

INTRODUCTION

In order for an infant to feed successfully, a coordinated pattern of “suck-swallow-breathe” must be done appropriately. Most healthy, term infants are able to do this immediately after birth due to their matured neurodevelopment.

However, the preterm infant has yet to reach the postconceptual age that supports coordination of breathing and swallowing with oral-motor functioning. Feeding too soon can lead to choking, apnea, and bradycardia episodes in these infants. Therefore, caregivers must pay close attention to the behavioral cues an infant is giving in order to determine if he/she is ready to feed orally.

The Feeding Readiness Scale created by Susan Ludwig, OTR/L (1, 2) gives easy guidelines to score infants and determine if they are ready to feed orally. Following an infant’s cues for feeding decreases stress and makes the feeding experience more pleasurable to the infant.

EBP INITIATIVE DESIGN

PURPOSE

This evidence-based practice initiative was designed to investigate feeding practices prior to and after implementing Ludwig’s Feeding Readiness Scale, and to evaluate whether the practice change effect on length of stay and feeding tolerance for the preterm infant.

METHODS

- Data was collected for 28 months from 12/07 to 03/10
 - Phase I: pre-education (6 months)
 - Phase II: early education (9 months) - passive
 - Phase III: late education (7 months) - active
 - Phase IV: post-education (6 months)
- Gestational ages at birth, first feeding, and at discharge were collected as was O₂ therapy at the time of first feeding
- Data analysis included calculation of means, STD, Chi-Squared Goodness-of-Fit Test, Two-Tailed t-Test assuming unequal variance, Two-Factor ANOVA without replication

BACKGROUND

Traditionally, nurses in the Special Care Nursery (SCN) felt they had to get a preterm infant to eat in order to have successfully cared for him/her. An infant was fed on intervals such as once a day or every other feeding. The idea being that the quicker the infant learned to eat, the sooner he/she could go home with his/her parents.

However, studies have shown that feeding too early increases stress for infants and slows the progression of successful feeding. An approach was needed that focused on cues given by the infant when he/she was ready to begin feeding orally.

IMPLEMENTATION

After numerous articles were published and conferences were held introducing the concept of feeding readiness around the country, it was time for the Special Care Nursery’s infant feeding practice to reflect best evidence.

Dr. Suzanne Thoyre’s article (3) was first shared with the SCN staff in June 2008. An updated flow sheet with a column for a feeding readiness score based on Ludwig’s Feeding Readiness Scale followed in March 2009. Then a conference addressing preterm infant feeding was convened at CVMC in June to provide further staff education. By the end of September 2009 all staff had been educated.



The Special Care Nursery’s goal for feeding preterm infants is to make it an enjoyable experience for the child, while maintaining stable vital signs and no distress, and all in order to avoid future feeding issues as a toddler.

LUDWIG FEEDING READINESS SCALE (>33 weeks)

Score 1: Drowsy, alert, or fussy prior to care; rooting, hands to mouth; awakens at feeding time; good tone

Score 2: Drowsy or alert with handling; some rooting or takes pacifier; adequate tone

Score 3: Briefly alert with care; no hunger cues; no change in tone

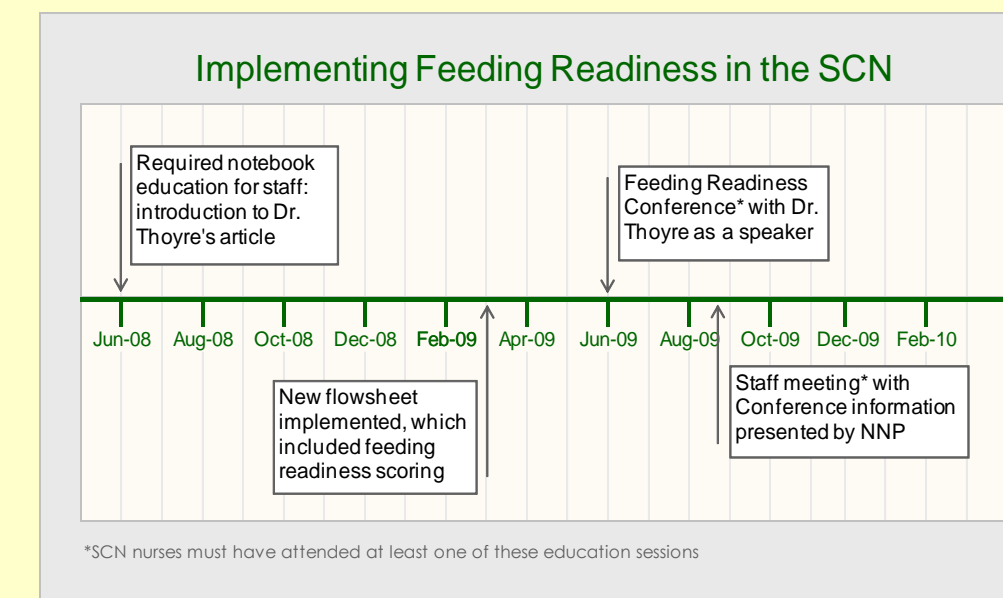
Score 4: Sleeping through care; no hunger cues; no change in tone

Score 5: Needs increased oxygen with care; apneic or bradycardic with care; tachypnea is greater than baseline

If the readiness score is 1 or 2, nipple feeding may be attempted. If nipple feeding is not attempted, document the reason.

If an infant’s score is 3-5 and the infant is being nipple fed, document the reason for the nipple feeding.

EBP INITIATIVE TIMELINE



DEMOGRAPHICS & LOS

Study Population (N=141) Demographics and Length of Stay by Feeding Readiness Education Exposure (Phases)

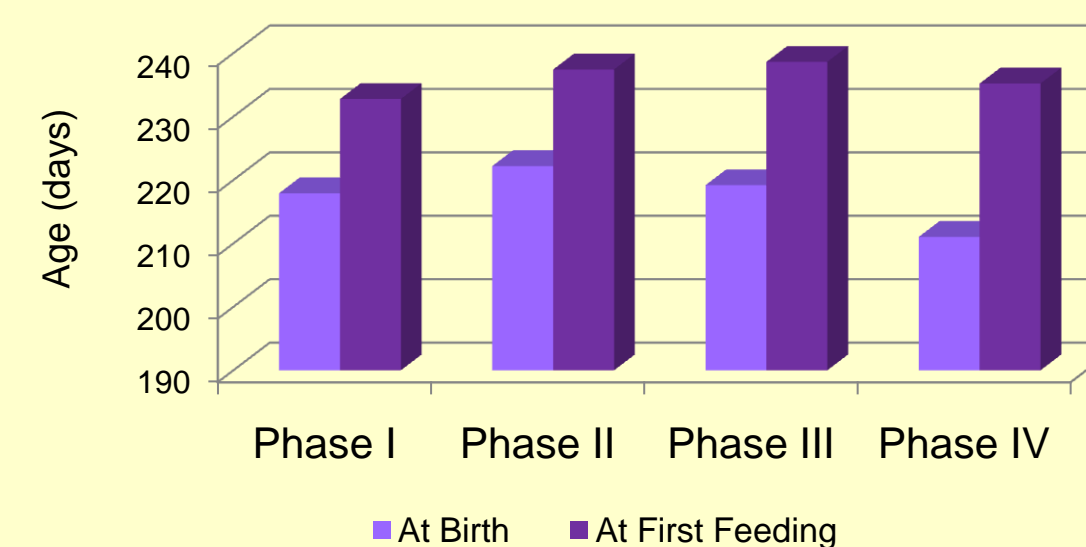
	Phase I (n=36)	Phase II (n=30)	Phase III (n=43)	Phase IV (n=32)
Gender Distribution				
Male	18	14	27	14
Female	18	16	16	18
High Risk Preterm Infants (n)				
≤ 28 Weeks	4	3	8	8
O₂ Status at First Oral Feeding (%)				
Receiving O ₂	13.89	6.67	13.95	18.75
Length of Stay (days, +/- STD)				
Mean	39.6 (23.5)	35.5 (18.1)	41.8 (25.2)	49.5 (29.9)
Range	10 - 109	13 - 80	10 - 131	14 - 124

*Phase I: pre-education; Phase II: early education; Phase III: late education; Phase IV: post-education

- Ratio of male to female infant subjects did not differ significantly from the secondary sex ratio ($p=.349$; χ^2 test)
- In Phases III & IV, the greatest number of high risk subjects, ≤ 28 weeks gestational age at birth, and longest LOS were observed

BIRTH & FIRST FEEDING AGE COMPARISON

Study Phase Comparison of Gestational Ages at Birth and First Feeding



- Mean gestational age of infants at first feeding increased over baseline (Phase I, prior to any education) in all subsequent phases; however, not significantly ($p=.286$; ANOVA)

A NURSE’S VIEW



Chris Bowman, BSN, NIC

Since she began working in the nursery in 1984, Chris has seen many changes at CVMC. Back then the nursery was shifted every 3 days, closed down and cleaned. In the years following, she has seen remodeling, creation of the NICU, the first TPN baby, and the addition of neonatologists and nurse practitioners. Chris says, “we now see premature babies as early as 24 weeks.” The use of surfactant, to increase lung compliance, has improved our patient outcomes.

Practice changes in the nursery result from questions raised by staff, research literature and professional guidelines. Recently, clinical evidence regarding feeding cues or feeding readiness practice was brought to staff attention with a hospital-sponsored conference. Nursery nurses, nutrition staff, occupational therapists and physical therapists participated in the conference. “The evidence presented confirmed my beliefs and what I was seeing in my practice,” Chris states, regarding the fact that the feeding practice in the Special Care Nursery at that time did not match evidence-based practice for feeding readiness.

The next step was to discuss the evidence and educate staff, but Chris admits, “change challenges us all.” Seeing babies tolerate feedings with less spitting up and faster increase in weight helped nurses, who were less willing to accept the EBP change initially, get on board. When asked what was the best thing about her job, she enthusiastically replied “no two days are alike and I get to teach every day.” Chris strives to make a difference every day and wants to tackle developmental care next using the EBP process.

-Excerpted from CVMC *Progress Notes*, December 2009

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CONTACT INFORMATION

Lori McNeely, RNC-NIC, BSN
lmcneely@catawbavalleymc.org
Andrea Flynn, RNC-NIC, LRN, BSN
aflynn@catawbavalleymc.org