Forging an evidence based collaborative approach to oral feeding in the NICU

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The establishment of full oral feeding is frequently the final hurdle a premature infant must achieve prior to discharge from the NICU. Families are often told that all that prevents their infant from going home is "learning to eat." Many of these families and their infants have weathered significant medical crisis during their stay in the NICU, have exhausted both emotional and financial resources, and are more than ready to leave the hospital and begin their "real life". Establishing a **consistent** approach to assessing infant readiness to initiate oral feeding, support emerging skills and implement appropriate feeding plans, is critical to the infant/family navigation of this developmental skill. This poster will describe the journey we have taken at Memorial Hospital for Children to improve the care of our smallest and most vulnerable patients and their families.

Memorial Hospital for Children Demographics

- Level IIIA – 56 bed unit
- 7 Neonatologists
- 13 Neonatal Nurse Practitioners
- 105 Bedside Nurses
- Developmental Care Team – originally comprised of Occupational and Physical Therapists
- Speech Language Pathologists joined Developmental Care Team 1998
- Standing orders on all infants from birth

2001 Where we were

- Order initiated at 34 weeks by Physician
- Typically nipple once daily
- Oral feedings offered daily increasing as infant completes prescribed volumes

Challenges

- Not developmentally supportive
- Caregiver driven rather than infant driven
- Feeding strategies focused on volumes not quality of feeding
- Did not support family education/understanding of oral feeding skill development
- Charting of feeding performance limited to volume and subjective description – good, fair, poor
- Limited transfer of information between caregivers, therapists, family and physicians regarding feeding performance and strategies to assist infant
- Speech Pathologists viewed as "feeding specialists"
- Expected to "fix" an infant, find correct bottle, nipple, rather than support developmental process and/or individual infants strengths/challenges

Incremental Changes; Shifting to Cue based feeding

- Increased feeding/developmental education opportunities
- Based Als's synactive theory, feeding articles by Catherine Shaker 1999, McCain 1997.
- Feeding Development included in new nurse orientation taught by Speech Language Pathologist
- Day long oral education offered for all staff covering development of oral motor/feeding and swallowing in premature infant taught by Speech Language Pathologist and Occupational Therapist
- Swallowing development/Dysphagia class taught by Speech Language Pathologist included in annual skills lab

2004 First Steps: Ad Lib Demand Protocol

- Developed by Developmental Care Team in response to increased movement to "cue based" feeding throughout the unit
- Based on McCain 2003 article in Neonatal Network
- Staff inserviced prior to implementation of protocol in staff meetings
- Ongoing education in cue based feeding through daily contact with developmental therapists, skills lab, nursing orientation
- Copy of protocol placed in the paper chart when the infant began "cue based" feeding **advancement** of oral feeding

Goals for the Protocol –

- Infant driven advancement of oral feeding
- Recognize and validate observational skills of bedside nurses and family
- Empower nurses and family to use their observation of the infant's behavior to support feeding development/advancement

Strengths of Protocol:

- Improved awareness of readiness cues to orally feed
- Move away from strict protocol advancement, ie, nipple QD to nipple BID etc.
- Improved awareness and use of developmentally supportive feeding strategies
- Improved awareness and use of strategies to support infant state control
- Improved awareness of overt signs of stress or instability in the infant

Ongoing Challenges:

- Continued reliance on physician orders to initiate feeding
- Lack of objective measures to describe quality of infant feeding in medical record
- Lack of common language to discuss infant feeding among caregivers and family
- Continued use of descriptors "good, fair, poor"
- Continued emphasis on volumes consumed
- Ongoing perception of inconsistency among caregivers and therapists

2009 Feeding Task Force

- Created in 2009 in response to ongoing concerns for consistency and communication across disciplines and shifts
- Goal to research best practices in initiating and advancing oral feeding and create protocol
- Multidiscipline – Physician, Nurse, Neonatal Nurse Practitioners, Speech Language Pathologists and Occupational Therapists
- Literature Search
- Examined practices at NICU across country
- Created protocol for initiation and advancement of oral feeding
- Selected the Feeding Readiness Scale developed by Ludwig and Waitzman, 2007.
- Adapted scale with permission from the authors for our use.

Goals for Protocol and Scale

- Evidence based
- Support infant development of oral feeding skills, both short term and long term
- Provide common language to describe and document infant feeding performance
- Improve consistency and transfer of information between multiple caregivers, family, therapists and physicians
- Improve family education/understanding of infant oral feeding skill development

EVIDENCED-BASED PRACTICE GUIDELINE FOR INITIATION OF MODIFIED DEMAND FEEDINGS (Bottle or Breast Feeding)

I. For infants that are:

- At least 32 weeks PCA
- Physiologically stable, as typically demonstrated by:
  - Smooth, even breathing
  - Breathing less than 60 times/minutes
  - No color changes with activity
  - Infrequent monitor activity
  - Tolerant of gentle handling
  - Requiring no more than 200 mls of oxygen or = 30% Fi02 & =3 LPM high-flow.
- Tolerating nasogastric tube feedings of formula or breast milk
- Alerting prior to cares
- Determine if mother is planning to breastfeed or bottle feed.
- Coordinate with Multi-disciplinary team for other circumstances.

II. Assess readiness to feed

- Assess at three hour intervals utilizing Infant-Driven Feeding Scales.
- Infant should alert with minimal handling
- Infant should root (spontaneously turn head and open mouth toward pacifier, blanket or finger that touches the corner of infant mouth
- Readiness signals include rooting, sucking on hands/fingers or pacifier, restlessness
- If infant does not alert and demonstrate readiness signals **do not attempt oral feeding.** Feed by NG and offer pacifier for pleasurable oral stimulation.
- Create an environment to support feedings and the infant (reduce noise, avoid bright lights, minimize extra activity)

	'FEEDING READINESS' SCALE
1	• Drowsy, alert, or fussy before cares • Rooting and/or bringing hands to mouth/taking pacifier • Good tone (presupposes autonomic stability)
2	• Drowsy or alert once handled • Some rooting or taking of pacifier • Adequate tone
3	• Briefly alert with cares • No hunger behaviors • No change in tone
4	• Sleeps throughout cares • No hunger cues • No change in tone
5	• Needs increased oxygen with cares • Apnea and/or bradycardia with cares • Tachypnea greater than baseline with cares
	'QUALITY OF NIPPLING' SCALE
1	• Nipples with a strong coordinated suck throughout feed
2	• Nipples with a strong coordinated suck initially but fatigues with progression
3	• Nipples with consistent suck, but has difficulty coordinating swallow. Some loss of liquid or difficulty in pacing.
4	• Nipples with a weak/inconsistent suck. Little to no rhythm. May require some rest breaks.
5	• Unable to coordinate suck-swallow-breathe pattern despite pacing. May result in frequent or significant A/Bs or large amounts of liquids loss and/or tachypnea significantly greater than baseline with feeding.
	'CAREGIVER TECHNIQUE' SCALE
A	• External pacing
B	• Modified sidelying
C	• Chin support
D	• Cheek support
E	• Oxygen modification

Feeding Readiness Scale Education:

- Ludwig, SM, Waitzman, KA. Changing Feeding Documentation to Reflect Infant-Driven Feeding Practice. *Newborn &Infant Nursing Reviews*. 2007;19:155-160. Given to all nursing and nurse practitioners.
- Developmental Care Committee members created power point training on feeding and use of the Feeding Readiness Scale
- Presented power point at staff meeting
- Nurse leaders and therapists presented power point education at brown bag inservices during day and night shift for three weeks prior to implementation of scale
- Reminder cards sized to fit inside name badges printed and disseminated to all staff
- Copy of scale and protocol translated into Spanish
- Copy of scale and protocol included in parent handbook available at each bedspace
- Additional training in documentation included during electronic medical charting education
- Speech Language Pathologists and Occupational Therapists in unit daily for additional support/education/training

Strengths of Feeding Readiness Scale:

- Supports caregivers observation of infant behavior
- Provides objective measure of readiness to orally feed and quality of infant feeding
- Common language
- Improved transfer of information regarding caregiver strategies to support infant
- Ease of charting
- Ability to review and note trends

Challenges:

- Consistent use and charting of the Feeding Readiness Scale
- Multiple changes in last two years
  - Transition to electronic medical charting
  - Management changes
  - Large staff turnover
  - Loss of large number of experienced nurse champions

Feedback:

Parents:

- Understandable
- Clarifies feeding development
- Makes sense
- Rating scale provides them with common language to use with nurses, therapists and physicians to discuss their infant's feeding behaviors
- Less inconsistency when the scale is used

Staff:

- More than half surveyed report using the scale regularly
- State it is a valuable education tool for parents
- Current electronic charting of scale cumbersome and time consuming so while they use the scale to determine readiness to feed are not always recording results

2010 Current Practice

- Initiation and advancement of oral feeding infant driven unless oral feeding is medically contraindicated
- Feeding Readiness scale part of electronic medical record
- Included in both nursing and therapy charting
- Copy of feeding protocol and readiness scale remains in parent handbook bedside
- Ongoing staff education via poster presentations, education days, brown bag inservices
- Developmental Therapists continue in unit daily providing;
  Feeding/developmental assessment
  Feeding plans
  Family staff education
- Refining parameters of when to initiate and when to discontinue use of scale
- In process of IRB approval to formally study efficacy of Feeding Readiness Scale and collect data

Speech in the NICU – Dancing in Snow Shoes

Working with premature and/or medically fragile infants and their families in the NICU is a relatively new and expanding area for Speech Language Pathologists. Expertise in oral motor, feeding, swallowing development, assessment and intervention is a requirement but one must also be adept at working in a highly stressful and emotional environment and be able to;

- Acknowledge and accept that changing practice is a process
- Aware and respect the culture of the NICU, it is **intensive care**
- Establish relationships
  - Serve on committees, participate in the life of the NICU
- Value expertise of nursing staff, actively seek collaboration, remain willing to discuss alternate plans, nipples, bottles etc
- Ongoing self education, current research infant feeding, swallowing, development and treatment, from multiple sources
- Aware of current products/trends in feeding both in research literature and parenting magazines
- Manage competing outcome goals – immediate vs long term, textbook vs reality
- Advocate for infants and families
- Continue to provide education to families, nursing staff and therapy staff
- Understand that no one plans to have a premature or ill infant and emotions run high, you may be the recipient of grief, anger, elation, frustration or all of these.
- Be open to the joy of assisting an infant and family in their first conversations.

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