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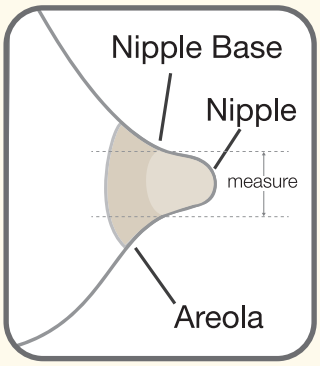
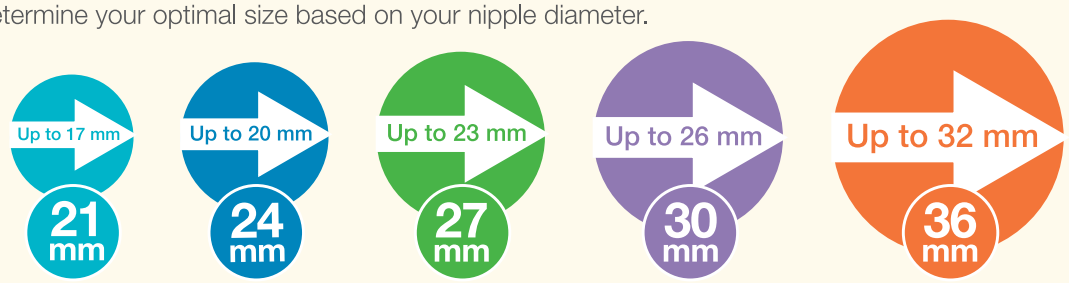
Choosing your PersonalFit™ Breastshield Size

1 Understanding Medela's PersonalFit™ sizing

Pumping should not hurt. For maximum comfort and pumping efficiency, Medela offers five breastshield sizes. This guide is a starting point to help determine your optimal size based on your nipple diameter.





Step 1:
Using a ruler or measuring tape measure the diameter of your nipple at base (across middle) in millimeters (mm).* 1 cm = 10 mm. **Do not include areola.**

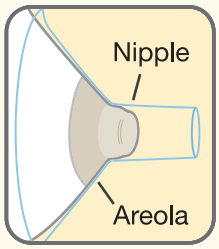
Step 2:
Based on your measurement, determine your PersonalFit breastshield size.

*Example: If your nipple size measures 16 mm in diameter, the recommended PersonalFit breastshield size is 21 mm.

2 Test your breastshield size

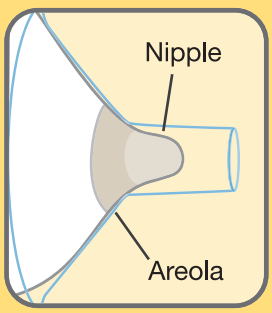
1. Start with the 24 mm that came with your pump, or the size determined by measuring.
2. Center nipple and gently hold breastshield against your breast.
3. Adjust for Maximum Comfort Vacuum™, to achieve optimum suction level.
4. Refer to images while pumping in expression.

Too Small



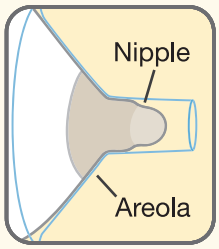
- Nipple rubs along side of tunnel
- Try a larger size

Correct fit



- Nipple is centered and moves freely

Too Large



- Nipple and excessive areola are pulled into the tunnel.
- Try a smaller size

3 Should you try a new size?

- Does your nipple rub sides of tunnel, to the point of causing discomfort?
- Do you see excessive areola being pulled into tunnel?
- Do you see any redness?
- Is your nipple or areola turning white?
- Do you feel unexpressed milk after pumping?

Did You Know?

- *Pressing breastshield too hard could block milk ducts.*
- *Your breastshield size will depend on your breast tissue and skin elasticity.*
- *When you apply vacuum pressure, your nipple size could change.*
- *Your breastshield size could change over the duration of your pumping experience.*
- *You may even need a different size per breast.*

If you answered "**YES**" to any of these questions, consider trying a new size by following the measuring instructions above. If you are still unsure if you selected the correct size, see a lactation consultant, breastfeeding specialist, or visit MedelaBreastshields.com for assistance in choosing the right size breastshield.

Correctly Fitting Breast Shields: A Guide for Clinicians

Irene Murphy Zoppi, RN, MSN, IBCLC

As clinicians we know that breast milk is the preferred nutrition for human infants.[1] This is especially true for premature and immuno-compromised infants in the NICU. Research indicates that mothers' milk protects infants from prematurity-specific morbidities and their associated long-term sequelae. In fact, evidence demonstrates that the more exclusive mother's milk the infant receives over the longest period of time the greater the protection.[2,3,4,5,6]

In the NICU, an infants' prematurity often prohibits the ability to feed at the breast and requires mothers to find evidence-based methods for expressing their breast milk. Due to the overwhelming evidence of the protection breast milk provides, mothers of premature infants are encouraged to begin breast milk expression early after delivery. The use of a hospital-grade, double electric breast pump has been recommended for pump dependent NICU mothers in helping achieve adequate volumes of breast milk.[7,8,9,10]

Clinicians who work with pump dependent mothers should be knowledgeable about how a breast pump works and how to help mothers get the most milk during their pumping sessions. In this article, the importance of proper breast shield fit and its impact on milk supply is explored. This article will identify criteria for clinicians to use to assess proper fitting of breast shields, which is essential to successful breast pumping.

Irene Zoppi currently serves as a Clinical Education Specialist for Medela, Inc. In this role, she acts as a vital resource for groups assisting breastfeeding mothers and infants. She has been frequently interviewed on radio and online regarding breastfeeding issues for mothers and clinicians. Zoppi spent many years caring for new families in antenatal, labor and delivery, postpartum and NICU settings and was involved in direct patient care and family-based education. She has extensive experience teaching in a variety of nursing education programs where she consistently received the Outstanding Lecturer title awarded by her students. She produced a video presentation on nursing students' involvement in Community Health Nursing for the National League for Nursing. Ms. Zoppi, an IBCLC since 2000 and former 1st Lieutenant in the Army Nurse Corps, has authored numerous continuing educational programs for health professionals on topics ranging from breastfeeding support to evidence-based practices on the use of human milk. She has been instrumental in developing hands-on education for clinical staff regarding breastpump technology. Irene graduated from Boston University with a master's degree in Parent Child Health Nursing and is a member of Sigma Theta Tau. This article was provided by Medela.

How a Breast Pump Works

The function of a breast pump is to simulate the sucking action of a breastfeeding infant. This is accomplished by applying vacuum in rhythmic cycles to the mother's nipple and areola through a funnel-shaped breast shield. The breast shield is that portion of the breast pump collection kit that comes in direct contact with the mother's breast, nipple and areola areas. As the breast pump cycles, the nipple and areola are drawn into the tunnel of the breast shield by the vacuum generated from the pump. Breast milk is expressed from the breast as a result of both the vacuum (negative pressure) from the pump and the milk ejection (positive pressure) experienced by the mother. The expressed breast milk is then collected into an attached container. Milk expression by a breast pump should be comfortable and effectively drain all available milk.

Breast Shield Fit Can Impact Mother's Milk Supply

Breast shields should be evaluated while the mother is pumping to ensure they correctly fit the mother's nipple and areola anatomy. Careful evaluation of how the mother's nipple responds as it is being drawn into the breast shield tunnel is advised. Breast shields can be either too small or too big for the mother. Breast shields that are too small may result in nipple soreness and pain, skin tissue breakdown and even excoriated nipples. As a result a mother may find pumping so painful she does not wish to continue. Any breakdown in the skin surrounding the nipples and areola may predispose the mother to develop mastitis.[11] Abrupt cessation of pumping may also result in mastitis. Breast shields that are too large for a mother's anatomy may cause similar skin irritation.

An incorrect fit may also result in incomplete breast emptying. Incomplete breast emptying leads to milk stasis within the breast. If milk stasis occurs, a milk protein known as the Feedback Inhibitor of Lactation (FIL) remains in the breast as well. FIL acts locally on breast tissue resulting in the down regulation of milk volume. Over time, a mother's milk supply may be critically affected leading to inadequate or decreased volume.[12] Ultrasound research on the lactating breast by Ramsay determined that milk ducts within the breast were easily compressible.[13] An ill-fitting breast shield may impede breast milk drainage by occluding the ducts also resulting in milk stasis, the presence of FIL and the eventual down regulation of a mother's milk supply.

For many years, the importance of selecting a breast shield that would fit a mother was not known. Different breast shield sizes

were limited and did not fit anatomical differences in nipple sizes. Just as mothers' breasts come in many sizes, so do their nipples. Many mothers may have experienced unnecessary pain while pumping which may have led to early cessation of breastfeeding. Manufacturers of breast pumps now provide multiple sizes of breast shields that make pumping comfortable and effective.

Finding the Proper Fit

Knowing how to select a correct size for each pumping mother is critical to her pumping success. Visible inspection of the diameter and/or length of a mother's nipples is inadequate in determining correct breast shield sizing. The nipple is comprised of elastic tissue that is capable of stretching and elongating. During breastfeeding, a healthy infant creates oral vacuum pressures that elongate the nipple two to three times its normal resting size.[14] The vacuum generated by the breast pump will cause similar nipple stretching. Correct breast shield sizing, therefore can only be made by witnessing the mother while she pumps. To determine the correct breast shield fit, one must watch how the mother's nipples respond to the vacuum applied by each cycle of the pump and how her nipples are drawn into the breast shield tunnel. It is also important to ask the mother for feedback on how pumping feels to her. It may be necessary to experiment with multiple breast shield sizes to find a suitable fit.

Mothers may find that their anatomy requires the use of two different sized breast shields.[14] Asymmetry of paired body structures is documented within other species of animals and may result in the need for two different breast shield sizes used at the same time by the same mother.[15] Even when a correct fit is determined, a mother may require additional assessments over the course of her pumping history. There may be a lot of variation in what feels and looks appropriate from one day in her lactation to another. Meier et al documented pump dependant NICU mothers' need for different breast shield sizes over the course of their lactation.[15] As a mother progresses through lactation, the need for a different breast shield size may change.

Consider the mother who has given birth by cesarean delivery after many hours of labor with epidural anesthesia. It would not be uncommon for this mother to receive copious amounts of intravenous fluid during her labor and delivery. After delivery, the intravenous fluid exits the intracellular compartment and enters the extravascular compartment (third spacing) resulting in very edematous areas of the body. This is often seen in a mother's puffy face, swollen hands and feet, but also can exhibit as fluid collects around the nipple and areola area. This fluid shift may not be seen on the mother's first day post-partum but on subsequent days. A correctly fitted breast shield for this mother on her first day post-partum would not necessarily fit or feel comfortable on subsequent days. She would require assessment for a larger breast shield. Resizing of her breast shields may also be necessary when her milk volume increases, commonly seen on days three to five after birth. When complete diuresis of excess fluid has occurred, the mother may find her breast shield size requires resizing once again.

The Role of Clinicians

Clinicians who work with pump dependent mothers need to be cognizant of criteria used to assure a correct breast shield fit. They should demonstrate competency in making clinical assessments regarding correct breast shield fit. These assessments are necessary interventions to ensure mothers are pumping using appropriate products and need to be a standard of care for pump dependent mothers. Clinicians can teach mothers how to make similar essential assessments while pumping their breast milk.

Fitting Criteria

Ensuring breast shields are correctly fitted requires knowledge of specific fitting criteria. Fitting criteria is as follows:

1. The nipple should be centered in the breast shield and move freely in the tunnel. The nipple should not rub against the sides of the breast shield tunnel. Mothers with large breasts may not be able to visualize their nipples and may require assistance to center their nipples in the breast shield. Once the vacuum of the pump starts, the mother may need to break the suction and center her nipple in the breast shield again. She may need to do this several times to achieve a good nipple position. It is also important to reinforce with the mother to be careful not to push the shields into her breast tissue when she positions or holds the shields. Ramsay's research demonstrated milk ducts and glandular tissue lie underneath the area where breast shields are positioned against the breast.[13] Pressing the shields "too hard" can result in damage to these ducts and glandular tissue.

2. Minimal or no areola tissue should be pulled into the tunnel. When a breast shield is correctly fitted, minimal or no areola tissue will be pulled into the tunnel of the shield. Excessive areola tissue pulled into the breast shield tunnel can also lead to tissue damage.

3. There should be gentle motion of the breast each time the pump cycles. This gentle, subtle motion suggests that the breast is getting proper stimulation while pumping. The breast seems to pulsate with each suction cycle very much like what happens when a healthy, term baby breast feeds.

4. Pumping should be comfortable. If criteria are followed pumping should feel comfortable to the mother.

5. The breasts should be well drained. The breasts should feel soft after each pumping session. They should be examined after pumping to check for areas of tenderness or areas that have not fully drained. The area not fully drained may feel firm or hard suggesting the milk duct located in that part of the breast has been inadequately drained by a potentially ill-fitting breast shield.[14, 18] The mother may need to pump longer or get a different size breast shield. Clinicians should explain to mothers that if they find that part of the breast is not draining, they should seek the help of a clinician or lactation consultant.

A Helpful Teaching Tool

The use of an easily remembered acronym may help to reinforce these fitting criteria with both clinicians and pump dependent mothers. The acronym "COMFY" identifies the objective fitting criteria described in this article.

- **C** – Centered nipple which moves freely in the tunnel
- **O** – Only little or no areola tissue pulled into the tunnel
- **M** – Motion of the breast is gentle and rhythmic with each cycle of the pump
- **F** – Feels comfortable pumping
- **Y** – You find a well drained breast. If an area of the breast still feels full or a bit firmer, the milk duct in that area of the breast may not be empty.

The COMFY acronym is a simple teaching tool that emphasizes criteria used to correctly fit breast shields. It is easy for both clinicians and mothers to learn and to remember. Laminated cards detailing COMFY fitting guidelines can easily be affixed to all breast pumps within the hospital setting. Clinicians can reinforce these fitting techniques whenever they are instructing mothers how to use a breast pump and mothers can easily refer to them each time they pump within the hospital setting.

Conclusion

Clinicians can make a tremendous difference in the pumping experience of pump dependent mothers. Clinicians working in the NICU with pump dependent mothers require information on the function and use of breast pump equipment. They need to know how the pump components work together and how to ensure mothers are using correctly sized breast shields. These clinicians should know specific breast shield sizing criteria that are straightforward and can be easily interpreted and taught to mothers. Use of the acronym, **COMFY** may help clinicians and mothers understand and remember the specific criteria for a correctly fitted breast shield. Knowledge of these fitting criteria need not be complex for the clinician or for the mother.

Clinicians should demonstrate competency correctly sizing breast shields with mothers who pump breast milk. Correct breast shield sizing helps to ensure mothers will be comfortable while pumping. With this important knowledge and guidance from clinicians, mothers may be protected from injury and will be sure that their breasts are adequately emptied each time they use a breast pump.

References

1 American Academy of Pediatrics, Section on Breastfeeding. Breastfeeding and the Use of Human Milk. Pediatrics 2005; 115:496–506.

2 Meinzen-Derr J, Poindexter B, Wrage L, Morrow AL, Stoll B, Donovan EF. Role of human milk in extremely low birth weight infants' risk of necrotizing enterocolitis or death. J Perinatol. 2009;29(1):57-62.

3 Sisk PM, Lovelady CA, Dillard RG, Gruber KJ, O'Shea TM. Early human milk feeding is associated with a lower risk of necrotizing enterocolitis in very low birth weight infants. J Perinatol. 2007;27(7):428-33.

4 Sisk PM, Lovelady CA, Gruber KJ, Dillard RG, O'Shea TM. Human milk consumption and full enteral feeding among infants who weigh </= 1250 grams.Pediatrics 2008; 121(6):e1528-33.

5 Vohr BR, Poindexter BB, Dusick AM, McKinley LT, Wright LL, Langer JC, Poole WK; Beneficial effects of breast milk in the neonatal intensive care unit on the developmental outcome of extremely low birth weight infants at 18 months of age. Pediatrics 2006; 118: e115-123.

6 Vohr BR, Poindexter BB, Dusick AM, McKinley LT, Higgins RD, Langer JC, Poole WK. Persistent beneficial effects of breast milk ingested in the neonatal intensive care unit on outcomes of extremely low birth weight infants at 30 months of age. Pediatrics 2007; 120(4):e953-959.

7 Hurst NC, Meier PP. 'Breastfeeding the preterm Infant' p. 431, Ch. 13 in Breastfeeding and Human Lactation, 4th edition, 2010 by Jan Riordan and Karen Wambach, Jones and Bartlett Publishers, Sudbury, MA.

8 Academy Of Breastfeeding Medicine (ABM). Clinical Protocol Number #12: Transitioning the Breastfeeding/Breastmilk-fed Premature Infant from the Neonatal Intensive Care Unit to Home. 2004 Sep.

9 Quality Improvement Toolkit, California Perinatal Quality Care Collaborative, rev. 2008.

10 Spatz DL. "State of the Science: Use of Human Milk and Breast-feeding for Vulnerable Infants" (2006) J of Perinatl Neonat Nurs. Vol 20:1; 51-55.

11 Jones E, Hartmann PE. Milk Expression. Ch 5:77. in "Feeding and nutrition in the preterm infant. 2005 by Elizabeth Jones and Caroline King, Elsevier Churchill Livingstone, London, England.

12 Wilde CJ, Addey CVP, Boddy LM, Peaker M. Autocrine regulation of milk secretion by a protein in milk. Biochem. J. 1995; 305:51-58.

13 Ramsay DT, Kent JC, Hartmann RA, Hartmannn PE. Anatomy of the lactating human breast redefined with ultrasound imaging. J. Anat. 2005;206:525–534.

14 Woolridge MW. The 'anatomy' of infant sucking. Midwifery. 1986; 2(4): 164-71.

15 Meier PP. Choosing a correctly-fitted breastshield. Accessed on January 10, 2011 from http://www.medelabreastfeedingus.com/tips-and-solutions/13/choosing-a-correctly-fitted-breastshield.

16 Moller AP, Thornhill R. Bilateral symmetry and sexual selection: A meta-analysis. Am Nat 1998;151;174-192.

17 Meier PP, Motykowski JE, Zuleger JL. Choosing a correctly-fitted breastshield for milk expression. Medela Messenger 2004, 2.1:8-9.

18 Jones E, Hitlon S. Correctly fitting breast shields are the key to lactation success for pump dependent mothers following preterm delivery. J Neonatal Nurs. 2009; 15:14-17.

Additional Resources regarding pain as a causative factor for lactation cessation:

- Damato EG, Dowling DA, Standing TS, Schuster SD. Explanation for cessation of breastfeeding in mothers of twins. J Hum Lact 2005; 21(3):296-304.
- Riordan J, Bibb D, Miller M, Rawlins T. Predicting breastfeeding duration using the LATCHbreastfeeding assessment tool. 2001; J Hum Lact 17(1):20-23.
- Dick MJ, Evans ML, Arthurs JB, Barnes JK, Caldwell RS, Hutchins SS, Johnson LK. Predicting early breastfeeding attrition.2002; J Hum Lact 18(1):21-27.
- Wambach KA, Cohen SM. Breastfeeding experiences of urban adolescent mothers.J Pediatr Nurs. 2009 ; 24(4):244-54.