

EVIDENCE-BASED BOTTLE FEEDING STRATEGY

Note: If Mom intends to breastfeed, breastfeeding should be established first, with guidance from lactation consultant.

| LOW-RISK INFANTS | HIGH-RISK INFANTS (see box at bottom of page) |
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| <p>Start with:</p> <ul style="list-style-type: none"> • Level 1 bottle nipple • Standard cradle hold | <p>Start with:</p> <ul style="list-style-type: none"> • Ultra Premie bottle nipple • Side-lying position with horizontal milk flow • External pacing |
| <p>As needed (i.e. if the infant displays any decline in physiological stability or engagement during PO feeds) implement the following compensations, in the following order, until a suitable option is found:</p> <ol style="list-style-type: none"> 1. Slower flowing (therapeutic) bottle nipple <ul style="list-style-type: none"> • Premie (first) • Ultra Premie (second) 2. Horizontal milk flow <ul style="list-style-type: none"> • Side-lying position OR • Semi-upright position • Avoid holding the infant in a reclined/ supine position. 3. External pacing | <p>As able (i.e. provided infant is showing no decline in physiological stability or engagement during PO feeds), consider trialing the following (one at a time):</p> <ul style="list-style-type: none"> • Remove external pacing • Transition to standard cradle hold • Gradually increase flow <ul style="list-style-type: none"> • Premie nipple • Level 1 nipple <p>Note: All high-risk infants and any low-risk infants requiring therapeutic bottle nipples should be seen by the feeding therapist to determine support needs</p> |

BOTTLE NIPPLES (in decreasing order of flow):

- Level 1 bottle nipple (e.g. green ring disposable nipple, nipples marked Level 1, slow, or newborn)
- Premie nipple (e.g. Dr Brown's preemie nipple)
- Ultra preemie nipple (e.g. Dr Brown's ULTRA preemie nipple)

FEEDING POSITIONS:

In general, aim for **horizontal milk flow** (i.e. bottle horizontal, parallel to floor) to allow the infant to control the milk flow (liquids flow faster if the bottle is held vertically, and slower if held horizontally). This is easiest achieved in either:

- **Side-lying position** (like when being nursed at the breast, with the infant on their side, with their ear, shoulder, and hip facing up towards the ceiling).
- **Semi-upright position** (supported upright position, with the infant's head above their chest and hips, with the infant's neck supported, such as by the inside of feeder's elbow).
- Avoid feeding infants in a fully **reclined/supine position**.

EXTERNAL PACING:

The feeder helps the infant to take pauses to catch their breath during feeding.

- This is performed by tipping the bottle down to slow milk flow and drain the nipple of milk and/or removing the bottle from the infant's mouth to impose a break in sucking.

HIGH RISK INFANTS (i.e. infants at increased risk of aspiration/ apnea during PO feeding)

- Born <30 weeks GA
- Bronchopulmonary dysplasia (BPD)*
- Congenital heart disease (CHD), including patent ductus arteriosus (PDA)
- Airway malformation (e.g. laryngomalacia, laryngeal cleft)
- Neurological injury or altered neurological state: (e.g. HIE, IVH 3 or 4, seizures; those on anti-epileptic drugs or sedatives)
- Any infant who shows any adverse clinical events during PO feeding (e.g. apnea, bradycardia, increased work of breathing, wet vocalizations, cough, choke).
- Note: Infants who are on CPAP, HFNC, or who are tachypneic (RR > 70BPM) should *not* be fed PO at that time

Stages of infant feeding maturation

| | |
|---------------------|--|
| Mature | Integrated suck-swallow-breath pattern (1:1:1) |
| Intermediate | Bursts of multiple suck-swallows followed by a self-imposed break to catch breath |
| Beginner | Bursts of multiple suck-swallows without a break to catch breath; the feeder needs to assist the infant to take breaks to catch their breath or adverse event (SpO2 desaturation, apnea, bradycardia event, or aspiration) may occur |

Boston Infant Feeding Scale

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|-----------------------------------|---|
| Overall PO feeding status: | |
| 1 | Competent feeder |
| 2 | Functional feeder with therapeutic compensations (any or all of the following): <ul style="list-style-type: none"> • Slower flowing bottle nipple (i.e. preemie or ultra preemie) • Altered positioning (e.g. side-lying position with horizontal milk flow) • External pacing (i.e. tipping the bottle down and/or removing from the infant's mouth to slow milk flow and impose break in sucking for them to catch breath) |
| 3 | Struggling/ beginner feeder despite compensations |
| 4 | Not ready for PO feeds |
| Current route for feeds: | |
| A | PO |
| B | PO with close monitoring |
| C | PO with PG top-up as required |
| D | NPO with conservative PO trials |
| E | NPO |



Side-lying with horizontal milk flow



Upright with horizontal milk flow