



Joint Initiative to Improve Breastfeeding Rates of NICU Babies

Collaboration between BlueCross BlueShield of Tennessee and ProgenyHealth

Introduction

Preterm and medically complex infants face greater health risks than healthy full term newborns, during the first year of life and thereafter (1). While much effort in neonatology has focused on acute, life-saving treatments in the NICU, thus reducing morbidity and mortality, the information that we present in this white paper suggests that increasing human milk consumption in premature and medically complex newborns has multiple varied benefits.

There are long-term benefits of feeding human milk to premature babies as well as the short-term benefits that are evident during the NICU stay (2,3,4). Short-term benefits are primarily related to improvement in host defense against bacterial and viral infection (5). Improved host defense is manifested in lower rates of systemic sepsis in preemies who are fed human milk, as well as lower rates of necrotizing enterocolitis (NEC) (2,4,6,7). NEC is among the main causes of death in the neonatal intensive care unit; if the infant survives NEC, the morbidities are profound: growth failure, short gut syndrome if bowel is lost, liver damage because of the ongoing need for intravenous alimentation, and adverse neurodevelopmental outcomes (8,9,10). Clearly, any intervention that can reduce the incidence of NEC can have far-reaching benefits to the preemie. Long-term benefits of human milk feeding have been well studied over the last 20 years, and include improved neurodevelopmental outcome and reduced incidence of obesity (11,12,13,14).

Rates of breastfeeding are decreased when post-partum units offer commercial products to the new mother (15). The Baby Friendly Hospital program, sponsored by UNICEF, WHO and the US Surgeon General's office, assists hospitals in decreasing their reliance on commercial products and educating the new mother in successful breastfeeding (15). Baby Friendly Hospital activities are limited to the mother's post-partum hospital stay. This program has recently received the support of the American Academy of Pediatrics in a 2012 policy statement (16). These programs are also consistent with the Healthy People 2010 and 2020 breast-feeding rate targets.

Breastfeeding and the Use of Human Milk

TABLE 1¹²

Healthy People Targets 2010 and 2020 (%)

	2007	2010 Target	2020 target
Any breastfeeding			
Ever	75.0	75.0	81.9
6 months	43.8	50.0	60.5
1 year	22.4	25.0	34.1
Exclusive breastfeeding			
To 3 months	33.5	40.0	44.3
To 6 months	13.8	17.0	23.7
Worksite lactation support	25.0		38.0
Formula use in 1 st 2 days	25.6		15.6

Background and Breastfeeding Support Program

In 2010, BlueCross BlueShield of Tennessee partnered with ProgenyHealth to provide neonatal care management services for its premature and medically complex newborns throughout the first year of life. As part of the case management service, ProgenyHealth provides lactation consultation.

To improve breastfeeding rates, BCBST and ProgenyHealth developed a program that supports breastfeeding by providing a breast pump, case management education services, and a lactation consultant to mothers of infants admitted to a NICU/special care nursery.

One of the goals of this joint initiative is to improve breastfeeding rates upon the infant's discharge from the NICU. The program offers continued breastfeeding support to BCBST mothers throughout the first year of life.

In Tennessee, a study done by Pediatrix in 2005 found that only 37% of mothers were breastfeeding at NICU discharge (17). To improve these breastfeeding rates, BCBST and ProgenyHealth developed a program that supports breastfeeding by providing a breast pump, case management educational services and a lactation consultant to mothers of infants admitted to a NICU/special care nursery.

The breastfeeding support begins while her infant is still in the NICU, and the ProgenyHealth case manager introduces the program to the new mother. A BCBST sponsored Medela Electric Breast Pump is offered. The ProgenyHealth case managers provide education and support for breastfeeding, which includes a consultation with a certified lactation consultant. Mothers are contacted frequently throughout the first year by the ProgenyHealth case manager to reassess their needs and continue to support their efforts to breastfeed.

Assessing the Outcome

ProgenyHealth engaged an independent evaluator to manage the BCBST breastfeeding outcomes study. The process used for this study is explained in detail below.

Methodology

A breastfeeding outcome survey for members was developed in conjunction with the evaluator and ProgenyHealth. The purpose of the survey is two-fold; to measure overall member satisfaction with breastfeeding support services and to determine breastfeeding outcomes among the BCBST population receiving case management services from ProgenyHealth.

Eligibility

All mothers with a child born between July 1, 2011 and June 30, 2013 and had ever breastfed were eligible to participate in the study. These dates were established to ensure a sufficient sample size while minimizing recall error.

Data Collection

During the study period, there were 1841 mothers of NICU infants born who had at any time breast fed their newborn. These mothers received a telephone call from an independent surveyor inviting them to complete a breastfeeding survey. Five hundred and fourteen (27.9%) mothers agreed to participate. Prior to completing the survey, respondent information was verified to ensure compliance with HIPAA, which was done by asking the respondent for her child's name and date of birth. Once identity was confirmed, a confidentiality statement was read to participant mothers and the survey commenced. An average of five minutes was required to complete the survey.

Sample

The 514 participating mothers provided a representative sample of the 1841 breastfeeding mothers, in terms of gestational age distribution.

Birth weight	Total breastfeeding population	Survey sample
ELBW (<1000 grams)	99: 5.4%	23: 4.5%
VLBW (1001-1499 grams)	171: 9.3%	36: 7.0%
LBW (1500-2499 grams)	609: 33.1%	174: 33.9%
Non low birth weight	962: 52.3%	281: 54.7%
Total	1841: 100.0%	514: 100.0%

Results

Duration of Breastfeeding

Data collected from the survey measured both attitudes as well as breastfeeding outcomes.

The average duration of breastfeeding in the survey sample was 7.1 months. The mothers of ELBW infants, whose babies are also the most fragile, breastfed for an average of 9.4 months, with 84% still breastfeeding at 6 months. This may reflect additional support that these mothers received from the hospital staff, because ELBW infants typically remain in the NICU for at least 3 months. The table below compares prevalence of breastfeeding in the overall US population (18), State of TN population (17), and the surveyed BCBST/PH sample. The BCBST/PH data reflect babies delivered between 2011 and 2013 who were admitted to NICU, whereas the TN and Overall US populations reflect babies delivered in 2008, who were not exclusively admitted to NICU. This difference in years of delivery and early medical treatment may reflect some bias in the data.

Population	% Ever Breastfed	% Breastfeeding at 6 months	% Exclusively Breastfeeding at 6 months
BCBST/PH mothers	87.7	45.5	35.8
TN Population	64.3	30.8	13.9
Overall US Population	76.9	47.2	16.3

Breastfeeding Support

A majority of breastfeeding mothers (88%) accepted a breast pump from ProgenyHealth. Of those mothers, 94% reported using it every day. Anecdotal comments from mothers indicate that a breast pump after their infant's discharge from the NICU was essential for the continuation of breastfeeding.

On degree of preparation, 79% of mothers reported that they were "well prepared" or "very well

Even among mothers who had no intentions of breastfeeding, 20% were still breastfeeding at 3 months.

prepared" when they were discharged from the hospital. Additionally, mothers met their own breastfeeding expectations, with 61% breastfeeding as long as they initially expected. Even among mothers who had no intentions of breastfeeding, 20% were still breastfeeding at 3 months.

Readmissions

Published data (19) indicate that 27% of NICU babies are readmitted to the hospital after initial discharge home. In the survey sample, 15% of breastfed babies were readmitted.

Conclusion

The data presented here indicate that BCBST mothers supported by ProgenyHealth may have better outcomes than the reported state and national averages. Our purpose in this paper is to report breast-feeding outcome data on BCBST/PH mothers who participated in our program. Acknowledging that the groups are different in terms of years of birth and early medical intervention, the BCBST/PH breast feeding program is successful in initiation and continuation of breast feeding. In

In this program, we achieved 2020 Healthy People goals in two categories.

addition, participation of BCBST/PH mothers is comparable to 2020 Healthy People goals in two categories: ever breastfed and exclusive breastfeeding at six months. Additionally, in the most vulnerable group of infants, ELBW, we report an 84% breastfeeding rate at six months.

Evidence also indicates that ProgenyHealth's intervention influences a mother's decision to breastfeed at any time. Of those mothers who breastfed their infants at least three months, 20% had no intention of breastfeeding initially. In addition to the assistance from a lactation consultant, the breast pump supplied by BCBST provided additional support to a vast majority of ProgenyHealth mothers, with 88% of mothers accepting a pump and 94% of those mothers utilizing it every day.

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