CUE BASED FEEDING GUIDELINE: NICU

POLICY

Applicability:
Occurs within the Neonatal Intensive Care Unit (NICU); Neonatal Program

Focus:
To provide practice guidelines for the use of Cue Based Feeding Pathway in the Neonatal Intensive Care Unit (NICU); Neonatal Program.

Background:
Providing recommendations for the use of a cue based feeding tool to guide oral feeds in the NICU is complex. Historically infants in the Neonatal Intensive Care Unit have been offered breastfeeding opportunities or bottle feeds based on their gestational age. The frequency, volume and delivery of feeds are typically based on gestational age, weight and medical need. When infants start orally feeding the focus may be on quantity of feed consumed rather than quality of feed. The implementation of a Cue Based Feeding Pathway will shift care providers focus away from initiating feeds based on gestational age to offering infants appropriate feeding based on their readiness and stop cues. Success will be measured by the quality of feed rather than quantity.

Much of the current literature suggests that infant’s oral feeding commencement should be based on behavioural cues rather than gestational age. It has been shown that infants who are fed based on their cues may reach full oral feeds several days before their counterparts fed in a more traditionally scheduled pathway. It is critical to assess infants frequently as feeding cues can happen at any time. Furthermore, weight gain for infants in a cue based feeding pathway is generally equal to or more rapid than their counterparts in a more traditional model. This finding indicates that infants who are enrolled in a Cue Based Feeding pathway may be able to be discharged earlier than their traditionally fed counterparts. The implementation of a Cue Based Feeding Pathway may enable certain infants to safely attain full oral feeds at an earlier Post-Menstrual Age (PMA) and subsequently be discharged earlier.

Offering the first oral feed at the breast is beneficial as infants are better able to control the flow of milk and maintain an effective suck-swallow-breathe pattern. When the family chooses to breastfeed their infant it is beneficial to start with a combination of breastfeeding and cup feeding in the presence of cues and provide supplementary feeds (top-up) via tube feeds. Cup feeding closely mimics the tongue motion associated with breastfeeding so may contribute to greater breastfeeding success. Involving the parents in making feeding decisions for their baby is critical for the success of transition from tube feeds to oral feeds. In the Cue Based Feeding Pathway parents are active participants in providing care for their infant and participate in all aspects of feeding; including providing hands on care and participating in decision making.

Infants who are medically fragile and unable to orally feed will still likely benefit from cue based feeding methods, such as: therapeutic tasting and non-nutritive sucking. Historically feeds have been started after the 32-34 week postmenstrual age when suck-swallow-breathe coordination is thought to be developed. Literature has shown that infants are capable of rooting and latching as early as 27 weeks and nutritive sucking has been demonstrated as early as 31 weeks postmenstrual age. This indicates feeding opportunities are best determined by infant’s cues rather than gestation age. Infants who experience stress during feeds may experience long term learned refusals to eat; making it critical to provide positive feeding experiences. In a cue based feeding pathway, developmentally appropriate feeding opportunities are provided to infants regardless of their PMA. This includes: non-nutritive sucking, therapeutic tasting, licking and nuzzling at the breast and skin–to-skin or Kangaroo-Mother care (KMC) care.
Expected Outcomes:

- Infants are assessed continuously for their ability to orally feed
- Infants are provided with oral feeding opportunities based on their readiness cues
- Infants feeds are halted when stop cues are demonstrated
- There is a shift from quantity focused feeding to quality feeds
- Parents are integral to their infants care and participate in decision making
- Infants meet their nutritional requirements

Eligibility:
All infants are eligible to be enrolled in the cue based feeding pathway. The first stage provides education for mothers to pump and produce milk as well as provide skin-to-skin, KMC or comforting touch. The progression through the remaining stages is dependent on the status and individual plan of each neonate. The multidisciplinary team will discuss and order the initiation of feeds and any specific individualized feeding plans. A physician’s order is required to designate a TFI.

Interventions:
At birth:
- Implement Stage 1 of the Cue Based Feeding Pathway: Making Milk and Getting to Know your Baby.
  - Start expressing milk within one hour of delivery
  - Encourage mother to pump breasts every 2-3 hours (hand expression and electronic pump)
  - Facilitate mother/caregiver to provide skin to skin if possible
  - Facilitate mother/caregiver to provide comforting touch
  - Support mother/caregiver to provide hands on care for their infant

When infant starts showing some Ready Cues and is receiving nutrition through tube feeds:
- Implement Stage 2 of the Cue Based Feeding Pathway: Learning to Suck.
  - Continue interventions from Stage 1
  - Encourage infant to lick and nuzzle at the breast
  - Give infant opportunities to practice sucking
  - Offer therapeutic tasting

When infant is tolerating small amount of oral feeds and is starting to latch:
- Implement Stage 3 of the Cue Based Feeding Pathway: Starting Oral Feeds.
  - Continue interventions from Stage 1 & 2
  - Facilitate mother practicing latching when infant showing ready cues
  - Provide family education regarding ready and stop cues
  - Offer Cup Feeding as appropriate

When infant is taking some oral feeds and a suck-swallow-breathe pattern is coordinated:
- Implement Stage 4 of the Cue Based Feeding Pathway: Practicing Together: Learning Your Baby’s Rhythm.
- Continue interventions from Stage 1-3
- Provide family education regarding fullness cues
- Provide family education about pacing techniques if bottle feeding is chosen as a feeding technique

**When infant is taking most feeds orally, is waking for feeds and showing fullness cues:**
- Implement Stage 5 of the Cue Based Feeding Pathway: Transitioning to Full Oral Feeds.
  - Continue interventions from stage 1-4
  - Encourage mother to continue to pump until appropriate weight gain without top ups and then transition from pumping to full oral feeds
  - Provide family education regarding signs of successful feeding
  - Support family to create a feeding plan for their baby

**Evaluation:**
Infants progressing through the Cue Based Feeding Pathway will be evaluated continuously for progression to the next stage, or return to previous stage. Learning to orally feed is a complex process and the process is fluid; infants may move forward and backward within the pathway. Infants may not fit into one stage perfectly.

**Definitions:**

**Ad Lib Feedings:** Feeding is begun on infant cues of hunger and ended on infant cues of satisfaction of hunger, regardless of the time or volume taken. ¹ pg. 123 4

**Demand/Semi-Demand Feedings:** An infant’s feed is initiated based on hunger cues and ends when a prescribed volume of feed is consumed. The infant may be given a supplementary or top-up gavage feed if they are unable to orally consume the volume prescribed. ⁴

**External Pacing:** A technique used during bottle feeding; the care provider monitors the infant and interrupts feeds to allow infant to breathe. This facilitates an effective suck-swallow-breathe pattern and supports maintenance of physiologic stability. ⁵,⁶,⁸,¹²

**Feeding cues:** stirring, stretching, waking, hand-to-mouth movements, sucking, licking and rooting. ⁵

**Fullness Cues:** Falling asleep, becoming increasingly drowsy, relaxed arms and legs, slowing or stopping sucking, pushing away. ⁶

**Modified Ad Lib:** Feeding is begun and ended on specified infant cues of hunger and volume of feeding is prescribed by providers, not determined by the infant. ¹ pg. ¹²³

**Non-nutritive Sucking:** Sucking on a pacifier, finger or other item that does not result in nutrition being ingested. ⁶

**Nutritive Sucking:** Sucking on either the breast or bottle which results in feeds being ingested.
Oral feeding: This includes both breast, cup and bottle feeding.  

Ready Cues: Stable vital signs, quiet alert state, feeding cues, Coordinated suck-swallow-breathe patterns, effective latch.  

Scheduled Feeding: Feedings are begun on a timed or scheduled basis without regard to infant status. Infants are awakened from sleep to feed.  

Stop Cues: Changes in vital signs, sleeping, change in; tone, state, skin colour, Uncoordinated suck-swallow-breathe pattern, gulping or choking, finger splaying, arms stretched out or to face.  

Supplemental Feeding: This may also be known as top-up. This is the estimated amount of naso/orogastric tube (N/OG) intake required to provide an infant after a breast or bottle attempt to ensure adequate nutritional intake.  

Therapeutic Tasting: Positive oral stimulation provided by placing expressed breast milk (EBM) on infant’s lips or mouth for oral care or dipping soother in EBM.  

Tube Feeding: Prescribed feed volumes are delivered via gastric tube.  

DOCUMENTATION  
Infant driven feeding scores are recorded for each feed in the nursing flow sheet. Other documentation aides can be found in the appendix.
REFERENCES


APPENDIX

Appendix A  Cue Based Feeding: Family Care Plan
Appendix B  Cup Feeding Policy
Appendix C  Now That You are Going Home
Appendix D  Your Baby’s Home Feeding Plan
Appendix E  Infant-Driven Feeding Scale
Appendix F  Feeding your baby: What you Need to Know
Appendix G  Ask Your Nurse About Feeding Your Baby
Appendix H  Cue Based Feeding: Guidelines for NICU staff
Appendix I  Cue Based Feeding: Top-Up Decision Making Algorithm
Appendix J  Bottle Feeding your Premature Baby