CLINICAL PRACTICE GUIDELINE
Guideline coverage includes NICU KEMH, NICU PCH and NETS WA

Gastric Tube Feeding and Progression

This document should be read in conjunction with the Disclaimer

Grassi et al (2019) reviewed preterm infant intervention studies with quantitative outcomes of sucking performance to summarise the evidence of early interventions to improve specific components of sucking. Different interventions included were: Non-nutritive sucking (NNS), NNS with auditory reinforcement, sensorimotor stimulation (oral/intraoral, perioral or extraoral inputs), oral support (cheek and chin support during feeding), combined training (sensorimotor stimulation with NNS) and nutritive sucking (NS). Parameters assessed included: efficiency, frequency, duration and morphology (shape, size and phase distribution of sucking curve) of suck feeds. Most interventions significantly improved quantitative parameters and NNS-only training showed inconsistent results. The authors recommended the use of a tailored approach based on individual sucking pattern and clinical co-morbidities.

Non-Nutritive Sucking (NNS)

INFANTS change the way they suck at the breast during a breast feed. Initially they suck rapidly (short sucking bursts) to stimulate the milk ejection reflex. This is termed Non-Nutritive Sucking (NNS). The infant receives only small volumes of breast milk with NNS. NNS on the expressed breast (mother pumps first and then places baby to the breast) can be attempted as soon as baby is stable with success noted as early as at 28 weeks corrected gestational age (*Underwood et al, PCNA 2013*).

Advantages of NNS: improved physiological stability, protection against aspiration, increased absorption of feeds, facilitation of nutritive sucking, faster transition from tube to oral feeds, better weight gain and earlier discharge, pain relief, soothing and self-consoling infants and promotion of awake behaviour before oral feeding.

Determine readiness for transition from tube to oral feeds

- Feeding maturity depends on neurological maturity, which can be accelerated by starting milk feeds immediately after birth and allowing skin-to-skin care even in ventilated infants.
- Some **indicators for feeding readiness** include: sucking well on a finger, fist, pacifier or expressed breast, showing mouthing activity and handling own secretions well.
- Gestational age older than 28-32 weeks when able to co-ordinate suck, swallow and breathing and able to maintain temperature outside incubator and during skin-to-skin. Demonstrate rooting and sucking reflexes.
- Infant should be able to maintain a quiet alert state, able to relax and shows cues for engagement such as making a mouthing ‘ooh’ configuration, making eye contact and moving hands to mouth while mouthing.
- Infant should be medically stable, may continue to receive oxygen supplementation. Infant should have stable breathing (respiratory rate <60-70

breaths/minute) and with FiO2 requirement (preferably <40%). Heart rate should be stable (120-160 beats/minute) during caregiving and holding.

- Infant should be tolerating 2-3 hourly feeds well and gaining 15g/kg/day on normal caloric.
- Ensure that the mother is familiar with signs of nutritive and non-nutritive sucking, and involve her in the assessment of breastfeeds. Observe the infant breastfeeding to assess how long and how effectively he/she has sucked; this will determine if a gastric tube top-up is needed and how much to give.

Nutritive Sucking

After NNS the infant then changes to a slower, more rhythmical pattern once the milk starts flowing. This is termed Nutritive Sucking (NS).

Infants display two distinct phases of feeding; an initial run of continuous sucking/ swallowing followed by intermittent bursts of sucking/swallowing separated by a rest period. The rest periods are particularly important as preterm infants have been found to compromise their breathing by up to 35% in both the continuous and intermittent runs. Therefore there is no benefit in stimulating the infant to continue to suck during these rest periods.

Signs of Nutritive Sucking Include:

- Movement of the whole jaw.
- The breast being drawn into infant's mouth.
- Swallowing seen (and sometimes heard if let-down has occurred).
- Tugging, but no pain felt by the mother.

Transition from tube feeds to oral feeds

- Consider involving lactation consultant (LC)
- Correct positioning: to support flexed orientation of the infant around his/her midline; cross-cradle and football holds seem to be most suitable
- Select time of the day when infant most awake, provide NNS for 10 minutes before planned oral feed, if infant enters wakeful state try to breastfeed only once. If unsuccessful, can try again the following day until infant can manage the feed.
- Continue with two oral feeds per day in a sequence of 1 oral feed followed by 2 tube feeds to allow infant to rest in between.
- When infant is able to manage this, continue alternate breast and tube feeds transitioning to breast feeding for every feed.
- Most preterm infants can begin nutritive sucking at 32 weeks gestation
- Consider early use of nipple shields to aid initial latching.
- Continue frequent observation and assessment of feeding during this crucial transition phase.

Semi-demand feeding: More suitable for preterm infants. Assess the infant every 3 hours for behavioural signs of hunger. If infant is asleep, reassess 30 minutes later and offer tube feed if sleepy. If infant wakes up and demonstrates hunger before the 3 hourly feed, provide feed earlier.

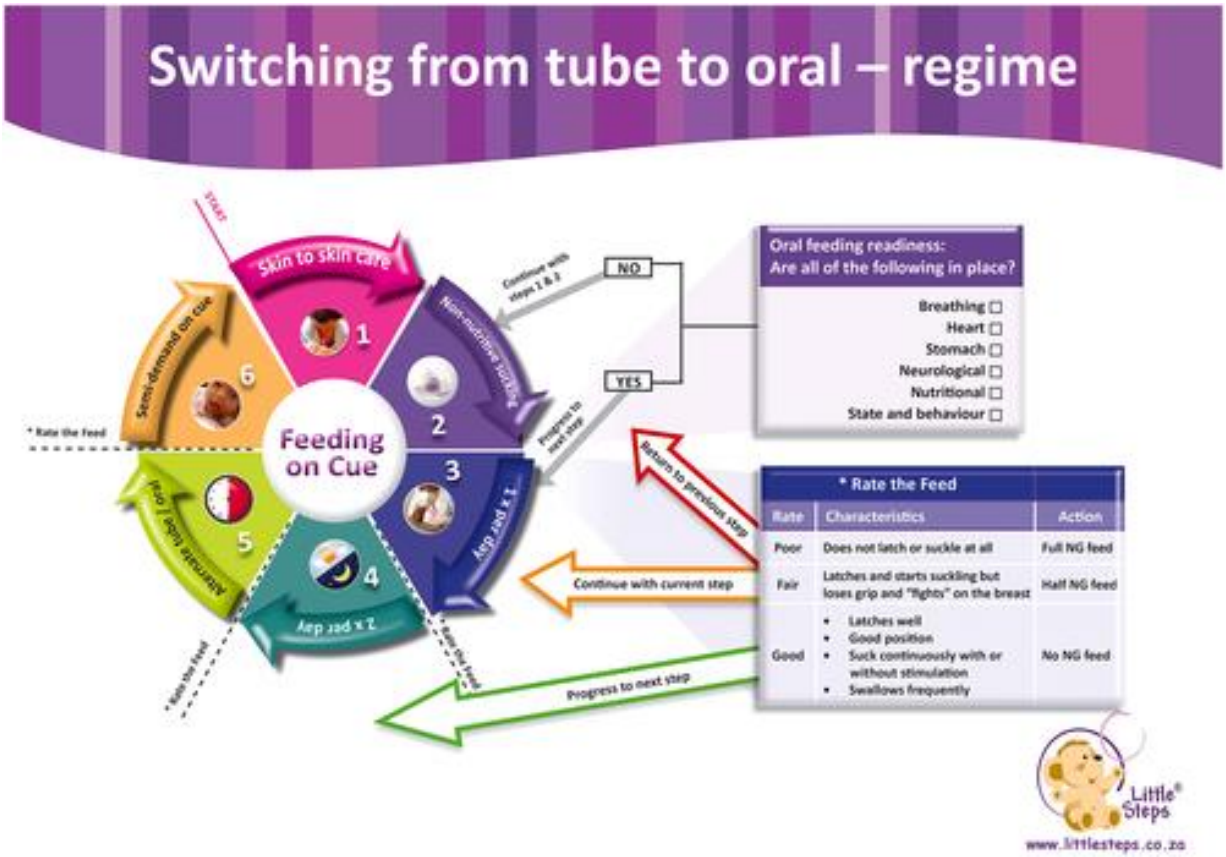
Assessment during the feed: Assess the infant's ability to sustain attention and energy throughout the duration of the feed, control and organisation of oral-motor functioning, co-ordination of swallowing and maintaining physiologic stability (Thoyre

et al 2013). Stop feeding when infant falls asleep and do not resume sucking if infant has an apnoea and bradycardia. Increase in eye flutter if a precursor for apnoeic events prior to desaturation and infants typically relax their arms and hands and stop sucking during a desaturation event.

Assessment of the feed: Effectiveness of the feed can be rated as: **good, fair or poor**

- **Good feed:** Infant latches well, has good positioning, sucks continuously (>15 minutes) with or without stimulation and doesn't require a top up via nasogastric tube.
- **Fair feed:** Infant latches and suckles non-rhythmically but loses grip and fights on the breast. Active sucking for 5-15 minutes is considered half the intended volume of the feed taken and hence the remaining half should be topped up. Consider test weighing in liaison with LC.
- **Poor feed:** Infant remains sleepy, does not latch, has few sucks (<5 minutes). Full top up should be given.
- **Additional points:**
    - Whether the mother feels a difference in breast fullness after the feed.
    - The mother's milk supply and time since she last expressed.
    - The infant's weight gain.
    - The infant's urinary output; ideally > 5 wet nappies of pale clear urine a day.

Clinicians guide for cue-based transition to oral feeding in preterm infants: An easy-to-use clinical guide



Ref: Little Steps, 2016

Our aim is to maximise breastfeeding outcomes by promoting consistency in care and information for mothers who intend to breastfeed their infants, both preterm and term.

All staff should complete BFHI eLearning Packages: Module 1-4

Baby Friendly Health Initiative (BFHI) Educational Tools

References

1. Grassi A, Sgherri G, Chorna O, Marchi V, Gagliardi L, Cecchi F, Laschi C, Guzzetta A. Early Intervention to Improve Sucking in Preterm Newborns: A Systematic Review of Quantitative Studies. Adv Neonatal Care. 2019 Apr; 19(2):97-109.
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Related WNHS policies, procedures and guidelines

Baby Friendly Health Initiative (BFHI) Educational Tools

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