualify for FMLA (access is lower in marginalized, part time, private, and non-union workers)
Association Between State Paid Family and Medical Leave and Breastfeeding

- PRAMS is a state-based mail and telephone interview survey on maternal behaviors, attitudes, and health conditions of a representative sample of individuals who have recently given birth, which is then linked to birth certificate data.
- PRAMS survey outreach begins 2 to 6 months after delivery; thus, breastfeeding was defined as the occurrence of breastfeeding at 6 months postpartum or at the time of PRAMS survey completion. PRAMS does not specify whether breastfeeding was exclusive; therefore, this analysis was not restricted to exclusive breastfeeding.
- While studies linking beneficial health outcomes to paid medical leave have been performed, this study differed in that it compared a cross section of states with generous paid leave, some paid leave and no paid leave at the same time. Previous studies have typically looked at a single state before and after implementation of paid leave legislation.

Paid Leave and Breastfeeding - Findings

- Breastfeeding prevalence was 7-8% higher in states with some or generous postpartum family leave.
- Breastfeeding rates were highest in ages 30-34, Asian Americans, higher level of education, higher income, and most generous state paid family leave policies.
- Impact was largest in Medicaid population with 17 and 32% of respondents more likely to breastfeed at 6 months with some and generous paid leave, respectively.

Continuous Medicaid Eligibility During the COVID-19 Pandemic and Postpartum Coverage

- Due to the Families First Coronavirus Response Act (FFCRA), continuous Medicaid eligibility during the COVID-19 public health emergency (PHE) created a de facto national extension of pregnancy Medicaid eligibility beyond 60 days postpartum.
- This study evaluated the association of continuous Medicaid eligibility with postpartum health insurance, health care use, breastfeeding, and depressive symptoms.
Continuous Medicaid Eligibility During the COVID-19 Pandemic and Postpartum Coverage

• Maternal morbidity and mortality are at high levels in the US when compared to other high resource countries
• Health insurance coverage provides important access to medical care, support services, hospital birth, mental health resources
• Federal law only requires postpartum Medicaid to be extended for 60 days after birth after which families must reapply under more stringent income and work requirements than during pregnancy
• According to the national vital statistics system 41% of births in 2022 were insured by Medicaid

2020 Families First Coronavirus Response Act (FFCRA) included a maintenance of effort (MOE) requirement preventing states from disenrolling Medicaid recipients during the federal public health emergency (PHE) from January 31, 2020, to May 11, 2023. This served as a study period to assess the potential effects of Medicaid expansion to 1 year postpartum in the 2021 American Rescue Plan Act (ARPA) adopted by 43 states.
• The objective of this cohort study was to estimate the association of continuous Medicaid eligibility under the FFCRA with postpartum health insurance, postpartum visit attendance, contraception, breastfeeding, and depressive symptoms using PRAMS.

The emergency Medicaid extension was associated with 5% increase in Medicaid insurance after the 60 days and a 6.6% decrease in uninsurance
• Breastfeeding rates did not change during this time
• Factors affecting implementation-use of emergency medicaid for delivery (not eligible for extension), lack of navigators or other information to help beneficiaries understand their coverage, rolling enrollees onto new policies after 1 year.
• Having insurance coverage may not directly translate to positive outcomes.
Effect of pregnancy and duration of postpartum convalescence on physical fitness of healthy women


- To assess the effects of extending postpartum convalescence from 6 to 12 weeks on the physical fitness of Active Duty (AD) soldiers as measured by the Army Physical Fitness Test (APFT) and Body Mass Index (BMI).
- This study was a retrospective study of active duty soldiers who delivered their singleton pregnancy of ≥ 32 weeks gestation at a tertiary medical center. Pre- and post-pregnancy APFT results as well as demographic, pregnancy, and postpartum data were collected. Changes in APFT raw scores, body composition measures, and failure rates across the 6-week and 12-week convalescent cohorts were assessed. Multivariable regressions were utilized to associate risk factors with failure.
- This cohort represents a relatively active and healthy group with paid maternity leave.

Effect of pregnancy and duration of postpartum convalescence on physical fitness of healthy women

- Pregnancy is associated with profound physical changes in multiple organ systems.
- The period of "postpartum recovery" is poorly defined and for some organ systems, changes may take over a year to return to baseline or may never return.
- Participation in physical activity during the postpartum period can be limited by fatigue, child care, finances, poor support.

Effect of pregnancy and duration of postpartum convalescence on physical fitness of healthy women

- An increase of postpartum leave from 6 to 12 weeks did not adversely affect raw scores on any of the APFT events nor did it decrease the ability of postpartum soldiers to meet physical fitness and body composition standards in the first year postpartum.
- Factors associated with improved postpartum test included: more likely to meet standards before pregnancy, had gestational weight gain within the IOM guidelines, and were always breastfeeding at 2 months postpartum.
- Significantly more women who were breastfeeding achieved pre-pregnancy weight in the first year postpartum.
- Data indicate that the increased convalescence period instituted in February 2016 was associated with increased breastfeeding rates.