Feeding in the Neonatal Intensive Care Unit

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When does feeding begin?

- positive oral stimulation
  - maturation of the nervous system
  - improved feeding quality
  - decreased time needed to reach full oral feeds
  - decrease length of stay
- examples of positive oral stimulation
  - colostrum or breast milk to infants mouth with swab or pacifier, NNS, scented clothes, skin to skin
  - the best time to administer positive oral stim is during a gavage feed.
- Premature Infant Oral Motor Intervention (PIOMI) admin by SLP
  - lips, chin, tongue, soft palate and throat
- 33-34 weeks gestation
- readiness scoring
- SLP consult
- Oral mech exam
- bottle/nipple assessment
  - matching flow/rate with SSB
  - neuroprotective
- feeding plan of care and x per shift
- re-assess as needed

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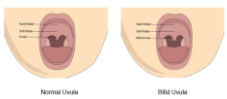
Oral Mech Exam

ANYTHING ABNORMAL

- tethered oral tissues (tongue/lip/buccal tie)
- palate: cleft, submucosal cleft
- posterior oral cavity: faucial pillars, tonsils, uvula



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Infant-driven feeding

Benefits of infant-driven feeding and positive oral stimulation include:

- decrease time to full oral feeds
- decreased length of stay
- ensuring feeding is a positive experience
- prevention of oral aversion
- opportunity for evidence based medicine
- improved caregiver-infant bonding
- alleviating pressure for nurses to feed a disengaged infant or complete a bottle

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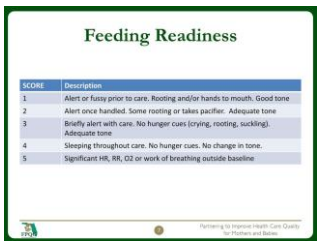
Infant-driven feeding



Feeding Readiness

SCORE	Description
1	Alert or fussy prior to care. Rooting and/or hands to mouth. Good tone
2	Alert once handled. Some rooting or takes pacifier. Adequate tone
3	Briefly alert with care. No hunger cues (crying, rooting, suckling). Adequate tone
4	Sleeping throughout care. No hunger cues. No change in tone.
5	Significant HR, RR, O2 or work of breathing outside baseline

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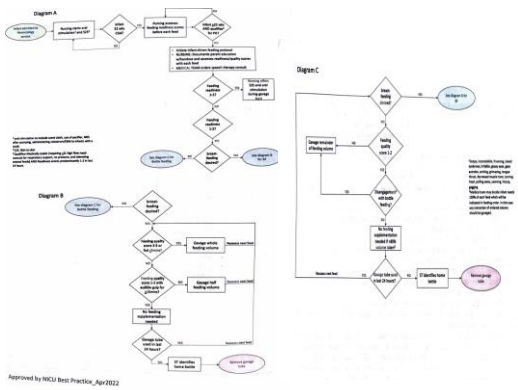

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Feeding Problems and Long-Term Outcomes in Preterm Infants

- Long-term dysphagia
  - oral phase disruption
    - (immature or absent oral reflexes), TOTS
    - weak and disorganized sucking
    - immature patterns such as biting and chewing
    - poor bolus formation (scattering, anterior spill)
    - breastfeeding failure
  - Pharyngeal phase disruptions
    - aerodigestive conditions
    - immature SSB coordination can compromise airway safety
    - choking,gagging, apneas, bradycardia, or desaturations

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Feedings Risks Continued

- Pre-term infants are more likely to develop oral aversion, oral-motor problems, and picky eating.
- speech and language delays are closely associated with feeding problems as the neural pathways for feeding and speech are linked.
- Infant with feeding problems have a higher incidence of language delays in early childhood and early referral to speech therapy is indicated for these infants.

Adams-Chapman et al.

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Infants at Risk for More Severe Dysphagia

- Increased work of breathing and/or tachypnea (no matter the severity)
- Severe neurological impairments
  - due to meds or otherwise
  - severe IVH (grade 3 or 4)
- Congenital Heart Disease (CHD) w/ altered respiratory parameters
- Significant micrognathia/retrognathia +/glossoptosis
  - decreased airway protection
- cleft palate/lip
- BPD

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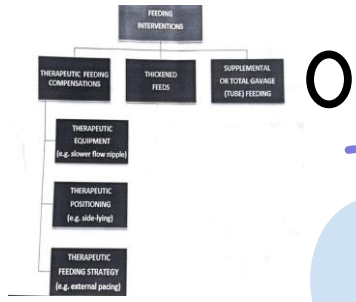
Therapeutic Feeding Compensations



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Therapeutic Feeding Equipment

- Slower Flow Bottles
  - may assist the infant to regulate milk flow and assist with SSB coordination
  - milk from breast is generally not as fast many bottle nipples

Disposable bottle nipples

1. On average, these nipples are equivalent to the standard commercial slow flow/ level 1 bottle nipple
2. Variable flow rate between nipples (poor quality control)
3. single use
4. not readily available

Commercial Bottle Nipples

1. These nipples are considered VERY slow flow or ULTRA slow flow
2. they have more consistent flow rate than disposable (strict quality control)
3. made to be reusable

Pados et al (12)

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Considerations When Recommending a Bottle Nipple with a Slower Flow Rate

- Difficulty with SSB pattern
- physiological changes
- work of breathing during feeds
- frequent self-imposed rest breaks
- requiring external pacing to impose breaks to catch breath
- a change to a weaker or slower sucking pattern (does well with paci but not bottles)
- anterior milk spillage

TIME TO FINISH FEEDING:

- typical infant feeding 20-25 min
- slower flow rate may have the potential to extend feeding times HOWEVER, in clinical practice, slower flow often does not push infant feed outside normal limits, as the slower flow generally improves SSB coordination.
- infants DO NOT need to finish feedings in 10-15 minutes. This is not physiologic and may contribute to increase reflux and/or presence for bottle feeding over breastfeeding.

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Thickened feeds

- When is it appropriate?
- Swallow study indicated?
- Can we avoid thickener and use a slower flow nipple?
- thicker formula vs thickener

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Questions? Comments?

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