BREAST AND BOTTLE FEEDING ALGORITHM

(for infants born < 34 wks)

v.10-22-20

CONSIDER ALGORITHM
≥ 32 weeks PMA
Off Positive pressure, ≤ 2 L/min
On full enteral feeds **(see A)**

Facilitate parent participation
BEGIN WHEN SIGNS OF FEEDING READINESS: (see B)
Gaining weight, Normal suck x 3 min, RR<65
Well regulated state transitions

NO → Continue NNS and skin to skin
Do not progress (**see C & OT/SLP criteria)**

YES

Date started — **MILESTONE 1**—Oral feeding up to 2 times per day (24 hrs)**(See D, E, F)**
OFFER FEED ONLY IF PRE-ASSESSMENT READINESS SCORE 1-2

READY TO ADVANCE?
- Quality Post-Assessment Score 1-3
- ≥ 50% of feeding ≤ 30 min
- **2 times/day for 2 days in a row**
- **No** signs of stress
- **Breast feeding advancement (See I)**

NO → **Slow or no progress**:
If < 36 weeks, continue PO attempts
If ≥ 36 weeks, & not progressing, or other problems present **(see C, G)** consult OT/SLP

Poor Weight Gain: Inform provider

Signs of stress: Stop feeding **(see G)** and consider going back a step, notify provider in rounds

YES

Date started — **MILESTONE 2**—Oral feeding up to 4 times per day (24 hrs) **(See E, F, I)**
OFFER FEED ONLY IF PRE-ASSESSMENT READINESS SCORE 1-2

READY TO ADVANCE?
- Quality Post-Assessment Score 1-3
- ≥75% of feeding ≤ 30 min
- **4 times/day for 2 days in a row**
- **No** signs of stress
- Appropriate Weight Gain **(see H)**
- **Add bottles to BF infants (see I)**

NO → **Slow or no progress**:
If < 36 weeks, continue PO attempts
If ≥ 36 weeks, not progressing, or other problems present **(see C, G)** consult OT/SLP

Poor Weight Gain: Inform provider

Signs of stress: Stop feeding **(see G)** and consider going back a step, notify provider in rounds

YES

Date started — **MILESTONE 3**—Oral feeding up to 8 times per day (24 hrs) **(See J)**
OFFER FEED ONLY IF PREASSESSMENT READINESSSCORE 1-2
Consider home bottle

READY FOR NG OUT? (see K)
- Quality Post-Assessment Score 1-3
- 3 consecutive full PO feedings
- Feed time ≤ 30 minutes duration
- And/or awakens early for most feeds
- **No** signs of stress
- Appropriate weight gain **(see H)**

YES

Date started — **Ad lib trial and obtain order for NG removal (see L and M)**

SIGNS OF STRESS:
Desaturation (< 90%)
Apnea
Bradycardia
Tachycardia
Tachypnea (> 65 bpm)
Coughing
Choking
Color changes
Altered alertness
Change in tone
Gulping
Poor seal or loss of latch
Avoidance behaviors

PRE-ASSESSMENT READINESS SCORE:
1: drowsy/alert before cares and rooting
2: Drowsy/alert with handling and rooting
3: Limited alertness with handling and no cues
4. Sleeps through cares, no cues
5. Requires o2 with care, distress

QUALITY POST-ASSESSMENT SCORE
1: Strong coordination of S/S/B
2: Fatigues with progression
3. Consistent suck w/ pacing, some loss of liquid w/out
4: Weak/inconsistent suck
5: Unable to coordinate, distress

Breast and Bottle Feeding Algorithm Explanation Sheet (for infants born < 34 wks) v.10-22-20

A	**Consider Algorithm:** For infants born <34 wks, tolerating full enteral feedings that still require gavage tube. Goal is to transition infants to bolus feeds (over 30-45 min) to facilitate hunger cues. Please encourage parental involvement in their infant's feedings. Update parent/caregiver of feeding schedule and any changes in the schedule (e.g. bathing, feedings, cares). Provide a comfortable chair for them to sit while feeding their infant. Provide privacy for breastfeeding and skin to skin holding. ***Once infant enters the algorithm, place the Breast & Bottle Feeding algorithm at crib side and fill in the date infant starts each milestone.***
B	**Readiness for oral feedings**: The infant is: 1) growing appropriately **(see H**), 2) able to suck on a pacifier for 3 minutes with normal suck/burst/rest pattern, 3) RR ≤ 65 when held for feeding, 4) Pre-assessment Readiness Score 1-2: transitioning from sleep to awake gradually; & is in a drowsy, alert, or fussy state prior to cares; rooting and/or hands to mouth; awakens at scheduled feeding times and has good tone. A lactation consult is requested if mother is interested in breastfeeding.
C	**Infants ≥ 32 wks that are NOT ready to PO feed:** Hold infant and offer pacifier during the gavage feeding if possible. Mother may hold infant skin to skin to suck at a pumped breast. Non-nutritive breast feeding does not count as attempts. Transitioning from non-nutritive breast feeding to full breast feeding may require mother to partially pump before breastfeeding attempts. **Always consult OT/SLP: with infants who are ELBW, IUGR, ≤ 1,000 gm, and born < 28 weeks.** **Consider OT/SLP consult for infants with: swallowing dysfunction, poor management of oral secretions, posturing with feedings, oral aversion/nipple avoidance, absent gag reflex, oral motor/feeding concerns not related to prematurity, craniofacial deformities, neurological disorders, physiological distress with feedings and persistent spells with feedings (≥ 2 feeding in a row). If OT/SLP is seeing infant, they may change to an individualized feeding plan. Do not make changes to an individualized feeding plan without collaboration with OT/SLP.**
D	**Timing and initiation of the first PO feed:** Discuss with parents their desire to participate in the first oral/gavage feeding. Allow the infant to wake up on his own and come to an alert state. If external pacing is needed, follow OT/SLP recommendations. Stop a feeding when signs of stress are noted (see signs of stress on algorithm). Re-assess for PO feeding opportunity at a later time and discuss in rounds.
E	**Cue-based infant driven feeding schedule:** Offer a PO feeding if the infant's Pre-Assessment Scores are 1-2 **(see B)**, when the infant is awake, alert, and showing hunger cues prior to feeding. If an infant is sleeping at the time of a feeding, wait to attempt PO feeding when infant awakens and is showing feeding cues. Observe for signs of stability or stress and adjust oral feeding attempts accordingly based on Quality Post Assessment scores. **Signs of stability include: awake and alert, showing hunger cues, smooth and regular RR, stable HR, demonstrating self-regulatory behaviors, coordinated suck/swallow/breathe pattern, good tone and color. Quality Post-Assessment Score: 1. Strong coordination of S/S/B 2. Strong coordination of S/S/B but fatigues with progression. 3. Consistent suck with pacing, without pacing, loses coordination, and 4. Weak/inconsistent suck. 5. Unable to coordinate S/S/B with distress** **MILESTONE 1**: Oral feeding up to 2 times per 24 hrs; prefer not back to back. Offer milk on pacifier with gavage feeding if awake. **MILESTONE 2**: Oral feeding up to 4 times per 24 hrs; prefer not all back to back. Offer milk on pacifier with gavage feeding if awake.
F	**Estimating how much to gavage after breast feedings:** Goal mother's milk supply is the following: Week 1 post birth, mother expresses ≥ 375 mls in 24 hours; week 2 post birth, ≥ 750 mls in 24 hours. If milk supply is less, mothers may still breastfeed. Use AC/PC weight with the infant on the same scale, clothing and diaper, to estimate the volume of milk transferred during a breast feeding. If needed, specific supplementation plan will be developed by lactation, RD, RN and provider.
G	**Slow or no progress:** If an infant has not progressed and is <36 weeks PMA, continue PO attempts and expect improvement by 36 weeks. If ≥36 weeks AND not progressing, **consult OT.** At any time, if the infant is regressing, inform the provider. Persistent stress is when the infant exhibits signs of stress for 2 or more feedings in a row (see signs of stress box) If persistent signs of stress are noted, discuss on rounds.
H	**Appropriate weight gain:** Infants < 2 Kg, desired weight gain is 18-22 grams/kg/day. Infants > 2 Kg, desired weight gain is 25-35 grams/day. If infant fails to meet this growth goal, inform the provider. For breast fed infants, an AC/PC weight should be done to ensure adequate supplementation.
I	**Giving bottle feedings to breast fed infants:** Do not introduce bottle feedings before 35 weeks PMA or before the infant has had at least 2 breast feedings a day, with acceptable latch and transfer of milk, unless mother desires. When the breastfeeding mother cannot come in for every feeding, discuss starting bottle feeding with mother, in order to continue feeding progression. On Milestone 1, infants > 35 weeks may be given the option to have 1 bottle at night. Advancement to Milestone 2 may be dependent on the Quality Post-Assessment of breast feed and Quality Post-Assessment Score/volume of the bottle feed at night, AC/PC weights should still be used to determine gavage supplement.
J	**MILESTONE 3: May PO each feeding:** PO can be breast and or bottle feeding (continue to use AC/PC weights to estimate volumes as long as using gavage). Have parents bring bottles they will be using at home, otherwise, introduce home bottle at 36 weeks/1 week prior to d/c. *Match flow rate closely to what infant has been using/mastering.
K	**NG OUT:** Poor endurance may result in the infant terminating the feeding before taking the required volume, **OR** demonstrating poor weight gain despite **ACCEPTABLE** intake. Endurance is a reflection of the infants ability to maintain homeostasis. If they are able to complete 3 consecutive feeds in </= 30 min , consistently awakens early for feeds, feeds without signs of stress, and maintains appropriate weight gain, consider NG out. **Endurance is the infant's ability to meet this criteria multiple times consecutively.**
L	**Ad lib trial:** Infants are fed PO as much (or as little) as they want on demand per feeding readiness cues. They can be fed every 2-4 hours. Contact the provider for D/C NG order and 12-hr minimum volume if desired. Stop AC/PC weights (may simply use daily weight gain if breast feeding). **If the infant is not meeting 12-hr minimum volume, or not awakening to feed, or no wet diapers in 5 hours, *notify the provider*.**
M	**Feeding status for discharge:** 1. The NG tube is out for a minimum of 48-72 hours. 2. The infant is accepting adequate volumes of ***home feeding,*** with no distress, and gaining weight appropriately **(see H)**. 3. The parents/caregivers are educated regarding feeding preparation, feeding and OT/SLP feeding recommendations.