Feasibility of an Antenatal Milk Expression Protocol among First-Time Mothers in the U.S.

Jill Demirci, PhD, RN, IBCLC; Jessica Fichner; Melissa Glasser, PhD; Erin Caplan, BA; Katherine Himes, MD
University of Pittsburgh

Antenatal Milk Expression (AME)
- Maternal hand expression, collection, and storage of milk ≈36-37 weeks of pregnancy
- Purpose: Avoid early formula use, increase breastfeeding confidence and milk availability in low-stakes, antenatal environment
- DAME Trial in women with diabetes: AME not associated with adverse perinatal outcomes, potential benefit to breastfeeding exclusivity in hospital (Forster et al., 2017)

Study Purpose
To examine uptake and experiences with antenatal milk expression in healthy U.S. women expecting their first child

Study Methods
- 43 healthy, nulliparous women recruited from hospital-based midwife practice and randomized to AME vs. education control (ongoing RCT)
- AME intervention: Marmet technique with IBCLC beginning 37 weeks, continuing weekly until delivery, home practice 1-2x/day for 10 mins and documentation in a log
- Education control group received breastfeeding hand-outs addressing common issues
- AME participants completed semi-structured interview 1-2 wks post-birth

Sample
Received respective intervention: 17/21 in AME group; 19/22 in education group

Demographics of Study Participants (n=43)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Proportion of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic, White</td>
<td>86%</td>
</tr>
<tr>
<td>Married/living with a partner</td>
<td>93%</td>
</tr>
<tr>
<td>BMI ≥ 25</td>
<td>42%</td>
</tr>
<tr>
<td>WIC</td>
<td>9%</td>
</tr>
<tr>
<td>Bachelor’s degree or higher</td>
<td>84%</td>
</tr>
<tr>
<td>Plan to BF ≥ 12 months</td>
<td>63%</td>
</tr>
<tr>
<td>Plan to exclusively breastfeed to 6 months</td>
<td>72%</td>
</tr>
</tbody>
</table>

Mean age = 30.8 years [SD 3.9]; Mean BMI = 24.9 [SD 6.5]
Findings

- 14 of 17 able to express any antenatal milk
- 9 banked/froze antenatal milk; 5 used antenatal milk in postpartum period
- Reasons for antenatal milk use: calm infant for latching, maternal rest/recovery, volume concerns, partner participation in feeding

![Graph showing average milk volume (ml) per AME session by pregnancy week.]

Antenatal Milk Expression Practices (n=17 women receiving AME)

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD); range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of study visit AME sessions</td>
<td>2.8 (1.1); 1-4</td>
</tr>
<tr>
<td>Number of home AME sessions</td>
<td>18.9 (11.8); 7-46</td>
</tr>
<tr>
<td>Total volume of antenatal milk expressed (mL)</td>
<td>18.3 (26.8); 0-88.8</td>
</tr>
</tbody>
</table>

Qualitative Findings

- Overwhelmingly, positive experiences with AME; recommendations to peers, providers

Perceived Benefits/Impact of AME

- Embodied breastfeeding knowledge
- Curiosity, appreciation for body
- Partner support for breastfeeding
- Commitment to/prep for breastfeeding
- Prepare, “toughen” breasts for breastfeeding
- Confidence in making enough milk, having milk “stash”
- Increased milk before & after lactogenesis II
- Hastened onset lactogenesis II

I think it was really nice for me to learn this new, like, motor process but on my own—before putting [baby] in on it, too. ’Cause it’s tougher to do with two people, so it was nice to start one person and then add a second person.

I just thought it was literally the coolest thing. Because it was like my body is working the way that it’s supposed to. I have vials of proof that it’s working, and it gave me so much confidence.
**AME Issues/Concerns**
- Breast discomfort
- Hand fatigue
- No AME milk indicative of future supply problems
  - Assuaged by IBCLC reassurance
- Antenatal milk non-use at hospital
  - Forgot, unsupportive hospital staff, inadequate hospital milk storage options

**AME Fit with Life**
- No perceived time burden
- Before/after work, at home, privacy generally a non-issue
- Some difficulty remembering (not reflected in logs)

**Knowledge of AME Physiological Processes**
- No perceived differences in antenatal/postpartum colostrum
- No concerns about feeding antenatal milk to infant

**Suggestions to Enhance AME Experience**
- More video exemplars of technique
- Resources on feeding small volumes of antenatal milk (e.g., syringe feedings)
- Introductory teaching from IBCLC perceived as necessity (qualifications to address questions)

**Conclusions**
- AME feasible and acceptable in this demographic
- Capacity to empower
- Sticking points: hospital milk storage, reassurance of normalcy of small (or no) AME milk volume
- Further study: more diverse groups, impact on BF outcomes

**Contact Info for Project PI:**
Jill R. Demirci  
Email: jvr5@pitt.edu  
Phone: 412.692.6545

**Funding:** American Nurses Foundation, ANA Presidential Scholar Award; University of Pittsburgh Central Research Development Fund