EvergreenHealth

Lactation Research Study: Optimal Breast Pump Flange Size Fitting

EvergreenHealth's First Human Participant Nursing Research Study

2024

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Kathryn Williams, RN, IBCLC, has over 40 years of experience in maternal-child health nursing. Kathryn is an International Board-Certified Lactation Consultant and a charge nurse in the Breastfeeding Center at EvergreenHealth. Kathryn is passionate about breastfeeding support and has dedicated her career to enhancing the well-being of mothers and children.

Molly Ewert, BSN, RN, IBCLC, has been a Registered Nurse since 1998 and an International Board Certified Lactation Consultant since 2004. With over 25 years of experience in postpartum and lactation care, she is committed to helping families gain confidence in their parenting and achieve their breastfeeding goals. She currently serves as a nurse and charge nurse in the Breastfeeding Center at EvergreenHealth.

The presenters for this presentation have no relevant financial relationships to disclose

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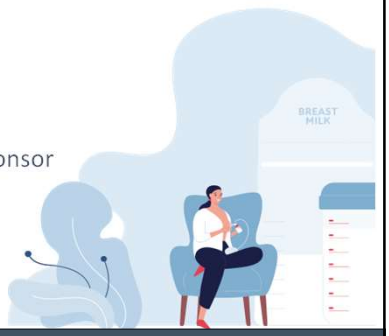
Study Support

- Authors:
  - Kathryn Williams, RN, IBCLC, Clinical Nurse, Postpartum Outpatient Clinics – Principal Investigator
  - Molly Ewert, BSN, RN, IBCLC, Clinical Nurse, Postpartum Outpatient Clinics
  - Donnianne Noble, BSN, RN, IBCLC, Project Manager-RN, Operational Excellence – Nursing Research Committee Mentor
- Research Support:
  - Joy Nichols, RN, IBCLC
  - Alyssa Dunn, RN, IBCLC
  - Katie Litwitski, Statistical Analysis Support
  - Mary Shepler, DNP, RN, NEA-BC, Chief Nursing Officer, Research Sponsor



Researchers are employed by EvergreenHealth and have no conflicts of interest

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About EvergreenHealth

Public-district hospital
Serves over 1 million residents in Puget Sound Region

4, 544 births in 2024
97% breastfeeding initiation rate
Level 3 NICU

First Baby-Friendly Hospital in the United States in 1996

Postpartum Care and Breastfeeding Center has 11 IBCLC RNs
Average of 30 parent/baby couplets each day

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Background

- 91% of breastfeeding parents in the United States use a breast pump to extract breastmilk*
- Common reasons for pumping:
  - Increase milk supply
  - Return to work
  - Partner involvement
- Common complaints with pumping:
  - Discomfort
  - Milk supply
  - Time
- IBCLCs commonly support breast pumping

**Journal of Pediatrics, 2024*

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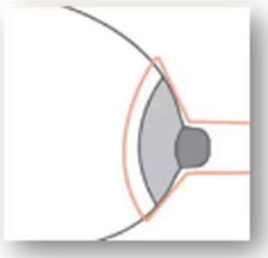
Background

- Historically, flange sizes with a diameter of 2-9 mm larger than the nipple diameter were recommended
- Pump kits routinely come with 21mm-28mm flanges
- Lactation Consultants started to question process of flange fit
- During our literature review, there were no published studies related to flange sizing and its impact on comfort and milk supply



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Hypothesis

Breast pump flanges sized closer to the nipple diameter will improve milk volume and increase comfort with pumping

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Participant Recruitment and Inclusion

- Flyers to recruit participants:
- Inclusion criteria:
  - Pumping parents with infants 1-4 months of age
  - Pumping and/or directly breastfeeding at least 4 times a day
  - Using either a Spectra or Medela double electric pump
  - Having pain or supply concerns
- Compensation:
  - No financial compensation
  - Allowed to keep trialed flange sizes
  - No charge for consultation

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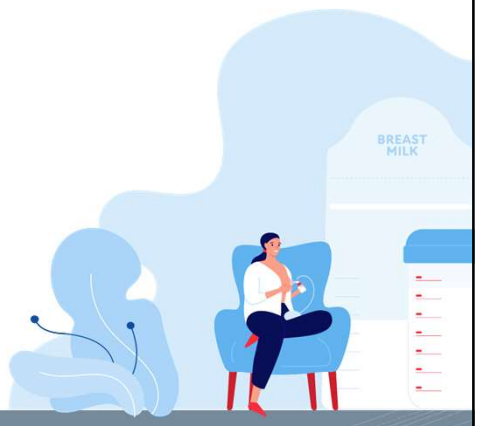
Study Structure

- Pre-Intervention Phone Call
- Intervention Appointment
- Post-Intervention Phone Calls



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Results - Participation

25 participants

Average infant age of 47.36 days at the intervention appointment

Trialed an average of 2.96 flanges at the intervention appointment

60% of participants completed all 3 post-intervention calls
96 % completed 2 of 3 calls

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Results-– Change in Flange Diameter Compared to Nipple

Difference in the pump flange diameter pre and post intervention

- After measurement and pumping observation, the recommended flange sizes were an average of 1.56mm larger than the nipple diameter at rest.
- This change in flange diameter was a 5.14mm decrease compared to the flange used prior to the intervention
- Optimal flange fit to be more in the 1-2mm range

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Results – Impact to Pain Score

- Pre-intervention average pain score: 4.32
- Post-intervention final call pain score: 0.92
- 78.7% decrease in pain score
- Data showed that the closer to the nipple diameter, the less the pain score

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Results – Impact to Pumped Milk Volume Per Pumping

- When pre-intervention data was compared to the final post-intervention call data, milk volume increased per pumping
- Pre-intervention average pumped volume: 77.15ml
- Post-intervention average pumped volume: 112.56ml
- 45.9% increase in milk supply
- Surprising as babies were between 1-4 months of age

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Results

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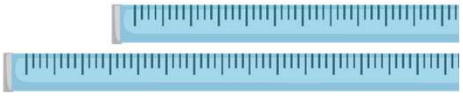
Recommendations and Considerations for Lactation Practice

- Timing of flange fitting
- Measure the nipple
- Observe a pumping session
- Trial several sizes
- Educate
- Staff time
- Cost to parent



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Study Limitations

- Introductory study
- Small sample size
- Only two types of pump evaluated
- Further research needed

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Turns out . . . Size matters!

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Thank you for attending!

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