Glossary of Terms and Conditions

Feeding Assessment:

**Foods Given:** May include breast milk or formula. Indicate specific formula, and if there is a thickener. Indicate the type of bottle, cup or spoon, and the flow rate of the nipple.

**Time:** Should include the amount of time for the entire feeding including positioning. Typical feedings decrease with age, but typically does not go over 30 minutes because of concerns regarding fatigue and energy output.

**Position:**
- **Supine or Cradle position** – typical bottle feeding position with the infant's head cradled inside the feeder's elbow. Infant should be supported with the arm and the feeder's body.
- **Sidelying** – Infant is placed on the feeder's lap with his feet towards the feeder's stomach, and his head on her knees. The infant should be on his side with one ear to the ground and one ear to the ceiling. Support is provided with the caregiver's hand behind his head, and her arm as needed along the infant's spine. It may be helpful to place the infant on a pillow and to prop the feeder's feet on a stool. The infant's head should be higher than their feet. The idea is to mimic the sidelying position of breastfeeding but allowing the caregiver to observe the baby and hold a bottle.
- **Semi-Upright** – The infant is supported in a position more similar to sitting. There may be a slight recline to help with head control. It is often used with infants who have airway or reflux problems.

**Fluid expression:** Infant's ability to develop and maintain suction to create negative pressure in order to extract fluid from the nipple.

**Anterior loss:** Liquid loss from mouth, typically indicates liquid flow rate is too fast.

**Changes made during the feeding:**
- **Pacing:** Brief, imposed breaks from sucking/swallowing during feeding.
- **Position change:** determining optimal positioning for postural stability, work of breathing, and liquid control in the oral cavity.
- **Flow rate/bolus size:** modifying sucking pattern or nipple flow rate to facilitate smaller bolus sizes to be swallowed.
- **Thickening:** The use of thickeners for dysphagia has implications beyond just swallow function, and should be considered only after pacing, position changes, flow rate and bolus size modifications have been attempted. Thickeners change the nutrient density of the formula or breastmilk, and may have adverse effects on weight gain and hydration status. It may also contribute to the development of necrotizing enterocolitis, and other health conditions later in life, making it important that the final decision be made by, or in conjunction with, a physician.

**Oral Sensory:** Addresses the way things feel in the mouth, which is separate from the way the infant manipulates the oral mechanism or items introduced into the oral cavity. Sensory reaction can be to texture, taste, or temperature of the bolus, or to non-nutritive stimulation.
- **Signs of hypersensitivity:** could include pulling away, gagging, hiccups, pushing item out with the tongue, refusal to allow entry into the oral cavity.
- **Signs of hyposensitivity:** could include difficulty with rousing, lack of reaction to touch, apparent lack of awareness of touch to the face or within the oral cavity.

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**Respiratory Response During Examination**: Includes any respiratory changes that occur as a result of handling or feeding. May include increased or decreased rate of respiration, or a change in the depth of breaths the infant can take.

**Work of breathing**: The energy that it takes to maintain physiologic stability. May result in changes to respiratory rate, heart rate, or change in the muscle involvement in head, neck and truck to increase air intake.

**Heart Rate**:
- HR varies between infants, but there is not typically great variation within one infant. During work such as feeding, it is common to see HR increase to 10 BPM over baseline. Substantial changes in heart rate with situational changes such as feeding may indicate that the baby is working hard to eat or breathe in those circumstances (Wolf & Glass, p. 140).
- Full term neonates – 120-140 BPM.
- Premature infants – typically higher than term infants may be 160-180. During work such as feeding, it is common to see HR increase to 10 BPM over baseline.
- **Bradycardia** – slowed heart rate.

**Respiratory Rate**:
- Full term newborns – 30-60 breaths per minute (BPM), resting rate, with an increase during crying or movement. Decrease to 40-50 BPM with eating because of the need to suck and swallow. Respiratory rate should recover during breaks (Wolf & Glass, p. 141-142).
- Resting respiratory rate (RR) of 60 or more to maintain homeostasis would indicate possible difficulty with coordination of (SSB) suck-swallow-breathe sequence.
- Increasing length of “breathing breaks” may indicate difficulty with coordination of breathing and eating.

**Apnea** – Cessation of airflow for any amount of time.

**Stridor** – An upper airway noise that indicates turbulent airflow through a narrow airway, usually on inspiration, but can be on expiration, usually noted at the level of larynx. Stridor is not a diagnosis itself, but rather an indication of airway abnormality (Arvedson and Brodsky p 324).

**Retractions** – indentations in the infant’s neck or chest during breathing that indicate increased muscle effort and difficulty breathing (Arvedson and Brodsky p. 623).
- Intercostal (between the ribs).
- Supraclavicular (above the clavicle).
- Subcostal (below the rib margins.)
- Suprasternal (in the notch at the base of the neck).

**Breathing stress signals**: Signs of poorly regulated breathing.
- **Nasal flaring/blanching**: Nostrils widening or turning white during feeding.
- **Chin tugging**: Infant pulling his/her chin up, and extending the neck, in an effort to open the airway more fully.
- **Breath holding**: Holding breath beyond the typical apneic pause during swallowing. May be due to need to keep airway closed until liquid is cleared from the pharynx.
- **Gasping breaths**: Single, gasping breaths in between sucking bursts. May indicate presence of a continuous sucking pattern (no interspersed breathing breaks during prolonged suck/swallow sequences).
- **Color change**: Subtle or overt color change to red or blue-grey, occurring circumorally or throughout the face.

**Support to return to baseline**: May include stopping the feeding, elevating the infant, giving oxygen, or using calming organizing strategies.
Feeding Tolerance:

**Inability to maintain postural stability** – Inability to maintain muscle control for head alignment and movement of cheeks, tongue, lips and jaw to maintain sucking or bolus manipulation (Wolf and Glass, p. 9).

**State Regulation:** Addresses the way infants can regulate sensory input, such as handling, auditory or visual stimulation, or oral input and remain stable. Difficulties may result in poor wake/sleep cycles, irritability, temperature fluctuations, cardiac and respiratory complications and poor ability to sustain coordinated suck:swallow:breathe functions.

**State change** – State of consciousness: quiet sleep, active sleep, drowsy, quiet alert, active alert, crying.

**Deficits in Oral Phase**
- *Poor Approximation of lips around the nipple* - the lips do not close completely around the nipple
- *Weak suction force* – the infant can get some initial suction, but is unable to generate enough for sufficient milk expression. May also have difficulty maintaining for a full feeding
- *Excessive jaw motion* – infant opens and closes the mouth to generate milk expression instead of using the tongue to generate suction. May indicate lack of strength, poor lingual elevation, or inability to generate suction
- *Poor lingual cupping* – tongue does not form a central groove to receive the nipple in the midline of the tongue and to channel the fluid to the oropharynx
- *Oral residue* – food or liquid remaining in the mouth after the swallow
- *Difficulty in finding the nipple/latching* – The infant may have searching motions, moving the head frequently while searching for the nipple. May be an indication of poor oral awareness or poor organization
- *Poor bolus extraction* – difficulty with expressing fluid
- *Impaired bolus formation* – difficulty in forming the liquid (or puree) into a bolus or cohesive amount of material. Food may pour directly into the pharynx, rather than being “collected” in the oral cavity until the infant is ready to swallow.

**Deficits with Respiratory Coordination**
- *Reduced rhythmicity* – A deviation from the typical ratio of the suck/swallow/breathe sequence. May present as a high number of sucks per swallow, indicating disorganized sucking, or as multiple swallows following one suck, possibly indicating inability to clear the entire bolus from the pharynx with one swallow.
- *Anterior loss/oral loss* – liquid loss from mouth, typically indicates liquid flow rate is too fast

**Signs/Symptoms of High Risk of Airway compromise**
- *Gulping* – audible large swallows, may indicate flow rate it too rapid
- *Stridor* - An upper airway noise that indicates turbulent airflow through a narrow airway, usually on inspiration, but can be on expiration, usually noted at the level of larynx. Stridor is not a diagnosis itself, but rather an indication of airway abnormality. (Arvedson and Brodsky p 324)
- *Apnea* – cessation of airflow for any amount of time
- *Bradycardia* – slowed heart rate
- *Tachypnea* – breathing rate that is faster than normal
- *Audible presentation after swallow*
- *Catch breaths* – extra breaths to “catch up”
- *Increasing resting respiratory rate* (RR) if it is greater than 10 breaths per minute during breath breaks it may negatively impact maintenance of homeostasis and possibly coordination of SSB sequence.

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ADDITIONAL RESOURCES


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