

# Cue Based Feeding: It's How Infants Eat!

Ann Marie Mazzeo, OTR/L, SWC, CLEC

October 21, 2013

[OTmazzeo@yahoo.com](mailto:OTmazzeo@yahoo.com)



# Objectives:

- ◆ The participant will understand the complexity and importance of the acquisition of the infant's eating skills.
- ◆ The participant will understand the justification for Infant Driven Feeding Protocols.
- ◆ The participant will have information and resources to develop Infant Driven Feeding Protocols



# Moving Away from Our Past

- ◆ “I/she/he can feed a rock.”
- ◆ “I/he/she got 55 down him/her.”
- ◆ “Cue based feeding doesn’t fit my cares schedule.”
- ◆ “That nurse/parent/therapist doesn’t know how to feed babies.”
- ◆ “If you squeeze the bottle she/he takes the full feeding.”
- ◆ “All you need to do is make to hole bigger.”
- ◆ “If you pump the jaw and squeeze the cheeks he/she takes the entire volume.”

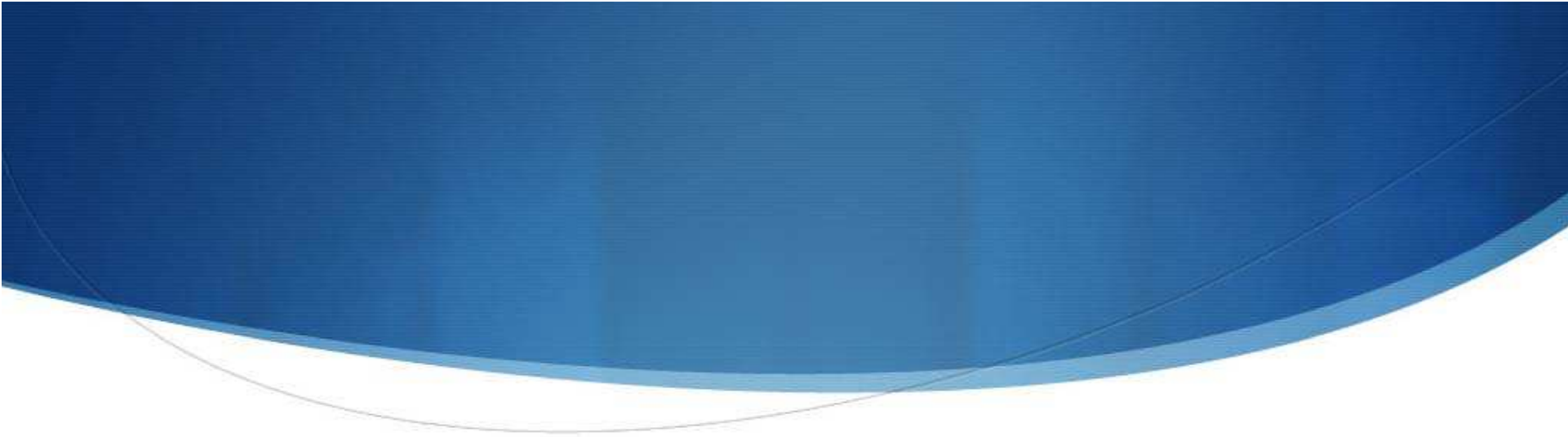
# Eating is a Learned Behavior:

- ◆ Learn to eat (basic skills/reflexes present)
- ◆ Learn how not to eat (compensatory strategies)
- ◆ Learn not to eat (aversion)
  - ◆ Create Positive Learning Experience (It's how we learn)
    - ◆ Increases Desire
    - ◆ Increases Skill
    - ◆ Improves Bonding



# Myth: Infants are born knowing how to eat

- ◆ **Infants are born with reflexes that assist with the acquisition of attaining the skills of eating**
  - ◆ Root, transverse tongue, phasic bite, suckling, Babkin (Integrate 3-8 months)
  - ◆ Gag: Newborn posterior  $\frac{3}{4}$  of tongue ( 4-6 months reduced gag response)
  - ◆ Volitional Control of Swallow ( Integrated between 12-18 months)
  - ◆ Cough

- 
- ◆ Functioning muscles and nerves are present to coordinate the complex process of eating and swallowing:
    - ◆ There are more than 20 different muscles that coordinate for the activity of eating
    - ◆ 6 Cranial Nerves are involved with the swallowing mechanism: Spinal Accessory, Vagus, Hypoglossal, Trigeminal, Facial, & Glossopharyngeal

# Initial Feedings for Term Infants

- ◆ Quantity of bottle-feeding:
- ◆ DOL 1: 5-10mls every 3 hours
- ◆ DOL 2: 20mls every 3 hours
- ◆ DOL 3: 30mls every 3 hours
- ◆ >DOL 4: ad lib every 3 hours

**Day 1**

**Day 7**

**Day 10**

**Shooter Marble**



A newborn baby's stomach is the size of a "shooter" marble and can hold around 5-7 cc. The small amount of colostrum produced by your breasts matches the small amount the baby's stomach can hold.

**Ping Pong Ball**



At 7 days, a baby's stomach increases to around the size of a ping pong ball and can hold approximately 1½ ounces.

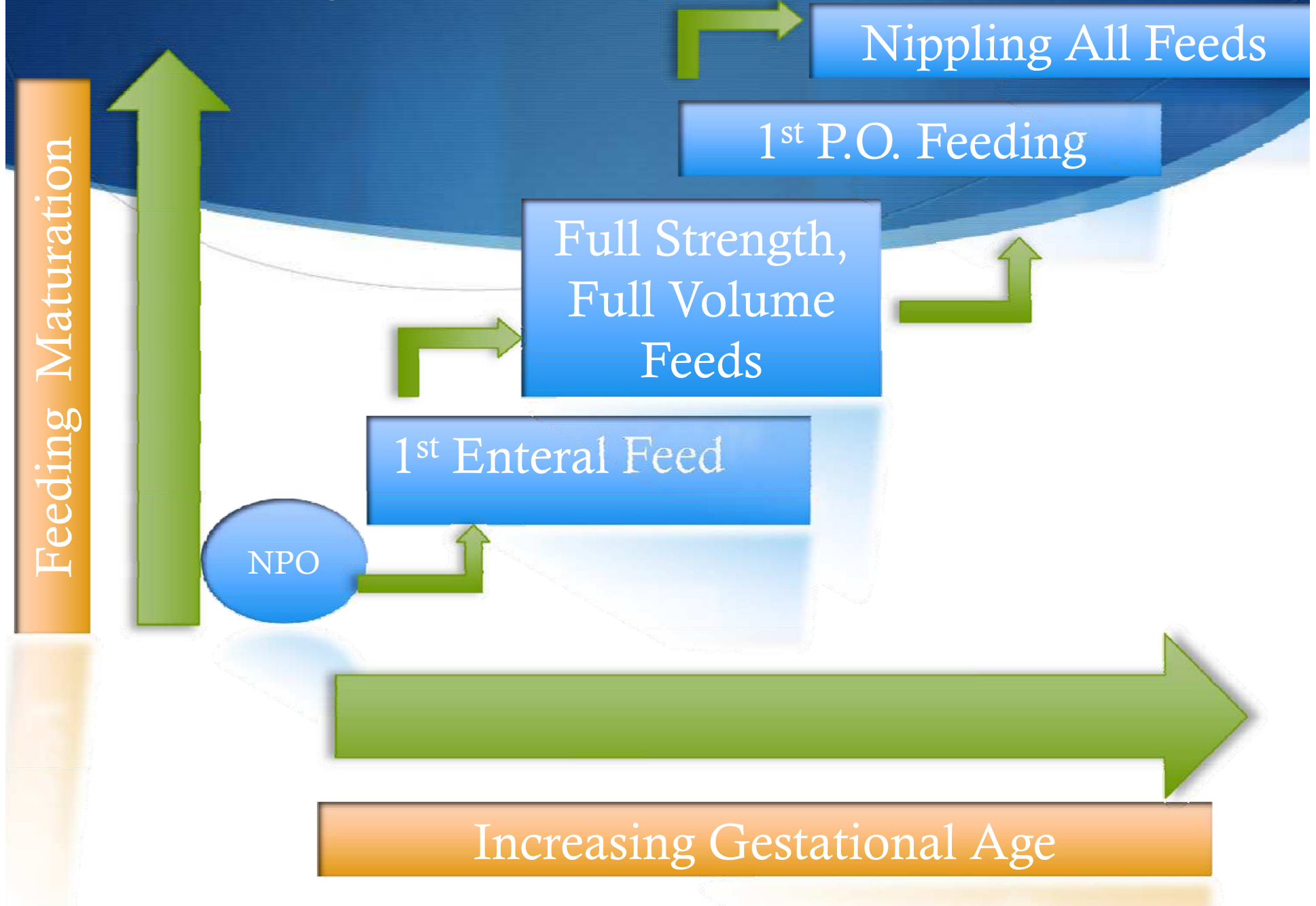
**Large Chicken Egg**



By the 10th day, baby's stomach increases to approximately the size of a large chicken egg and can hold a little over 2 ounces.



# Feeding Milestones in Preterm Infants



# What is infant driven eating?

- ◆ The accurate assessment of feeding readiness
- ◆ Cue-sensitive progression to full oral feedings
  - ◆ McCain GC. An evidenced-based guideline to introducing oral feeding to healthy preterm infants. *Neonatal Network*. 2003; 22: 45-50

# Why?

- ◆ Evidenced based practice- best nursing care
- ◆ Promotes feeding at infant's skill level
- ◆ Improves direct patient care
- ◆ Promotes early caregiver education and collaboration
- ◆ Decreases length of time to achieve full feeds

# Infant Driven Eating: Roles

- ◆ Eater- provides cues, engages or does not engage, per their skills takes nourishment. The child is responsible for “how much”
- ◆ Feeder- observes cues, responds to cues, feeds (provides the nourishment), records feeding response. “You help your infant be calm and awake and feed smoothly, paying attention to information coming from her about timing, temp, frequency, and amounts.”
  - ◆ Ellen Satter: *Secrets of Feeding a Healthy Family*, 2008; *Child of Mine*, 2012 (revised edition)

# Cue Based Feeding Scorecard

## Infant Driven Eating Score

### Eating Readiness:

- 1- Infant  $\geq$  32 weeks. Waking prior to cares, quiet alert state, stable physiologic control demonstrated with oral stimulation and handling. Appropriate tone and oral reflexes present. Demonstrating hunger cues.
- 2- Drowsy alert, arousable once handled. Stable physiologic control with oral stimulation. Oral reflexes are present. Demonstrating hunger cues.
- 3- Brief periods of alertness, unsustained. Emerging oral reflexes. Difficulty with state regulation and physiologic control. Limited non-nutritive suck.
- 4- Unarousable with cares. Poor physiologic control. Weak or delayed oral motor skills/reflexes. No signs of hunger cues.
- 5- Respiratory instability. Poor management of secretions. Apnea/Bradycardia with handling. Oral motor skills/reflexes absent or delayed. Signs of aspiration.

SCORE: \_\_\_\_\_  $\leq$  3: Ready to attempt eating.

### Eating Quality:

- 1- Rhythmical SSB synchrony throughout feeding.  
Good Endurance throughout feeding.
- 2- Intermittent rhythmical SSB synchrony, fatigues.
- 3- Arrhythmical SSB synchrony, with spilling/pooling and fatigues.  
Self imposes breaks.
- 4- Does not consistently coordinate SSB synchrony.  
Fatigues and requires frequently imposed breaks
- 5- Unable to coordinate SSB synchrony.  
Signs of aspiration, increased WOB, spilling, apnea/bradycardia.

SCORE: \_\_\_\_\_  $\leq$  3: Ready to continue to attempt eating.

### Interventions: (Choose as many as applicable)

- |                            |                                |                          |
|----------------------------|--------------------------------|--------------------------|
| (A) Minimized distraction  | (E) Supported upright position | (I) Palatal stimulation  |
| (B) Swaddled hands to face | (F) Sidelying position         | (J) Increased O2 support |
| (C) Unswaddled             | (G) Chin support               | (K) Breastshield;        |
| (D) External pacing cues   | (H) Cheek support              | (L) Nipple: _____        |

# Infant Driven Eating Bedside Documentation

## Infant Driven Eating Score Card

Patient Label

Date: \_\_\_\_\_ Diagnosis: \_\_\_\_\_ Gestational Age: \_\_\_\_\_ Corrected Age: \_\_\_\_\_

<u>Time</u>									
Eating Readiness:									
Eating Quality									
Interventions									
Comments:									

Date Oral feedings initiated: \_\_\_\_\_ Date when NG discontinued and pt is on full PO feeds: \_\_\_\_\_

# Readiness Cues Observation

# Pre Feeding Skill Enhancement:

- ◆ When your baby is not ready to take nutrition orally:
  - ◆ Encourage Kangaroo Care/Skin to skin
  - ◆ Encourage Non-nutritive breastfeeding
  - ◆ Facilitate infant's hand to mouth (positioning and/or assist)
  - ◆ Provide non-nutritive suck stimulation with pacifier or finger
  - ◆ Provide tastes of EBM to lips
  - ◆ Provide tastes EBM from finger or pacifier



# Resources for CBF Protocols:

- ◆ *Making the Literature Palatable at the Bedside* Advances in Neonatal Care; Volume 11, No.1, pp. 17-24
- ◆ *Cue-Based Feedings: Evidenced-Based Practice*, Morris & Gardner: Nurses Currents November 2011, Volume 5, Issue 5
- ◆ *Outcomes From an Oral Feeding Protocol Implemented in the NICU*, Drenckpohl, Dudas, Justic, McConnell, and Macwan: ICAN: Infant, Child & Adolescent Nutrition, February 2009
- ◆ *Cue-Based oral feeding clinical pathway results in earlier attainment of full oral feeding in premature infants*, Kirk, Alder and King: Journal of Perinatology (2007) 27, 572-578
- ◆ *Changing Feeding Documentation to Reflect Infant-Driven Feeding Practice*, Ludwig and Waitzman: Newborn & Infant Nursing Reviews, Volume 7, Number 3, September 2007

# References

- ◆ Arvedson, Joan & Brodsky, Linda; *Pediatric Swallowing and Feeding, Assessment and Management, Second Edition*. Singular Publishing, 2002.
- ◆ Babbitt RL, et al: Behavioral assessment and treatment of pediatric feeding disorders. *Journal of Developmental Behavior Pediatrics* 15:278-291, 1994.
- ❖ Cook & Blinman: The Case of the Wretched Retcher, *ICAN: Infant, Child & Adolescent Nutrition*, April 2009
- ◆ Dunn-Klein, Marsha, *Tube Feedings are Mealtimes, Too!*, Video. Mealtime Notions. 2003 Mealtime Notions website [mealtimenotions.com](http://mealtimenotions.com)
- ◆ Elbirt, Paula, MD. *Dr. Paula's Good Nutrition Guide for Babies, Toddlers, and Preschoolers*, Perseus Publishing, 2001.
- ◆ Evans Morris, Suzanne & Marsha Dunn Klein; *Pre-Feeding Skills, Second Edition*. Therapy Skill Builders, 2000.
- ◆ Fraker, Cheri & Walbert, Laura, *From NICU to Childhood, Evaluation and Treatment of Pediatric Feeding Disorders*. Pro-ed, 2003.
- ◆ Haas & Creskoff Maune, *Clinical Presentation of Feeding Dysfunction in Children with Eosinophilic Gastrointestinal Disease*, *Immunol Allergy Clin N am* 29 2009 65-75

- ◆ Illingworth, RS, Lester J. The critical or sensitive period, with special reference to certain feeding problems in infants and children. *Journal of Pediatrics* 1964 65:839-48
- ◆ Kirk, AT, Adler, SC., , et al. : Cue-Based Oral Feeding Clinical Pathway Results in Earlier Attainment of Full Oral Feeding in Premature Infants. *Journal of Perinatology*, 2007. 27, 572-578
- ◆ Logemann, Jerilyn Evaluation and Treatment of Swallowing Disorders. College Hill Press, Inc. 1983
- ◆ Ludwig, Susan M., OTR/L: Oral Feeding and the Late Preterm Infant, 2007
- ◆ Rudolph C, Link D: Feeding Disorders in Infants and Children. *Pediatric Clinics of North America*. Volume 49, number 1, February 2002.
- ◆ Satter, Ellyn, Child of Mine: Feeding with Love and Good Sense. Bull Publishing. 2000.
- ◆ Vergara, E. & Bigsby, R., Developmental & Therapeutic Interventions in the NICU. Paul H. Brookes Publishing Co. 2004
- ◆ Wolf, Lynn S., Glass, Robin P., Feeding and Swallowing Disorders of Infancy Assessment and Management. Therapy Skill Builders.