

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

- POLICY:**
1. It is up to the discretion of the nurse to decide whether the feeding tube should be placed orally or nasally. NG feeds may increase airway resistance.
 - a. OG placement is preferable when infant is on infant flow CPAP or other CPAP device.
 - b. Nasal tubes are most commonly used for intubated infants.
 - c. The infant's gag and behavioral responses to the tube will influence the feeding tube location.
 2. Feeds are ordered by the physician or AP to be given either continuously or intermittently.
 3. Intermittent gavage feedings that are administered by gravity are to be given with the RN in attendance for the duration of the feeding. This allows regulation of flow of the feeding, ongoing assessment of accurate tube placement, provision of non-nutritive sucking, and human contact to make feeding a positive experience.
 - a. Intermittent gavage feeds are not to be suspended with feeding infusing at an unregulated rate.
 - b. 6.5 or 8 French feeding tubes are recommended for intermittent gavage feeds.
 - c. The desired duration of a feeding is a minimum of 10 minutes (before full feeding volume is reached), then 15 to 30 minutes (once full volume is reached).
 - d. When possible, hold the infant during the feeding.
 4. Intermittent feeds may be given over a period of time on a pump. The decision to do this is made collaboratively between nursing and medicine. When intermittent feeds are administered by infusion pump, the infant should be checked frequently to ensure that the tube position is correct, and that the infant is not experiencing distress related to the rate and/or volume of feeding.
 5. Indwelling feeding tubes are usually placed in smaller infants when the anticipated duration of tube feedings is months or several weeks.
 6. Feeding tubes will be replaced according to the following schedule:
 - a. Intermittent or single use, for example, polyvinyl chloride (PVC) tubes every 24 hours.
 - b. Polyurethane tubes, such as "Indwell" every 2 weeks.
 - c. Silicone tubes (such as "Nutricath") as needed when they fall out. If silicone tube is not grossly contaminated (e.g., slips out of nose and remains in isolette), you may clean tube with warm water and dish soap, rinse well and replace.

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

7. Breast milk or formula will be kept at room temperature for no longer than 4 hours.
 - a. If on intermittent pump feeds every 3 to 4 hours, the entire feeding setup is changed with each feeding.
 - b. Bottles and nipples that have been used for oral feeding are to be discarded after 1 hour.
8. Only tubings designed for enteral use should be used for pump feedings.

- DESIRED PATIENT OUTCOMES:**
1. Will tolerate gastric feedings with no increase in physiologic distress.
 2. Will have minimal stress placed on a GI tract that is developmentally and physiologically immature.
 3. Will demonstrate desired weight gain when full volume achieved.
 4. Pain or discomfort will be minimized by use of comfort measures during and after tube placement.

EQUIPMENT: Feeding tube of size appropriate for infant
3 ml syringe (for check of residuals)
Water-soluble lubricant
Feeding reservoir (appropriate size syringe or feeding bag)
Prescribed breast milk or formula
Stethoscope
Pump (if applicable)
Enteral tubing for pump (if applicable)

CLINICAL ASSESSMENT AND

- CARE:**
1. Assess the following prior to each feeding (intermittent), every 4 hours minimum (continuous) or as ordered:
 - a. Amount, color, consistency of gastric aspirates.
 - 1) *Immediately report blood, coffee ground, or bilious aspirates.*
 - 2) *Report aspirates greater than one hour's volume of feeding (if continuous feeds) or more than 50% of feeding volume (if intermittent feedings).*
 - 3) *Report frequent or large emesis.*
 - b. Assess abdominal girth a minimum of every 4 hours until full feedings tolerated for one week, then measure every other feeding.
 - 1) *Report increase in abdominal girth, decreased or absent bowel sounds.*
 - 2) *Immediately report presence of a tense, distended and/or discolored abdomen, clinically enlarged bowel loops, and/or absence of bowel sounds.*

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

- c. Guaiac stools as ordered or when there is evidence of feeding intolerance/blood in stools.
 - 1) *Report heme positive stools.*
 - d. Verify tube position every 8 hours (continuous) or before each feeding (intermittent). The tube marking at the lip should be visible when the tube is secured.
 - 1) *Check to be sure that the tape on the tube has not slipped.*
 - e. Perform ongoing assessment for apnea and bradycardia.
 - 1) *Report increased frequency or severity of spells.*
 - f. Assess readiness for intermittent gavage feedings. The general goal is to remove the indwelling tube by 34 weeks corrected gestational age. Infants on CPAP may need a longer time with indwelling feeding tubes.
2. Refeed gastric residuals of partially-digested formula because there residuals also contain gastric acid, enzymes, and electrolytes. Consult with AP/MD to determine if the volume of the residual is to be given in addition to the ordered feeding volume or included in the total feeding volume.

**Use of Human
Milk Fortifier
with Expressed
Breast Milk:**

1. Prepare a clean work surface; wipe the area with a Sani-wipe.
2. Add the ordered number of packets per volume of expressed breast milk.
3. Gently mix well a spoon to dissolve the Human Milk Fortifier (HMF). DO NOT SHAKE VIGOROUSLY as this will break up the fat molecules in the milk and cause them to stick to the sides of the syringe or the tubing.
4. Place the desired amount of prepared breast milk in the syringe.
5. If on continuous feeding:
 - a. Place on a syringe pump and infuse with the pump at a 25 to 45 degree angle to enhance fat delivery.
 - b. The HMF will begin to settle toward the syringe plunger over time. At least every hour, gently shake and rotate the syringe pump to remix the HMF into the milk. If this is not done, the HMF settles to the bottom of the syringe and the infant will either not get the HMF because it is stuck in the tubing or will get a bolus of HMF at the end of the feeding which may affect feeding tolerance.

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

Criteria for
Using
Indwelling
Tubes:

1. Indwelling tubes are generally used for smaller infants when it is anticipated that tube feeding will be needed for months or several weeks.
2. Indwelling tubes may be indicated in late preterm or term infants who:
 - a. Have a mature gag reflex and aversive response to tube placement.
 - b. Have more than 3 consecutive feedings with emesis or gagging during feedings. The infant shows obvious clinical distress by pulling away and/or arching during feedings.
 - c. Are not consistently taking the entire feeding orally and the remainder of feeding needs to be gavaged.
 - d. Are emerging po feeders that tire and need to rest and have a pump feed after 2 to 3 consecutive oral feedings.
 - e. Are recovering from severe lung disease with or without PPHN who may have disorganized feeding related to illness and/or withdrawal from opioids.

PROCEDURE:

ACTION

POINTS OF EMPHASIS

- | | |
|--|--|
| <ol style="list-style-type: none">1. Select appropriate feeding tube according to infant's size:<ol style="list-style-type: none">a. Silicone tube (such as Nutricath®) for continuous feeding infants < 1500 grams.b. Polyurethane tubes (such as Indwell™) for infants > 1500 grams.2. Place OG or NG feeding tube.<ol style="list-style-type: none">a. Measure tip of nose to ear lobe and to a point halfway between xiphoid and the umbilicus. Mark feeding tube at this length.b. Dip end of tube in water-soluble lubricant. | <ol style="list-style-type: none">1. Guidelines for tube size.<ol style="list-style-type: none">a. A 5 French tube is usually appropriate for continuous NG feeds. On larger babies with rapid infusion rates, a 8 French tube may be necessary.b. Size 6.5 or 8 French tubes are generally used for intermittent feedings that are infused by gravity. It is very difficult to infuse feeds by gravity through a #5 French feeding tube. Feedings should not be injected under pressure.b. Lubricating decreases possible damage of mucous membranes. |
|--|--|

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

- c. Turn head to side.
 - d. Pass feeding tube gently through mouth or nares to the desired depth.
 - e. Place a piece of tape with date of insertion on tube.
3. Check for tube placement.
- a. Aspirate tube with a 3 ml syringe to determine the amount of residual and observe the stomach.
 - b. Inject a small amount of air into feeding tube while listening with stethoscope over stomach for gurgling.
4. Position infant so infant is well supported taking into account maturity, diagnoses and unique developmental needs. Consider holding infants, when possible, to support positive interactions during feeding.
5. Offer non-nutritive sucking experiences, taking into account infant's cues and responses.
6. Administer ordered feedings that have been prepared to reduce the likelihood of infectious complications.
- a. Place prescribed amount of formula in syringe or feeding bag.
 - b. If a pump is being used for feeding, prime with formula.
- 1) Intermittent Gravity Feeds
- a) Attach syringe of formula and administer by gravity over at least 10 minutes. Allow formula to enter slowly to prevent distention and diarrhea or discomfort.
 - b) When removing the feeding tube, pinch the tubing to prevent air from entering stomach.
- c. To prevent aspiration if vomiting occurs.
 - d. If the infant experiences any sign of compromise, remove the feeding tube and allow the infant to recover.
- a. Proper placement of feeding tube is essential for prevention of formula introduction into lungs.
4. Kangaroo care during feeding may enhance the feeding experience for the infant and the parent.
5. Non-nutritive sucking will enhance the transition to oral feeding.
6. Breast milk or formula should not be kept at room temperature for more than 4 hours. Excessive warming can destroy components of breast milk that are heat sensitive, such as IgA and enzymes and can initiate bacterial proliferation.
- a) Regulate flow by raising or lowering syringe. Feedings should not be injected under pressure. Do not leave unattended during feeding.
 - b) To decrease chance of abdominal distention.

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

c) Remove the tube smoothly and quickly, keeping the infant's head turned to the side.

d) Burp infant.

c) An NG tube may be kept in place between feeds if the nurse assesses that the infant tolerates this better.

2) Intermittent Pump Feedings

a) Attach the primed pump tubing to the feeding tube and set the pump to infuse the feeding over the desired amount of time.

a) The duration of feeding should be comparable to that of gravity feedings, at least 10 minutes if full volume feeds have not been reached and 15 to 30 minutes for full volume feedings. A slower rate (30 minutes to 1 hour) is needed for those who have not been able to tolerate bolus feedings and need a longer infusion time.

a) Interact with infant as per readiness cues of and state of arousal with the goal of feeding as a time of social interaction. Provide opportunities for non-nutritive sucking.

b) Check the infant periodically during the feeding to ensure that the tube position is correct and that the infant is not experiencing distress related to the rate and/or volume of the feeding.

c) Clear the feeding tube with air or sterile water at the completion of the feeding, unless the tube is being removed.

3) Continuous Feeds

a) Attached primed pump tubing to feeding tube and start infusion at the ordered rate.

a) Based on infant's cues and state of arousal, interact with infant and provide opportunities for non-nutritive sucking so that feeding becomes a positive interaction.

APPROVAL: Nursing Standards Committee

EFFECTIVE DATE: 2/89

PROTOCOL FOR: Feedings: Nasogastric (NG) / Orogastric (OG): Continuous / Intermittent

REVISION DATES: 3/90, 6/91, 8/93, 11/93, 12/94, 6/97, 12/97, 11/98, 7/99, 1/00, 10/01,
1/03, 11/07

REVIEWED DATES: 12/08