

## Runner Up: Rainbow Babies and Children’s Hospital, University Hospitals Case Medical Center, Cleveland, Ohio

### Challenge

The American Academy of Pediatrics recommends full-term and preterm infants are fed breast milk exclusively for the first six months of life<sup>1</sup>. Mothers of preterm infants frequently encounter more challenges than mothers of full-term healthy infants<sup>2,3,4,5</sup>. We focus on assisting mothers to overcome these challenges through support, education, and provision of high-quality Medela breast milk expression equipment and supplies. We consider patient-focused and collaborative, relationship-based, family-centered care as our standard of practice. Our aspiration is to initiate and sustain a high breastfeeding rate for NICU infants through a comprehensive variety of innovative strategies to support our diverse patient populations.

### Goals

Goals for lactation management and support at Rainbow Babies and Children’s Hospital in the NICU included:

- Improve breastfeeding or breast milk expression initiation rate for NICU mothers
- Improve duration of breastfeeding activity or breastmilk expression for NICU mothers
- Improve exclusivity for human milk feeding for all infants of less than 1500 grams

### Method

Methods included internal and external involvement in programs to maximize maternal milk production. Our leadership team invests resources in education, administrative support, finances, staff and patient development programs to assure goal attainment. These interwoven efforts improved our breast milk expression or breastfeeding initiation rate, as well as the exclusivity and duration that infants receive human milk. We provide donor milk if mother’s own milk is unavailable for extremely low birth weight infants and critically-ill infants.

- **Intraprofessional support for breastfeeding families.** We strive to provide seamless lactation support, education and care for the mother in the antenatal, perinatal and post-partum periods with collaboration of physicians, nurses, lactation consultants and dietitians.
- **Single-family room NICU.** We provide a Medela [Symphony® Breastpump](#) for each patient room so all mothers have unlimited access to breast pumps to establish and maintain an adequate supply. Mothers with infants in the NICU are given [Symphony® Breastmilk Initiation Kits](#) so mothers are able to begin breastmilk expression within six hours of delivery.
- **Ohio Perinatal Quality Collaborative (OPQC) Project.** OPQC initiated another effort to further reduce late onset bloodstream infections in infants of 22 – 29 weeks gestation by increasing usage of human milk. Dr. Michele Walsh, our chief, division of neonatology, spearheaded this initiative at the state level. We began collecting data for the OPQC project in 2012. See Figures 1 and 2 for key driver and practice change information.

**Figure 1: Key Drivers in the Ohio Perinatal Quality Collaborative Human Milk Project**

- Maternal education about benefits for both mother and infant of human milk.
- Care practices that promote adequate supply of human milk.
- Administrative/Leader and staff education to promote and support human milk.
- Optimize feeding practices to promote initial and persistent human milk feeds.
- Use of donor milk when mother’s milk not available or inadequate in volume.

**Figure 2: Practice changes implemented (some prior to the initiative) at RBCH for OPQC Human Milk Project**

We use the Plan-Do-Study-Act performance improvement with iterative cycles to attain improvement.

- Antenatal consults by a neonatologist now always include a discussion of the use of mother’s milk to enhance infant outcomes. All high-risk mothers are seen by an IBCLC to discuss the benefits of human milk for mothers and infants; an overview of breastmilk expression guidelines; available supportive and educational resources (such as Skylight and new online sites); and attainment of an electric breast pump for use after maternal discharge.
- We significantly improved our early initiation of breastmilk expression by collaborating with health care professionals of Labor and Delivery unit who now provide mothers who are separated from their infants that are transferred to the NICU with [Symphony® Breastmilk Initiation Kits](#) to enable these mothers to initiate breast milk expression efforts within six hours of delivery.
- We promote early and frequent kangaroo or skin-to-skin care.
- We have recently revised our breastmilk expression, kangaroo care, and donor human milk policies, standards, patient information sheets and guidelines.

- **Intraprofessional teaching to promote, support, and protect breastfeeding.** We hosted nationally-recognized experts such as Dr. Richard Schanler, and Dr. Paula Meier to educate health care professionals about the positive impact of human milk on health outcomes for preterm and critically-ill neonates. We have recently participated in outstanding educational webinars offered by Medela.
- **Evidence-based practices to support and educate breastfeeding families.** We are involved in research to enhance our knowledge about human milk and breastfeeding support services we offer. We have a long and impressive history of research to support the value of breastfeeding, breast milk, parent-infant bonding, and skin-to-skin care. Seminal works that support breastfeeding and maternal-infant bonding were authored by Drs. Kennell and Klaus here. World-renown Kangaroo Care expert, Dr. Susan Ludington has conducted research in our NICU.
- **Three free meals per day.** Offered through “Mom’s Club,” mothers order according to their individual taste and preference. Meals are delivered directly to her so she does not need to leave her infant to travel to the cafeteria.
- **University Hospitals Case Medical Center Auxiliary Program grants.** These grants completely pay for rental of a Medela [Symphony® Breastpump](#) if insurance coverage will not cover the Medela [Pump In Style® Advanced Breastpump](#). This grant enables us to provide a Symphony®

**Table 1: Ohio Perinatal Quality Collaborative Human Milk Project**

	<i>% Infants fed any human milk within the first 72 hours of life</i>	<i>% Infants fed &gt;= 100ml/kg/day of human milk at 21 days of age</i>	<i>% Infants with prenatal discussion regarding benefit of human milk</i>	<i>Average time to first maternal pumping (hours)</i>	<i>% Infants whose mothers pumping was within 6 hours of birth</i>	<i>Average time to first human milk enteral feed (hours)</i>	<i>% infants feeding &gt; 50% volume of Mother's Milk at 21 days</i>
Initiation (1-2012)	Approx. 35%	Approx. 63%	100%	Approx. 25 hours	Approx. 33%	Approx. 100 hours	Approx. 81%
Present (8-2013)	Approx. 90%	Approx. 60% (5-2013): 100%	100%	Approx. 6 hours	Approx. 60% (4-2013 & 7-2013): 100%	Approx. 42 hours	100%

**Outcome**

RBCH earned the *IBCLC Care Award* twice from the International Board of Lactation Consultant Examiners and the International Lactation Consultant Association for excellence demonstrated in staffing with professionals certified by the International Board Certified Lactation Examiners. This award recognized RBCH for premier breastfeeding support provided by highly skilled health professionals to families entrusted in our care.

Measures of our positive outcomes are reflected by our statistics. See Table 1 for information collected through participation in the OPQC Human Milk Project. Table 2 reports the volume of service provided by our team of International Board Certified Lactation Consultants. Tables 3 and 4 indicate the nutritional substrates infants are fed over time.

**Table 2. Volume of consultation services provided by Lactation Consult Services for High-Risk Neonates at Rainbow Babies and Children's Hospital in 2012**

<i>Weight</i>	<i>Number of Admissions to NICU</i>	<i>Number receiving Human Milk</i>	<i>Percentage receiving Human Milk</i>	<i>Number of Lactation Consultant Visits</i>	<i>Number of Lactation Consultant Telephone calls</i>
<i>0 -1499 grams</i>	187	173	93%	635	180
<i>1500- 5000 grams</i>	985	695	81%	2291	175

**Table 3. Feeding initiation rates in the NICU in 2008 at Rainbow Babies and Children’s Hospital**

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
<b>Day of Life feeds started (average)</b>	5	4.3	4.8	5
<b>Day of Life feeds started (range)</b>	2 - 26 days	2 - 21 days	2 - 10 days	1 – 18 days
<b>Fed Mother’s Own Milk</b>	78	61	87	73
<b>Fed Donor Human Milk</b>	15	32	0	19
<b>Total human milk</b>	93%	93%	87%	92%

**Table 4. 2013 Quarterly Care Path Report for Preterm Infants Less than 1500 grams at Rainbow Babies and Children’s Hospital**

	Day of Life 3 First Feed	Day of Life 14 Feed	Day of Life 21 Feed
<b>Mother’s Own Milk</b>	72%	75%	54%
<b>Donor Human Milk</b>	28%	11%	27%
<b>Formula</b>	0	8%	8%
<b>NPO</b>	--	8%	8%
<b>Study</b>	--	3%	3%

## Discussion

We are on an upward trajectory to continuously improve our performance. We have many dedicated individuals striving for ongoing development to optimize maternal efforts to establish and maintain an adequate supply of breastmilk to enhance the health of their medically-fragile infants. Intraprofessional collaboration is at an all-time high level as we work to promote, support, and protect breastfeeding and the use of human milk. Medela products, which are easy to use and maintain, allow us to focus on caring for hospitalized infants and their families. We enjoy working with families and educating them about optimizing their child’s health through the provision of human milk and breastfeeding. We believe that Medela products enable more families to experience a positive breastfeeding relationship with their child. Our numerous and diverse efforts are challenging and rewarding experiences. We made significant progress to strengthen breastfeeding families. We continue to strive to enhance our initiation, exclusivity and duration rates for this very vulnerable population. We utilize evidence-based practices and actively support research to improve health outcomes through the use of human milk for medically-fragile neonates.

## Tools that supported our success

The [Symphony® Breastpump](#) (multiple-use electric pump with 2-Phase Expression® technology) is critical to our efforts, as is the [Symphony® Breastmilk Initiation Kits](#) (personal-use breastshields, collection containers, etc.). We use numerous other Medela breastfeeding and expression supplies such as Symphony Initiation Kit replacement parts, Medela Breast Care Products, [BabyWeigh™ Scales](#), [Medela NICU Education Courses](#) and [NICU Pumping Logs](#).

## References

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