

Message to Vancouver Island Parents

Members of the Best Practices Feeding Group for the Vancouver Island Health Authority (VIHA) reviewed the manual “Tube Feeding at Home” which was developed by the Children’s & Women’s Health Centre of British Columbia. The group decided to adopt the majority of this manual as our teaching tool for families of children with home enteral feeding with a few changes and additions. The VIHA documents are noted on the table of contents. All of the pages added or amended have the VIHA logo on them.

Three additional sections have been added to the manual. The first one entitled “Quick Reference” is at the beginning of the manual. It includes several forms adapted specifically for VIHA as well as pages from the main manual that will be used most often. The second additional section entitled “Going Home With Your Feeding Tube” includes a number of frequently asked daily management questions and the answers to them. The last section entitled “Gastrostomy Button Parent Information” offers more detailed information on the use and care of a gastrostomy button.

Following are the members of the Best Practices Feeding Group:

Phil Harmuth, Chair, Senior SLP, Queen Alexandra Centre for Children’s Health
Maureen Abbott, Nurse Manager, Victoria General Hospital
Gail Cochrane, RN, Nursing Support Services, Victoria
Audrey Gibson, Coordinator School Age Programs and Clinics,
Queen Alexandra Centre for Children’s Health
Patricia Good, RD, Nanaimo Regional General Hospital
Phyllis Hollinger, OT, Victoria General Hospital
Janet McElroy, Clinical Resource Nurse, Victoria General Hospital
Liz McLelan, RD, Nursing Support Services, Campbell River
Erica Messing, RD, Queen Alexandra Centre for Children’s Health
Brenda Mounce, Clinical Resource Nurse, Victoria General Hospital
Delane Peters, RD, Victoria General Hospital
Heather Shiells, RN, Nursing Support Services, Campbell River
Susan Weisenburger, RN, Nursing Support Services, Nanaimo
Gaylene Wilkinson, RN, Pediatric Feeding and Swallowing Services, Queen Alexandra
Centre for Children’s Health, Nursing Support Services, Victoria

Table of Contents

Introduction: What is Tube Feeding?.....	1
The Digestive System.....	2
Gastrostomy and Jejunostomy Tubes.....	3
Gastrostomy Tubes: G-Tubes.....	5
Low Profile Gastrostomy Devices.....	6
Jejunostomy Tubes: J-tubes.....	8
Caring for the Stoma and Feeding Tube.....	10
Checking the Stoma and Feeding Tube.....	12
Cleaning the Stoma and Feeding Tube.....	13
Caring for the Mouth.....	14
Can My Child Still Eat When Having a Feeding Tube? (VIHA).....	15
Transition From Tube to Oral Feeds.....	16
Tube Feeding Schedules: Intermittent and Continuous.....	17
Tube Feeding Formula.....	18
Giving Tube Feedings.....	23
Positioning When Tube Feeding (VIHA).....	24a
Tube Feeding by Gravity Using a Feeding Bag/Container (VIHA).....	27
Feeding by Gravity Using a Syringe (VIHA).....	28
Tube Feeding by Pump (VIHA).....	28a
Suggested Formula Hang Times (VIHA).....	28b
Giving Medications Through A Feeding Tube (VIHA).....	29
Cleaning Feeding Supplies (VIHA).....	31a
How Long Can Tube Feeding Supplies be Used Before Changing Them (VIHA).....	31b

Preventing and Solving Problems	
Aspiration.....	32
Blocked Feeding Tube (VIHA).....	33
Constipation.....	35
Dehydration.....	36
Diarrhea (VIHA).....	37
Feeding Tube Falls Out.....	39
Fluid Around the Tube.....	40
Fluid Leaking Through the Tube.....	41
Granulation.....	42
Reflux/Regurgitation (VIHA).....	42a
Skin Infection Around the Tube or Stoma Site.....	43
Skin Irritation Around the Tube or Stoma Site.....	44
Stomach Fullness/Bloating.....	45
Vomiting.....	46
Appendix A: Monitoring Progress.....	50
Appendix C: List of Terms.....	53
Appendix D: Additional Resources for Families & Caregivers.....	55
Appendix E: Reinserting a Gastrostomy Tube (G-Tube).....	56
Reinserting a Jejunostomy Tube (J-Tube).....	58
References.....	59

GOING HOME WITH YOUR FEEDING TUBE

POSITIONING WHEN FEEDING

Good positioning of your child during and after feeding will help them to be comfortable and help prevent gastroesophageal reflux. Reflux occurs when the food and acid in the child's stomach come back up into the esophagus. This can cause pain, breathing problems, and sometimes spit ups. Check with your Occupational Therapist for the best positioning for feeding.

Best Positions for Feeding:

- Upright position (helps keep food in stomach)



- A positioning wedge and sling can be used for sleeping and quiet play.



- When a child is slouched, pressure on the stomach can push food out



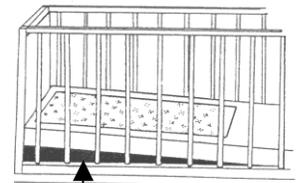
- At about 4-6 months, a child may be fed in a baby seat or high chair.



- Hold a baby on your lap with body upright and straight.



- Never feed your baby or child when they are lying flat. Always use at least a 30 degree angle if your child is lying down to be fed. Raise the mattress or head of the bed.



"30 degree angle"

- Do not feed your child in a car seat. This may cause your child to reflux.



- If your child is fed during the night, try to position him/her to avoid the tube becoming tangled or wrapped around him/her while sleeping.



CAN MY CHILD STILL EAT WHEN HAVING TUBE FEEDING?

Tube feeding may not mean the end of the pleasures of eating. Your child most likely had a professional swallowing assessment including MODIFIED BARIUM SWALLOW STUDY, which takes a picture of how your child swallows. It can determine:

- Whether your child can still eat by mouth, and;
- What kind of oral stimulation is safe for your child.

Oral stimulation can give your child the smells, touches, social times, and sometimes tastes that usually happen when eating. Your therapist may suggest some of the following exercises to keep your child's muscles working, to help your child control secretions, and perhaps to take a little food:

1. When you wash your child's face and hands, pat the face gently with a warm, soft facecloth around the cheeks and forehead, using slow firm pressure. Stop if this is uncomfortable. Try again.
2. Use a soft washcloth or baby toothbrush or your child's hand to touch the inside of the mouth. For infants, a soother or your clean finger may be used.



3. It is good for babies to practice sucking while being tube fed to teach them that sucking and a full tummy go together.
4. Let your child explore safe baby toys with his hands and mouth.
5. Routine regular mouth care (tooth-brushing) is important.
6. Encourage your infant to suck on a pre-pumped breast or soother while being tube fed.
7. Allow your child to chew food that is placed in a chew bag. This exposes your child to tastes and allows your child to practice chewing without the danger of having to swallow the food.

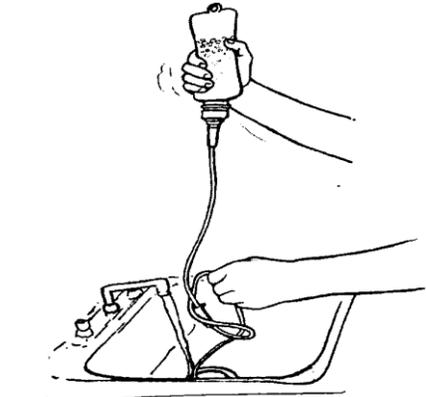
CLEANING FEEDING SUPPLIES

Tube feeding supplies need to be kept clean.

Steps:

- 1) Wash used feeding bag set with warm soapy water.
 - Half fill feeding bag with warm water.
 - Add a drop of dish soap.
 - Shake feeding bag until clean.
 - Run warm soapy water through feeding set.

- 2) Rinse well. Add 2-3 tbsp (30-50 mL) vinegar to rinse water to help remove soap. Hang to dry.



- 3) Wash extension tubing, adaptors and syringes in warm soapy water. Rinse well.
- 4) Store cleaned supplies in a covered container (e.g. Zip-Lock bag or Tupperware) in the refrigerator to prevent bacterial growth.
- 5) Smell your supplies before using again. If any item has a sour or rotten smell or is discolored, throw it away and use a new one.

GIVING MEDICATIONS THROUGH A FEEDING TUBE

MEDICATION HINTS

- **Always give medications directly into tube and NOT into feeding bag.**
- **Try to avoid giving more than one medicine at a time.**
- **If you must give 2 or more medicines at a time, flush between each medication.**
- **Do not mix medications together.**
- **Never mix medications with antacids or calcium/iron/magnesium supplements.**
- **Do not mix medications with formula.**
- **Use liquid medication when possible to avoid blocking the feeding tube.**
- **Dilute thick liquid medications (e.g. Phenytoin/Lactulose) with water.**

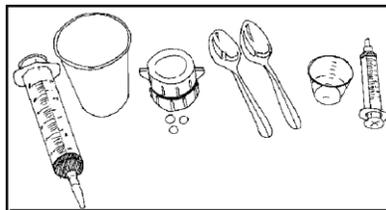
1. Check tube placement.
2. With a syringe, flush feeding tube with the proper amount of warm water. Use sterile water if child is less than 4 months old.
3. Give medications as follows:

Liquids: Most liquid medicines may be given through a G-tube. Draw up the exact amount of medicine into a syringe.

Pills: If your child needs to be given a pill, **first check with a pharmacist before crushing.**

Some pills should not be crushed.

- ✓ If crushing the pill is okay, then crush the pill between two spoons to a fine powder (or use a pill crusher, available at most pharmacies).
- ✓ Dissolve the powder in water.



- ✓ Draw up **all** of the mixture into a syringe.

Capsules: **Check with a pharmacist before opening.**

- ✓ Cut or break one end of the capsule open.
- ✓ Mix the capsule contents with water.
- ✓ Draw up all of the mixture into a syringe.
- ✓ **Do not crush any tiny, coated (sustained release) beads.**

4. Flush tube again with proper amount of warm water to ensure all medications reach the stomach and to keep tube from blocking.
5. Clamp feeding tube.

HOW LONG CAN TUBE FEEDING

SUPPLIES BE USED BEFORE CHANGING THEM?

- ✓ Manufacturers recommend that feeding sets be changed everyday.
- ✓ When a feeding pump is used, the tubing part of the feeding bag may stretch over time and cause inaccurate feeding delivery.
- ✓ If tube-feeding supplies are cleaned properly and stored in refrigerator, you may be able to use supplies longer than manufacturers' recommendations.

Suggestions for Use

Containers/Bags with pre-attached pump sets – **Change twice per week.**

Syringes – **Change twice per week.**

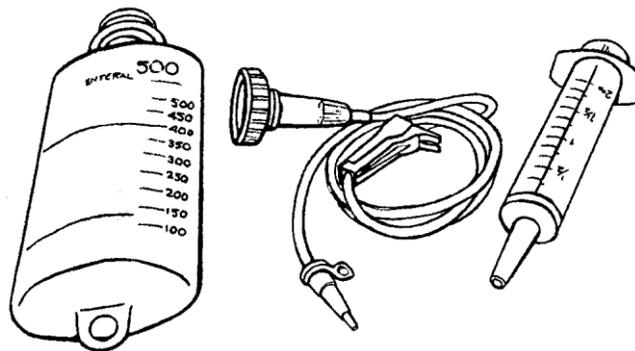
Extension tubing/Adaptors– **Change once per month.**

Rigid Containers without attached tubing – **Change as needed. Rigid containers without attached tubing may be cleaned in dishwasher.**

Remember:

Smell your supplies before using. If any item smells sour or rotten, or is discolored, throw it out and use a new one.

If questions, contact your nurse or dietitian.



TUBE FEEDING BY GRAVITY USING A FEEDING BAG/CONTAINER

Procedure:

- 1) Wash hands well and gather clean equipment:
 - a) clean feeding bag/container and tubing set
 - b) formula
 - c) syringe
 - d) extension tube (if needed)
- 2) Check your child's tube placement.
- 3) Your child should be seated or have head of bed elevated 30 degrees. If child is an infant, you may prefer to hold child for feeding.
- 4) Close the roller clamp on feeding bag/container by moving the clamp down.
- 5) Pour formula into feeding bag/container.
- 6) Prime the tubing by turning the drip chamber upside down and slowly open the roller clamp to fill 1/3 full. Close roller clamp and turn drip chamber right side up. Open clamp again to run formula to the end of tubing to remove all air. Close the clamp.
- 7) Flush the feeding tube with proper amount of warm water. *(If your baby is less than 4 months old, use sterile water.)
- 8) Insert the end of the feeding bag tubing firmly into feeding port.
- 9) Start feeding by opening roller clamp. Adjust flow rate by moving roller clamp up (increase) or down (decrease).
- 10) Monitor your child during feeding, watching for problems.
- 11) When feeding is complete, close roller clamp and disconnect feeding bag tubing and clamp feeding port.
- 12) Draw up proper amount of warm water in a syringe. Attach it to the end of the feeding tube and flush with water.
- 13) Clean bag, tubing and syringes with hot soapy water and rinse well.
- 14) Store clean supplies in covered container in refrigerator until needed.

* VIHA recommends sterile water for babies under 4 months. Reference: [Nutrition for Health Term Infants](#). Statement of the Joint Working Group: Canadian Pediatric Society, Dietitians of Canada & Health Canada. Pg. 2

TUBE FEEDING BY GRAVITY USING A SYRINGE

Procedure:

- 1) Wash hands well and gather supplies.
 - a) Formula
 - b) syringe
 - c) extension tube (if needed)
- 2) Check your child's tube placement.
- 3) Your child should be seated or have head of bed elevated 30 degrees. If child is an infant, you may prefer to hold child for feeding.
- 4) If an extension tube is needed use a syringe to fill the extension tube with water to remove the air. Attach the extension tube to the feeding tube.
- 5) Unclamp feeding tube. Flush with proper amount of warm water. * (If your baby is less than 4 months of age, use sterile water.)
- 6) Clamp feeding tube.
- 7) Remove plunger from syringe.
- 8) Put the syringe into the feeding port.
- 9) Pour part of feeding into the syringe.
- 10) Unclamp the tube.
- 11) A gentle push, using plunger, may be needed to start the flow. Try to start the feeding when your child is calm.
- 12) Allow the feeding to flow by gravity. Do not force it.
 - ✓ During the feeding, the bottom of the syringe should be held less than 6 inches above the child's stomach.
 - ✓ Lower the syringe at times to allow air bubbles to escape, or to slow the feeding.
 - ✓ If your child is crying, you may need to repeat the gentle push with the plunger several times.
- 13) Continue adding formula to the syringe (without letting it become empty) until the entire amount is given.
- 14) Monitor your child during feeding, watching for problems.
- 15) When feeding is complete, remove syringe and clamp feeding tube.
- 16) Draw up proper amount of warm water in a syringe. Attach it to the end of the feeding tube and flush with water. Remove extension tube, if used.
- 17) Clean tubing and syringes with hot, soapy water and rinse well.
- 18) Store clean supplies in covered container in refrigerator until needed.

* VIHA recommends sterile water for babies under 4 months. Reference: [Nutrition for Health Term Infants](#) Statement of the Joint Working Group: Canadian Pediatric Society, Dietitians of Canada & Health Canada. Pg. 2

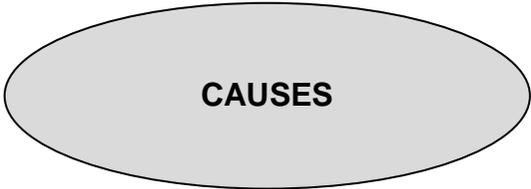
TUBE FEEDING BY PUMP

Procedure:

- 1) Wash hands well and gather clean equipment:
 - clean feeding bag/container and tubing set
 - formula
 - syringe
 - feeding pump
 - extension tube (if needed)
- 2) Check your child's tube placement.
- 3) Your child should be seated or have head of bed elevated 30 degrees. If child is an infant, you may prefer to hold child for feeding.
- 4) Close the roller clamp on feeding bag/container by moving the clamp down.
- 5) Pour formula into feeding bag/container.
- 6) Prime the tubing by turning the drip chamber upside down and slowly open the roller clamp to fill 1/3 full. Close roller clamp and turn drip chamber right side up. Open clamp again to run formula to the end of tubing to remove all air. Close the clamp.
- 7) Put the feeding bag and tubing in the pump according to manufacturer's directions.
- 8) Flush the feeding tube with proper amount of warm water.
- 9) Insert feeding bag tubing firmly into feeding port. Unclamp feeding bag/container.
- 10) Turn the pump on, set to the correct rate and start feeding.
- 11) Monitor your child during feeding, watching for problems.
- 12) When feeding is complete, turn the pump off.
- 13) Clamp the feeding port and disconnect the feeding bag tubing.
- 14) Draw up proper amount of warm water in a syringe. Attach it to the end of the feeding tube and flush with water. * (If your baby is under 4 months of age use sterile water.)
- 15) Clean bag, tubing and syringes with hot soapy water and rinse well.
- 16) Store clean supplies in covered container in refrigerator until needed.

* VIHA recommends sterile water for babies under 4 months. Reference: [Nutrition for Health Term Infants](#) Statement of the Joint Working Group: Canadian Pediatric Society, Dietitians of Canada & Health Canada. Pg. 2

BLOCKED FEEDING TUBE



CAUSES

A blocked feeding tube can occur when:

- ✓ The tube is not properly flushed.
- ✓ Formula/medications are too thick.
- ✓ Residue builds up in the tube.
- ✓ Medications and formula mix in the tube causing solids to form.

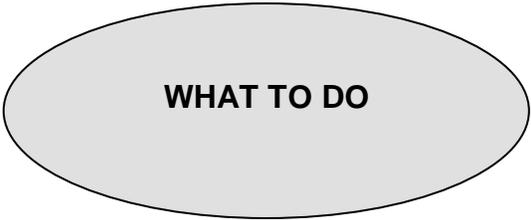


PREVENTION

Prevention is the key!

FLUSH ♦ FLUSH ♦ FLUSH

- ✓ Flush the tube with warm water before and after feeds and medications.
- ✓ Crush all medications to a fine powder and dissolve in a small amount of warm water.
- ✓ Flush tube with warm water between medications to prevent it from mixing with the medication and clogging the tube.



WHAT TO DO

If the tube blocks:

- ✓ Use a 30 – 60 cc syringe and gently push 20 cc of warm tap water through the tube.
- ✓ For infants less than 4 months of age, use sterile water and push up to 10 cc of warm sterile water through the tube.
- ✓ If this does not open the tube, flush with the water and then pull back on the syringe's plunger while it is connected to the tube. Repeat this 3 – 4 times.

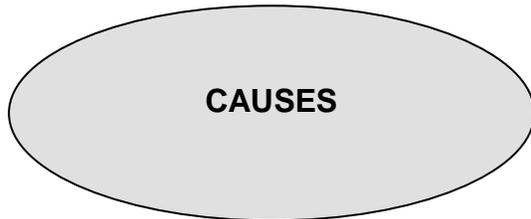
If using warm water does not unclog the tube then try Pancreatic Enzymes as outlined on Page 34.

Using Pancreatic Enzymes to Clear Blocked Feeding Tube

1. Assemble Equipment
 - a) Cotazyme Capsule (pancreatic enzyme). This requires a prescription from your doctor. Ask for the powdered form in a gelatin capsule.
 - b) Sodium Bicarbonate – 1 tablet (325mg) crushed to a fine powder or ½ teaspoon of baking soda.
 - c) Warm water or sterile water for infants less than 4 months of age.
 - d) 60 cc syringe
 - e) small cup.
2. WASH your hands.
3. Draw back as much of the contents of the blocked tube into the syringe as possible.
4. Place the contents of an opened Cotazyme capsule and a crushed Sodium Bicarbonate tablet or ½ tsp of baking soda into a cup. Add 10 – 15 cc of warm water and dissolve both medications thoroughly.
5. Draw up the dissolved solution into the 60cc syringe and push it into the tube. Clamp the tube for 15 – 30 minutes. Milk the tube to get the solution as close as possible to blocked area.
6. Unclamp the tube and attempt to flush again with warm water and firm pulling and pushing action. If the tube does not clear, repeat above steps leaving the solution for up to one hour.
7. If two attempts do not clear the tube it will likely need to be replaced. Contact your nurse or primary health care doctor for further instructions.

DIARRHEA

(Diarrhea means loose, frequent watery bowel movements)



- ✓ Viral or bacterial illness.
- ✓ Medicines that cause diarrhea (e.g. antibiotics).
- ✓ Improper cleaning of tube feeding supplies.
- ✓ Formula hanging for longer than four (4) hours.
- ✓ Using formula that was prepared more than 24 hours ago.
- ✓ Formula intolerance.
- ✓ Improper tube position.
- ✓ Intolerance of feeding rate.



- ✓ Replace your child's tube feeding formula with a commercial oral electrolyte solution, e.g. Pedialyte.

Children on Continuous Feeds:

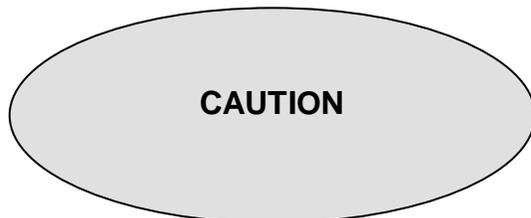
1. Pedialyte for 6-24 hours.
2. One half-strength formula (diluted 50:50 with water or Pedialyte) 6-24 hours.
3. Return to usual feeding schedule.

Children on Bolus or Intermittent Feeds:

1. Pedialyte for 1-3 feeds run at a slower rate.
2. One-half strength formula (diluted 50:50 with water or e.g. Pedialyte) for 1-3 feeds.
3. Return to usual feeding schedule – feeds may need to be given slower than usual. Gradually increase the rate.



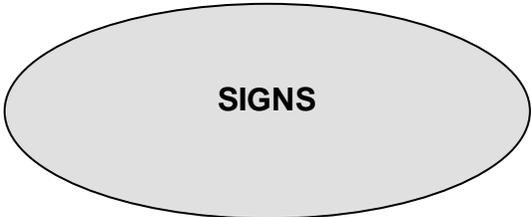
- ✓ Make sure tube-feeding supplies are properly cleaned.
- ✓ Don't hang formula for longer than 4 hours.
- ✓ Throw out any prepared formula in the fridge for longer than 24 hours.
- ✓ Wash your hands well before preparing tube feeding.
- ✓ Make sure tube is in proper position.
- ✓ Make sure formula is room temperature



- ✓ If diarrhea continues and your child has a fever or appears ill, contact your doctor immediately.

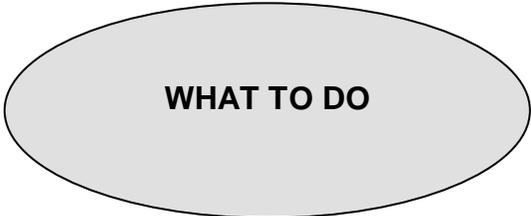
REFLUX/REGURGITATION

This occurs when the formula feed into your child's stomach or small intestine comes back up the esophagus. It can cause discomfort for your child.



SIGNS

- ✓ Spitting up.
- ✓ Vomiting.
- ✓ Sour smelling breath.
- ✓ Repeated swallowing when there is no food in mouth.
- ✓ Coughing during feed.
- ✓ Stomach or chest pain.
- ✓ Gas or burping.
- ✓ Irritability.
- ✓ Arching with feeds.



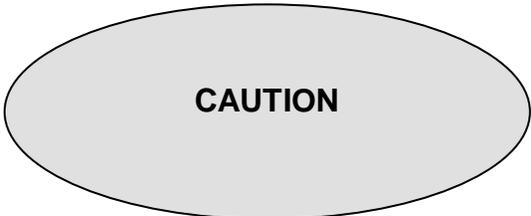
WHAT TO DO

- ✓ Slow down feeding rate or change feeding schedule. Check with your dietitian.
- ✓ Have your child sit upright as much as possible while feeding.
- ✓ Elevate head of bed at least 30-45 degrees when feeding your child in bed. Keep bed in this position for 30-60 minutes after the feed is finished.
- ✓ Check with your doctor about medicine used to manage or prevent reflux.
- ✓ Check if your child is constipated.



PREVENTION

- ✓ Make sure your child is positioned correctly during and after feeding. Check with an occupational therapist for positioning tips.
- ✓ Make sure your child is having regular bowel movements.
- ✓ Make sure your child tolerates how fast the formula is being given. Discuss with your health care provider if problem persists.



CAUTION

If your child is showing signs of aspiration (page 32) stop the feed. Make sure your child is sitting upright and airway is clear. If no improvement, call 911.

SUGGESTED FORMULA HANG TIMES		
<i>Type of Formula</i>	<i>If re-using bags and tubing</i>	<i>If not re-using bags and tubing</i>
Ready to Serve Formulas	Maximum 4 hours	Maximum 8 hours
Formulas prepared from powder or concentrate	Maximum 4 hours	Maximum 4 hours
Formula with additives	Maximum 4 hours	Maximum 4 hours
Fresh expressed breast milk	Maximum 6 hours	Maximum 6 hours
Previously frozen expressed breast milk	Maximum 4 hours	Maximum 4 hours

* Reference: Children's and Women's Health Centre of BC (2003).
Tube Feeding at Home: A Guide for Families and Caregivers Pg. 26.