

# Care of the Gastrointestinal System

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# Gastrointestinal System

## Overview

The gastrointestinal, or digestive, system consists of a series of hollow organs joined in a long, twisting tube from the mouth to the anus. Inside this tube is a lining called the *mucosa*. In the mouth, stomach, and small intestine, the mucosa contain tiny glands that produce juices to help digest food. Two solid organs, the liver and the pancreas, produce digestive juices that reach the intestine through small tubes. Digestion is the process by which food and drink are broken down into their smallest parts so that the body can use them to build and nourish cells and to provide energy. Digestion begins in the *mouth*, where the food is chewed into smaller pieces and then swallowed.

## Movement of Food Through the System

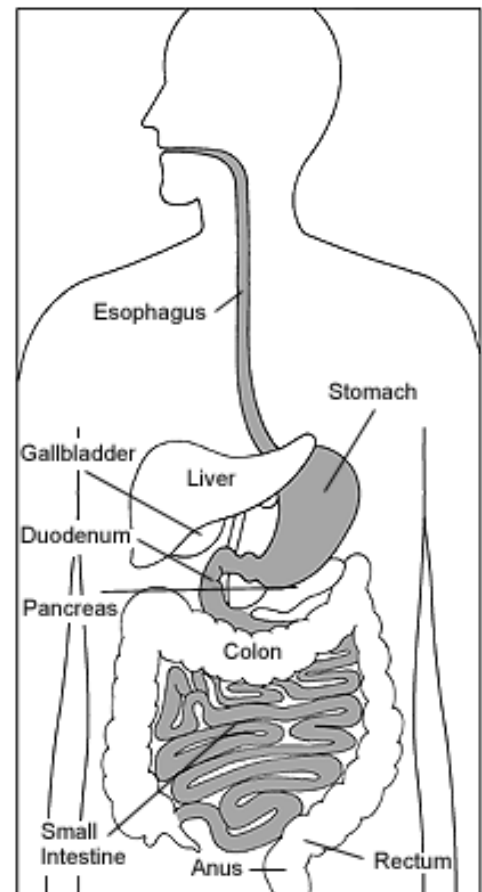
The large, hollow organs of the digestive system contain muscles that enable their walls to move. The movement of organ walls can propel food and liquid and also can mix the contents within each organ. This movement of the esophagus, stomach, and intestine is called *peristalsis*. The action of peristalsis looks like an ocean wave moving through the muscle.

The first major muscle movement occurs when food or liquid is swallowed. Although we are able to start swallowing by choice, once the swallow begins, it becomes involuntary and proceeds under the control of the nerves.

The *esophagus* is the organ into which the swallowed food is pushed. It connects the throat above with the stomach below. At the junction of the esophagus and stomach, there is a ring-like valve closing the passage between the two organs. However, as the food approaches the closed ring, the surrounding muscles relax and allow the food to pass.

The food then enters the *stomach*, a curved, pouch-like organ, which has three mechanical tasks. First, the stomach must store the swallowed food and liquid. This requires the muscle of the upper part of the stomach to relax and accept large volumes of swallowed material. The second job is to mix up the food, liquid, and digestive juice produced by the stomach. The lower part of the stomach mixes these materials by its muscle action. The third task of the stomach is to empty its contents slowly into the small intestine.

As the food is digested in the *small intestine* and dissolved by the juices from the pancreas, liver, and intestine, the contents of the intestine are mixed and pushed forward to allow



further digestion. Finally, all of the digested nutrients are absorbed through the intestinal walls. The waste products of this process include undigested parts of the food, known as fiber, and older cells that have been shed from the mucosa. These materials are propelled into the *large intestine*, also called the *colon*, where they remain, usually for a day or two, until the feces are expelled by a bowel movement through the *rectum*.

## Production of Digestive Juices

The glands that act first in digestion are in the mouth--the *salivary glands*. Saliva produced by these glands contains an enzyme that begins to digest the starch from food into smaller molecules.

The next set of digestive glands is in the *stomach lining*. They produce stomach acid and an enzyme that digests protein. One of the unsolved puzzles of the digestive system is why the acid juice of the stomach does not dissolve the tissue of the stomach itself. In most people, the stomach mucosa is able to resist the juice, although food and other tissues of the body cannot.

After the stomach empties the food and juice mixture into the small intestine, the juices of two other digestive organs mix with the food to continue the process of digestion. One of these organs is the *pancreas*. It produces a juice that contains a wide array of enzymes to break down the carbohydrate, fat, and protein in food. Other enzymes that are active in the process come from glands in the wall of the intestine.

The *liver* produces yet another digestive juice--bile. The bile is stored between meals in the *gallbladder*. At mealtime, it is squeezed out of the gallbladder into the bile ducts to reach the intestine and mix with the fat in food. The bile acids dissolve the fat into the watery contents of the intestine, much like detergents that dissolve grease from a frying pan. After the fat is dissolved, it is digested by enzymes from the pancreas and the lining of the intestine.

## Absorption and Transport of Nutrients

Digested molecules of food, as well as water and minerals from the diet, are absorbed from the upper small intestine. Most absorbed materials cross the mucosa into the blood and are carried off in the bloodstream to other parts of the body for storage or further chemical change. As already noted, this part of the process varies with different types of nutrients.

**Carbohydrates.** The digestible carbohydrates are broken into simpler molecules by enzymes in the saliva, in juice produced by the pancreas, and in the lining of the small intestine. Starch is digested in two steps: First, an enzyme in the saliva and pancreatic juice breaks the starch into molecules called maltose; then an enzyme in the lining of the small intestine (maltase) splits the maltose into glucose molecules that can be absorbed into the blood. Glucose is carried through the bloodstream to the liver, where it is stored or used to provide energy for the work of the body.

**Protein.** Foods such as meat, eggs, and beans consist of giant molecules of protein that must be digested by enzymes before they can be used to build and repair body tissues. An enzyme in the juice of the stomach starts the digestion of swallowed protein. Further digestion of the

protein is completed in the small intestine. Here, several enzymes from the pancreatic juice and the lining of the intestine carry out the breakdown of huge protein molecules into small molecules called amino acids. These small molecules can be absorbed from the small intestine into the blood and then be carried to all parts of the body to build the walls and other parts of cells.

**Fats.** Fat molecules are a rich source of energy for the body. The first step in digestion of a fat such as butter is to dissolve it into the watery content of the intestinal cavity. The bile acids produced by the liver act as natural detergents to dissolve fat in water and allow the enzymes to break the large fat molecules into smaller molecules, some of which are fatty acids and cholesterol. The bile acids combine with the fatty acids and cholesterol and help these molecules to move into the cells of the mucosa. In these cells the small molecules are formed back into large molecules, most of which pass into vessels (called lymphatics) near the intestine. These small vessels carry the reformed fat to the veins of the chest, and the blood carries the fat to storage depots in different parts of the body.

**Vitamins.** Another vital part of our food that is absorbed from the small intestine is the class of chemicals called vitamins. The two different types of vitamins are classified by the fluid in which they can be dissolved: water-soluble vitamins (all the B vitamins and vitamin C) and fat-soluble vitamins (vitamins A, D, and K).

**Source:**

National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. (2004). *Your Digestive System and How It Works*. NIH Publication No. 04-2681. Available online at <http://digestive.niddk.nih.gov/ddiseases/pubs/yrdd>.

**Illustration Source:**

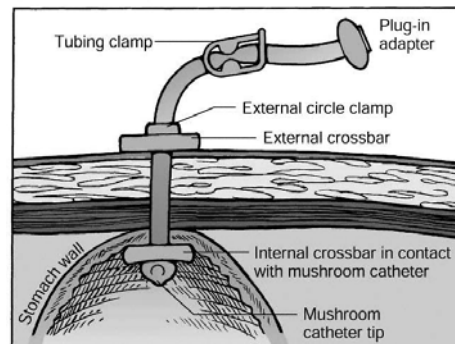
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# Gastrostomy Tube

## Overview

A *gastrostomy* is a surgically created opening into the stomach. A gastrostomy tube, commonly referred to as a G-tube, is a silicon or polyurethane catheter held in place by an external crossbar on the skin and by an internal crossbar, balloon, or a retention dome (mushroom) in the stomach. The tube can be placed initially by surgery or percutaneously (PEG).

The G-tube is used to administer fluids and food to the student. The G-tube feeding may be done by continuous or bolus feeds. Continuous feeds are given over a number of hours via slow drip and controlled by a feeding pump. Bolus feeds are specified amounts of feeds delivered over a short period of time (usually 15-30 minutes). The tube remains in the stomach at all times, but can be clamped between feedings to prevent leakage of stomach contents.



Gastrostomy tubes can be used to drain or vent stomach contents, but indications for long term use in students are usually due to:

- Inability to consume adequate calories by mouth, which may be due to anatomical, behavioral, or psychosocial factors, such as esophageal atresia (incomplete development of the foodpipe) or failure to thrive.
- Need for supplemental calories due to increased needs from a disease process, such as cystic fibrosis or malabsorption disorders.
- Risk for choking and aspiration due to impaired swallowing or severe reflux.

## Potential Settings

Students can receive feedings anywhere. Many of the pumps are small and designed to be easily worn or carried at all times. Bolus feeds should be done in a clean area because they are more open to the environment. Student's desire for privacy and possible need for stationary activities during a feed should be considered in determining where feeds will take place. Many students with G-tubes will receive their feeds during the night, eliminating the need for any feeds during the school day.

Students who require venting or drainage of their G-tubes should have this done in a clean, private area such as the health office. G-tubes are usually covered by the student's clothing and do not interfere with normal school activities. Participation in physical education activities may require modification and are determined on an individual basis.

## Staff Preparation

A G-tube feeding may be administered by the school nurse (RN or LPN) or a trained health assistant. If the feeding is administered by a non-licensed health assistant, it should be

supervised by a registered nurse. The student should be encouraged to assist with the G-tube feeding as much as possible.

School personnel who have regular contact with a student who has a G-tube should receive training covering potential problems and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

## **Components of the Individualized Health Care Plan**

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for G-tube care and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with a gastrostomy tube, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Size and type of feeding device
- Length of G-tube outside of the body (important to know in determining whether G-tube has migrated either further into the stomach or out of the stomach)
- Whether the student receives bolus or continuous feeds
- Amount, type, and frequency of formula to be received
- Amount and type of flush liquid
- When the tube should be flushed, such as before and after administration of feeds or medications
- Volume of flushes
- Type of portable pump and its specific instructions
- Positioning during and after feeding
- Activity level during and after feeding
- Whether student should receive oral stimulation during feeding
- Measurement of gastric residuals, if needed
- Medication administration schedule, if needed
- Amount of food or drink a student can take by mouth
- Determining the need for venting of the G-tube
- Patency of gastrostomy tract and time frame for reinsertion should the G-tube fall out
- Actions to take if student has vomiting, abdominal distension, or pain
- Manufacturer's specific instructions for any supplies or equipment
- Feeding guidelines during student transport
- Latex allergy alert
- Standard precautions

### **Sources:**

Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238, 249-256.

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**Illustration Source:**

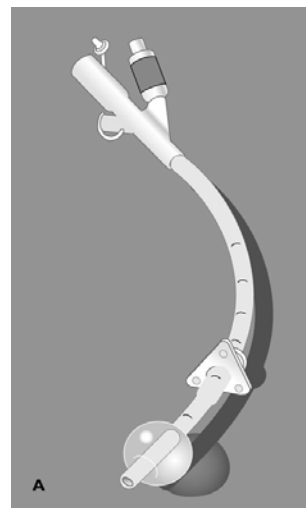
- Taylor, C, Lillis C., and P LeHone. (2004). *Fundamentals of Nursing*. (5<sup>th</sup> ed.) Springhouse, Pennsylvania: Lippincott Williams & Wilkins, 1266.

## Procedure for Gastrostomy Tube Feeding—Bolus Method

**Note: Equipment and feeding supplies provided by parent.**

1. Wash hands.
2. Gather and assemble equipment:
  - Liquid formula or feeding solution, at room temperature
  - 60 ml catheter-tipped syringe or other feeding container for feeding
  - Clamp or plug for end of tube
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure G-tube to clothing)
  - Gloves

*Identify size and type of G-tube. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*



***Tube feedings should be administered at room temperature.*** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student plan.  
*Students usually sit (or may lie on their right side with their head elevated) during feeding. Tubing may be pinned to shirt. Make sure clamp is not pressing on skin.*
6. Inspect skin at gastrostomy site for redness, tenderness, swelling or irritation, or presence of drainage or gastric leakage.  
*Report abnormal findings to school nurse and family.*
7. Wash hands and don gloves.
8. Remove plug (cap) from G-tube and insert a catheter-tipped syringe into the end of feeding tube.  
*G-tube is still clamped. Do not pull on gastrostomy tubing as this can cause pain and injury to the site.*
9. Unclamp the tubing and gently draw back on the plunger to remove any liquid or medication that may be left in the stomach (i.e., residuals). Return residuals to stomach.



*Some students may not need to have residuals checked. Note the amount that was withdrawn from the feeding tube and return the contents of the syringe to the stomach because stomach contents contain electrolytes and digestive enzymes. Removing them can result in electrolyte imbalance. Adjust the feeding volume according to health care provider's orders if a residual is present. If the residual is greater than recommended, hold feeding, wait 30-45 minutes, and check again.*

10. Clamp the gastrostomy tubing, disconnect the syringe, and remove plunger from syringe.
11. Reinsert catheter tip of syringe into tubing.  
*Syringe should be held 6 inches above level of stomach or at prescribed height.*
12. Unclamp tube, and allow bubbles to escape.
13. G-tubes should be flushed with 15-30 cc tepid tap water before feedings or medication.  
Follow guidelines in student's individualized health care plan.
14. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
15. Pour feeding/fluid into syringe and allow to flow in by gravity.  
*If a container other than a syringe is used for the feeding, unclamp tubing and allow it to flow in by gravity, using the same procedure. The flow of feeding may need to be initiated by placing plunger into barrel of syringe and depressing slightly to get it started (and then remove plunger).*

**Be alert to any unusual changes in the student's tolerance of the feeding.**

**Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

16. Continue to pour feeding into syringe as contents empty into stomach. Keep syringe partially filled to prevent air from entering stomach.  
*Depending on the age and capabilities of the student, have him/her assist with the feeding by holding syringe or pouring fluid into it. Provide oral stimulation, if ordered.*
17. Raise or lower syringe or container to adjust flow to prescribed rate.  
*The higher the syringe is held, the faster the feeding will flow into the stomach.*
18. When feeding is completed, pour prescribed amount of water, usually 15-30 cc, into syringe and flush tubing. *This will clear tubing of feeding and medication.*
19. Open G-tube to air, if ordered.  
*Venting allows drainage of fluid or release of gas bubbles in the stomach. May help if student has a problem with gas.*
20. Clamp tubing, remove barrel of syringe, and reinsert plug into end of tubing.  
*Clamp tubing prior to removing the syringe or stomach contents may leak out of the tube.*
21. Secure tubing and tuck inside clothes, but not inside diaper or underpants.
22. Refer to student's individualized health care plan for guidelines regarding positioning and activity after feeding.
23. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.  
*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in*

*clean plastic containers, labeled correctly (not the original can) in the refrigerator.  
Discard any open formula after 48 hours.*

24. Remove gloves. Wash hands.

25. Document feeding, amount of feeding, any medication, residual amount, feeding tolerance, and any concern about gastrostomy site in student's log. Notify school nurse and family of any changes or concerns.

**Sources:**

Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238, 249-256.

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**Illustration Source:** image.MD Used with permission.

## Procedure for Gastrostomy Tube Feeding— Continuous Feeding by Pump or Slow Drip Method

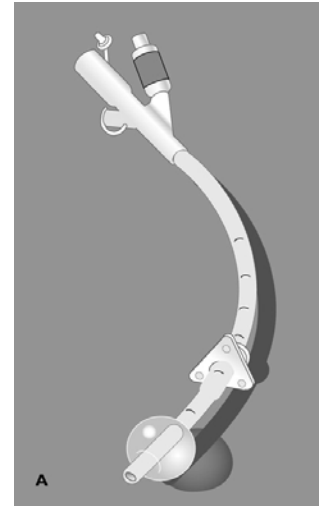
**Note: Equipment and formula provided by parent.**

1. Wash hands.
2. Gather and assemble equipment:
  - Liquid formula or feeding solution, at room temperature
  - 60 ml catheter-tipped syringe or other feeding container for feeding
  - Feeding bag and tubing
  - Feeding pump and stand or carry-pack, if needed
  - Clamp or plug for end of tube
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure G-tube to clothing)
  - Gloves

*Identify size and type of G-tube. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*

***Tube feedings should be administered at room temperature.** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.*

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student plan.  
*Students usually sit (or may lie on their right side with their head elevated) during feeding. Tubing may be pinned to shirt. Make sure clamp is not pressing on skin.*
6. Inspect skin at gastrostomy site for redness, tenderness, swelling or irritation, or presence of drainage or gastric leakage.  
*Report abnormal findings to school nurse and family.*
7. Wash hands and don gloves.
8. Remove plug (cap) from G-tube and insert a catheter-tipped syringe into the end of feeding tube.  
*G-tube is still clamped. Do not pull on gastrostomy tubing as this can cause pain and injury to the site.*
9. Unclamp the tubing and gently draw back on the plunger to remove any liquid or medication that may be left in the stomach (i.e., residuals). Return residuals to stomach.



*Some students may not need to have residuals checked. Note the amount that was withdrawn from the feeding tube and return the contents of the syringe to the stomach because stomach contents contain electrolytes and digestive enzymes. Removing them can result in electrolyte imbalance. Adjust the feeding volume according to health care provider's orders if a residual is present. If the residual is greater than recommended, hold feeding, wait 30-45 minutes, and check again.*

10. Pour feeding/fluids into feeding bag. Run through tubing and fill drip chamber according to tubing directions. Run through rest of tubing to the tip. Clamp.
11. Hang bag on pole above pump or at height to achieve prescribed flow. If a pump is used, insert tubing in pump mechanism and set proper flow rate. Some students may have pumps which are designed to hold the feeding and be worn around the waist or over the shoulder. Follow manufacturer instructions for use and student's individualized health care plan for instructions for activity level.
12. G-tubes should be flushed with 15-30 cc tepid tap water before feedings or medication. Follow guidelines in student's individualized health care plan.
13. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
14. Insert tip of feeding bag tubing into G-tube. Connection may be taped or luer-locked to prevent disconnection. Unclamp G-tube.  
*Be careful not to apply unnecessary pull on gastrostomy.*
15. Open clamp of feeding bag tubing and adjust until drips flow at prescribed rate. If pump is used, open clamp completely, set rate on pump, and monitor for correct rate.

**Be alert to any unusual changes in the student's tolerance of the feeding. Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

16. For continuous feeding with pump, add feeding as needed to prevent bag from becoming empty. No more than 4 hours worth of feeding should be hung at any time to prevent contamination.
17. If a single feeding is completed (bag empties), clamp feeding bag tubing, and clamp G-tube.
18. Disconnect feeding bag and tubing from G-tube.
19. Unclamp G-tube and use a syringe to flush with water (usually 15-30 cc), unless ordered otherwise.  
*This will clear tubing of feeding and medication.*
20. Open G-tube to air, if ordered.  
*Venting allows drainage of fluid or release of gas bubbles in the stomach. This may help if student has a problem with gas.*
21. Clamp and plug G-tube.
22. Secure tubing and tuck inside clothes, but not inside diaper or underpants.
23. Refer to student's individualized health care plan for guidelines regarding positioning and activity after feeding.

*The feeding tube can be disconnected while the student is being transported to and from school.*

24. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.  
*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in clean plastic containers, labeled correctly (not the original can) in the refrigerator. Discard any open formula after 48 hours.*
25. Remove gloves. Wash hands.
26. Document feeding, record amount of formula, any medication, residual amount, feeding tolerance, and any concern about gastrostomy site in student's log and notify school nurse and family of any changes or concerns.

**Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238, 249-256.
- Fidanza, S. (2003). *Gastrostomy Care*. Denver: The Children's Hospital. McKesson Clinical Reference Products. Available online at [www.apria.com/resources/1,2725,48-53-G-2035,00.html](http://www.apria.com/resources/1,2725,48-53-G-2035,00.html).
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## **Possible Problems That May Occur with Gastrostomy Feeds**

<b>Assessment</b>	<b>Intervention/Rationale</b>
Breathing difficulties, choking, coughing, and/or color changes	<i>Stop feeding immediately. There may be aspiration of feeding into the lungs. Call school nurse if not present. <b>Notify family and activate the school emergency plan.</b></i>
Nausea and/or cramping	<i>Make sure feeding is at room temperature. Check feeding rate. Rate may need to be slowed. Check the length of the G-tube to see if it may have migrated either inward or outward. If problem continues, notify school nurse, family, and/or health care provider.</i>
Vomiting	<i>If all the above have been checked, stop feeding, call school nurse or family. Remove residual and vent, if ordered.</i>
Blocked gastrostomy tubing	<i>May be due to inadequate flushing, slow flow rate, or very thick fluid. Check tube position. Flush with 20-30 cc warm water. Carbonated beverages and juice have not proven effective in unclogging the tubing. Make sure all clamps on tubing are open. Squeeze or roll gastrostomy tubing with fingers moving slowing down toward student's stomach. Do <u>not</u> use stylet (guidewire) to try and unclog as this may damage G-tube. If blockage remains, contact school nurse or family.</i>
Leakage	<i>Check position of tube. Make sure length of tubing outside the skin remains the same (catheter has not migrated). Gently pull on the G-tube to make sure it is against the inside of the stomach wall. Check volume in balloon (if present). Adjust external stabilizer for appropriate fit.</i>
Redness/irritation/bleeding at site	<i>Check G-tube site for leakage. Clean stoma site if leakage of food/fluid/medication/stomach contents come in contact with skin. Keep site dry. Make sure tubing is not being pulled. Loosen external stabilizer if it is too tight. Do not use a baby bottle nipple as a stabilizer as this traps moisture and puts too much pressure on area. Avoid allowing tube to dangle—secure to clothing. Skin barrier or other protective skin preparations may be used, if ordered. Refer to student's individualized health care plan for cleaning or dressing instructions. Look for other signs of infection. Notify school nurse and family of gastrostomy site concerns.</i>

Assessment	Intervention/Rationale
G-tube comes out	<p><i>Follow guidelines in student's individualized health care plan. The G-tube may need to be reinserted immediately if a student's tract closes quickly (particularly if gastrostomy is less than 1-2 months old). Cover the site with a dry dressing or large bandage. Notify school nurse and family. Activate school emergency plan</i></p>

**Sources:**

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## General Information for Students with Gastrostomy Tubes

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has a gastrostomy tube (G-tube) inserted into his or her stomach. The G-tube is used to administer food, medication, and fluids directly into the stomach and usually is used during the school day.

The tube is held in place at all times and is clamped or capped between feedings or medication administration. The tube is covered by clothing and should not cause any discomfort for the student.

The student should be able to fully participate in physical education classes unless he or she has another condition that would interfere with full participation.

Special arrangements may need to be made for feedings and medication administration during field trips.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the G-tube.

**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.



## **Skin-Level or Low Profile Gastrostomy Devices (Gastrostomy Feeding Button)**

### **Overview**

A gastrostomy is a surgically created opening into the stomach through the surface of the abdomen. The skin-level or low profile gastrostomy device may also be called a G-button, MIC-KEY button, Nutriport, or Hideaport, depending on the manufacturer. The silicon or polyurethane device consists of an internal stabilizer in the stomach (fluid-filled balloon or mushroom-shaped dome) and an external stabilizer (crossbar, triangle, or wings) on the surface of the skin. The internal stabilizer has an antireflux valve so that stomach contents do not spill out. The device remains in place at all times and is covered by a safety plug when not in use. The safety plug is sometimes compared, in appearance, to the opening on a beach ball. Feedings are administered by attaching a small tube to the device. When the feeding is over, the tube is removed and the safety plug closed. Families often prefer a skin level device because there is no bulky tube to manage under clothing when the child is not received a feeding.

Skin-level gastrostomies can be used to drain or vent stomach contents, but indications for long term use in students are usually due to:

- Inability to consume adequate calories by mouth, which may be due to anatomical, behavioral, or psychosocial factors, such as esophageal atresia (incomplete development of the foodpipe) or failure to thrive.
- Need for supplemental calories due to increased needs from a disease process, such as cystic fibrosis or malabsorption disorders.
- Risk for choking and aspiration due to impaired swallowing or severe reflux.

To allow healing of the gastrostomy, skin-level gastrostomy devices are typically not inserted until 1-3 months after the gastrostomy has been performed.

### **Potential Settings**

Students can receive feedings anywhere. Many of the pumps are small and designed to be easily worn or carried at all times. Bolus feeds should be done in a clean area because they are more open to the environment. Student's desire for privacy and possible need for stationary activities during a feed should be considered in determining where feeds will take place. Many students with G-buttons will receive their feeds during the night, eliminating the need for any feeds during the school day.

G-buttons are covered by the student's clothing and do not interfere with normal school activities. Participation in physical education activities may require modification and are determined on an individual basis.

### **Staff Preparation**

Feedings using skin-level gastrostomy devices can be administered by the school nurse (RN or LPN) or a trained health assistant supervised by a registered nurse. The student should be encouraged to assist with the feeding as much as possible.

School personnel, including bus drivers, who have regular contact with a student who has a skin-level gastrostomy device should receive training covering the student's specific needs, potential problems, and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

### **Components of the Individualized Health Care Plan**

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for care of the skin-level gastrostomy device and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with a skin-level gastrostomy device, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Size and type of feeding device
- Length of G-button outside of the body (important to know in determining whether G-button has migrated either further into the stomach or out of the stomach)
- Whether the student receives bolus or continuous feeds
- Amount, type, and frequency of formula to be received
- When the tube should be flushed, such as before and after administration of feeds or medications
- Volume of flushes
- Type of portable pump and its specific instructions
- Positioning during and after feeding
- Activity level during and after feeding
- Whether student should receive oral stimulation during feeding
- Measurement of gastric residuals, if needed
- Medication administration schedule, if needed
- Amount of food or drink a student can take by mouth
- Determining the need for venting of the gastrostomy device
- Patency of gastrostomy tract and time frame for reinsertion should the device fall out
- Actions to take if student has vomiting, abdominal distension, or pain
- Manufacturer's specific instructions for any supplies or equipment
- Feeding guidelines during student transport
- Latex allergy alert
- Standard precautions

#### **Sources:**

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## Procedure for Skin-Level Gastrostomy Device (G-Button) Feeding—Bolus Method

**Note: Parents provide equipment and formula.**

1. Wash hands.
2. Gather and assemble equipment:
  - Liquid formula or feeding solution, at room temperature
  - 60 ml catheter-tipped syringe or other feeding container for feeding
  - Adaptor with tubing and clamp (varies with type of device)
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure G-tube to clothing)
  - Gloves

*Identify size and type of gastrostomy device. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*

***Tube feedings should be administered at room temperature.** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.*

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student plan.  
*Students usually sit (or may lie on their right side with their head elevated) during feeding.*
6. Inspect skin at gastrostomy site for redness, tenderness, swelling or irritation, or presence of drainage or gastric leakage.  
*Report abnormal findings to school nurse and family.*
7. Wash hands and don gloves.
8. Rotate (turn 90 degrees) external stabilizer/bolster according to student's individualized health care plan.  
*This may help prevent adhesions.*
9. Open the safety plug on the gastrostomy device.
10. Insert adaptor and tubing into gastrostomy device according to manufacturer instructions (some adaptors lock into place).
11. Flush with 10-30 cc tepid tap water before feedings or medications. Follow student's individualized health care plan.

12. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
13. Remove plunger from syringe and attach the adaptor tubing to the feeding syringe.
14. Pour feeding/fluid into syringe and allow to flow in by gravity.  
*If a container other than a syringe is used for the feeding, unclamp tubing and allow it to flow in by gravity, using the same procedure. The flow of feeding may need to be initiated by placing plunger into barrel of syringe and depressing slightly to get it started (and then remove plunger).*

**Be alert to any unusual changes in the student's tolerance of the feeding. Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

15. Continue to pour feeding into syringe as contents empty into stomach. Keep syringe partially filled to prevent air from entering stomach.  
*Depending on the age and capabilities of the student, have him/her assist with the feeding by holding syringe or pouring fluid into it. Provide oral stimulation, if ordered.*
16. Raise or lower syringe or container to adjust flow to prescribed rate.  
*The higher the syringe is held, the faster the feeding will flow into the stomach.*
17. When feeding is completed, pour prescribed amount of water into syringe and flush tubing. *This will clear tubing of feeding and medication.*
18. Clamp adapter tubing, remove barrel of syringe, and close safety plug into gastrostomy device.
19. Refer to student's individualized health care plan regarding positioning and activity after feeding.
20. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.  
*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in clean plastic containers, labeled correctly (not the original can) in the refrigerator. Discard any open formula after 48 hours.*
21. Remove gloves. Wash hands.
22. Document feeding, record amount of feeding, any medication, residual amount, feeding tolerance, and any concern about gastrostomy site in student's log and notify school nurse and family of any changes or concerns.

**Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238, 249-256.
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## Procedure for Skin-Level Gastrostomy Device (G-Button) Feeding—Slow Drip or Continuous Feeding by Pump

**Note: Parents provide equipment and formula.**

1. Wash hands.
2. Gather and assemble equipment:
  - Liquid formula or feeding solution, at room temperature
  - 60 ml catheter-tipped syringe or other feeding container for feeding
  - Feeding bag and tubing
  - Feeding pump and stand or carry-pack, if needed
  - Adaptor with tubing and clamp (varies with size and type of device)
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure G-tube to clothing)
  - Gloves

*Identify size and type of gastrostomy device. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*

***Tube feedings should be administered at room temperature.** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.*

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student plan.  
*Students usually sit (or may lie on their right side with their head elevated) during feeding.*
6. Inspect skin at gastrostomy site for redness, tenderness, swelling or irritation, or presence of drainage or gastric leakage.  
*Report abnormal findings to school nurse and family.*
7. Wash hands and don gloves.
8. Rotate (turn 90 degrees) external stabilizer/bolster according to student's individualized health care plan.  
*This may help prevent adhesions.*
9. Open the safety plug on the gastrostomy device.
10. Insert adaptor and tubing into gastrostomy device according to manufacturer instructions (some adaptors lock into place).

11. Flush with 10-30 cc tepid tap water before feedings or medications. Follow student's individualized health care plan.
12. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
13. Insert adaptor and tubing into gastrostomy device according to manufacturer instructions (some adaptors lock into place).
14. Attach the adaptor tubing to feeding bag tubing.
15. Open clamp of feeding bag tubing and adjust until drips flow at prescribed rate. If pump is used, open clamp completely, set rate on pump, and monitor for correct rate.

**Be alert to any unusual changes in the student's tolerance of the feeding. Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

16. For continuous feeding with pump, add feeding as needed to prevent bag from becoming empty. No more than 4 hours worth of feeding should be hung at any time to prevent contamination.
17. If a single feeding is completed (bag empties), clamp feeding bag tubing, and disconnect feeding bag from adaptor tubing.
18. Use a syringe to flush the gastrostomy device with water (usually 15-30 cc), unless ordered otherwise.  
*This will clear device of feeding and medication.*
19. Remove adaptor tubing and close safety plug.
20. Refer to student's individualized health care plan regarding positioning and activity after feeding.  
*The feeding tube can be disconnected while the student is being transported to and from school.*
21. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.  
*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in clean plastic containers, labeled correctly (not the original can) in the refrigerator. Discard any open formula after 48 hours.*
22. Remove gloves. Wash hands.
23. Document feeding, record amount of formula and flush, any medication, residual amount, feeding tolerance, and any concern about gastrostomy site in student's log. Notify school nurse and family of any changes or concerns.

**Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238, 249-256.
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## **Possible Problems with Skin-Level Gastrostomy Devices (G-Button)**

<b>Assessment</b>	<b>Intervention/Rationale</b>
Breathing difficulties, choking, coughing, and/or color changes	<i><b>Stop feeding immediately.</b> There may be aspiration of feeding into the lungs. Call school nurse if not present. <b>Notify family and activate the school emergency plan.</b></i>
Nausea and/or cramping	<i>Make sure feeding is at room temperature. Check feeding rate. Rate may need to be slowed. Check the gastrostomy device to see if it may have migrated either inward or outward. If problem continues, notify school nurse, family, and/or health care provider.</i>
Vomiting	<i>If all the above have been checked, stop feeding, call school nurse or family. Remove residual and vent, if ordered.</i>
Blocked gastrostomy	<i>May be due to inadequate flushing, slow flow rate, or very thick fluid. Flush with 10-30 cc warm water. Carbonated beverages and juice have not proven effective in unclogging the tubing. <u>Do not</u> use stylet (guidewire) to try and unclog as this may damage device. If blockage remains, contact school nurse or family.</i>
Leakage	<i>Determine whether the leak is coming from the device or around the device. Make sure the anti-reflux valve is functioning properly. Gently pull on the device to make sure it is against the inside of the stomach wall. Check volume in balloon (if present). Rotate external stabilizer and make sure it is not too tight.</i>
Redness/irritation/bleeding at site	<i>Check gastrostomy site for leakage. Clean site if leakage of food/fluid/medication/stomach contents come in contact with skin. Keep site dry. Make sure tubing is not being pulled. Rotate external stabilizer and make sure it is not too tight. Skin barrier or other protective skin preparations may be used, if ordered. Refer to student's individualized health care plan for cleaning or dressing instructions. Look for other signs of infection. Notify school nurse and family of gastrostomy site concerns.</i>
Gastrostomy device comes out	<i>Follow guidelines in student's individualized health care plan. The gastrostomy device may</i>

Assessment	Intervention/Rationale
	<p><i>need to be reinserted immediately if a student's tract closes quickly (if gastrostomy is less than 1-2 months old). Cover the site with a dry dressing or large bandage. Notify school nurse and family. Activate school emergency plan</i></p>

**Sources:**

Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238, 249-256.

Fidanza, S. (2003). *Gastrostomy Care*. Denver: The Children's Hospital. McKesson Clinical Reference Products. Available online at [www.apria.com/resources/1,2725,48-53-G-2035,00.html](http://www.apria.com/resources/1,2725,48-53-G-2035,00.html).

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## General Information for Students with Skin-Level Gastrostomy Feeding Devices

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has a gastrostomy feeding device, often called a G-button, inserted into his or her stomach. The G-button is used to administer food, medication, and fluids directly into the stomach and usually is used during the school day.

The G-button is held in place and is capped between feedings or medication administration. The device is covered by clothing and should not cause any discomfort for the student.

The student should be able to fully participate in physical education classes unless he or she has another condition that would interfere with full participation.

Special arrangements may need to be made for feedings and medication administration during field trips.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the G-button.

**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.

# Nasogastric Tube

## Overview

A nasogastric tube (NG-tube) is a rubber or plastic tube that passes through a nostril, down the throat and esophagus, and into the stomach. It can be used to give liquids, medication, and feedings when needed. NG-tubes are usually used for relatively short periods of time. If access to the stomach is needed for longer periods, a gastrostomy is often performed. NG-tubes have the advantage that they do not require surgery to insert, but they are more likely to dislodge or cause aspiration and reflux.

## Potential Settings

Students can receive feedings in the classroom, cafeteria, or health room. Bolus feeds should be done in a clean area because they are open to the environment. Student's desire for privacy and possible need for stationary activities during a feed should be considered in determining where feeds will take place. If an NG tube needs to be inserted during school, this should be done in the health room or in another private setting by a registered nurse with specific orders from a physician.

## Staff Preparation

A school nurse (RN or LPN) or health assistant with training in appropriate techniques and problem management and supervised by an RN should do the nasogastric tube feedings. Any school personnel who have regular contact with a student with an NG-tube should receive general training covering the student's specific needs, potential problems, and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

## Components of the Individualized Health Care Plan

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for NG-tube care and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with an NG-tube, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Size and type of feeding tube
- Whether the student receives bolus or continuous feeds
- Proper placement of the NG-tube
- Method of securing the NG-tube
- Amount, type, and frequency of formula to be received
- When the tube should be flushed, such as before and after administration of feeds or medications

- Volume of flushes
- Activity level after feeding
- Positioning during and after feeding
- Measurement of gastric residuals, if needed
- Actions to take if student has vomiting, abdominal distension, or pain
- Medication administration schedule, if needed
- Amount of food or drink a student can take by mouth
- Manufacturer's specific instructions for any supplies or equipment
- Recommended cleaning of equipment
- Latex allergy alert
- Standard precautions

**Sources:**

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## Procedure for Inserting Nasogastric Tube

**This procedure is usually done at home. A school nurse (RN or LPN) with physician orders must do this procedure if done at school.**

**Note: Parent provides equipment and supplies.**

1. Wash hands.
2. Assemble equipment:
  - Appropriate size nasogastric tube (as ordered by health care provider)
  - ½ inch waterproof tape, preferably hypoallergenic
  - 5 cc syringe or catheter tip syringe
  - Stethoscope
  - Water soluble lubricant
  - Gloves

*Guidelines for selection of nasogastric tube:*

<i>Student's weight</i>	<i>NG size</i>
<i>10-20 kg</i>	<i>10F</i>
<i>20-30 kg</i>	<i>12F</i>
<i>30-50 kg</i>	<i>14F</i>
<i>50+ kg</i>	<i>16F</i>

3. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
4. Position student.  
*Place student in sitting or high Fowler's position. A pillow may be placed behind the head.*
5. Wash hands and don gloves.
6. Measure the tube for the correct insertion length. Mark the tube with a piece of tape or felt marker at the measured length.  
*Measure from the tip of the nose to the ear lobe to the bottom of the xiphoid process. This is the approximate length of tube needed to reach the stomach, and the marking serves as a measurement landmark.*
7. Lubricate about 3-6 inches of the end of the tube with sterile water or **water-soluble** lubricant.  
*Lubrication reduces the friction between the mucous membrane and the tube.*
8. Stand on the student's right side if right-handed, left side if left-handed.
9. Lift the student's head, insert the tube into nostril, and pass it gently into the posterior nasopharynx. Direct the tube along the floor of the nostril and toward the ear on that side. As the tube is advanced and rotated, ask the student to swallow.
10. When the tube reaches the pharynx, the student may gag. Allow him/her to rest a few moments and then proceed.  
*If gag reflex is triggered by the tube, place student in sitting or high Fowler's position with the neck slightly flexed.*
11. Continue to advance the tube gently each time the student swallows. Insert the tube until the tape mark is at the nostril.  
*Swallowing facilitates passage of the tube. Continue to explain to student that breathing and swallowing can help in passing the tube.*

12. If obstruction appears to prevent the tube from passing, **do not use force**. Rotating the tube gently may help. If unsuccessful, withdraw the tube, re-lubricate the tube, and insert it into the other nostril. If still unsuccessful, stop and notify family.  
*The tube should never be forced because of the danger of injury.*
13. **If there are signs of respiratory distress, such as gasping, coughing, nasal flaring, tachypnea/tachycardia, wheezing, retractions, or cyanosis, immediately remove the tube.**  
*Signs of respiratory distress may indicate placement of the tube in the trachea or bronchus.*
14. After inserting the tube to where the tape mark is at the nostril, verify placement of the nasogastric tube in the stomach using the following methods:
- Aspirate contents of stomach with a syringe.  
*Aspirated stomach contents would indicate that the tube is in the stomach. No stomach contents could indicate that the tube is in the lungs. Return stomach contents to stomach because they contain needed electrolytes and digestive enzymes.*
  - Measure pH of aspirate.  
*Gastric aspirates have acidic pH values, usually less than 4 whereas respiratory secretions are usually greater than 5.5 or 6.*
  - Place a stethoscope over the epigastric area, inject 5-10 ml of air into the nasogastric tube, and listen for the sound of air entering the stomach as air is injected into tube.  
*If the sound of air entering the stomach is heard over the epigastric area the nasogastric tube is in the stomach. No sound will be heard if the tube is in the lungs.*
  - Ask the student to talk (if able).  
*Student will likely be unable to talk if NG-tube has passed through vocal cords.*
- None of these methods of verification is totally reliable. Checking pH of aspirate is considered to be more reliable than the others. If possible, at least two methods of verification should be done to check placement.**
15. Secure the tube with hypoallergenic tape to nose or cheek using an overlapping V-pattern around the tube. Or, place protectant such as Duoderm on cheek and tape tube to the protectant.  
*Position tape and nasogastric tube so that the student's vision is not disturbed and that the tube does not rub against the nasal mucosa or cause pressure on nares.*
16. Remove gloves. Wash hands.
17. Document procedure. Notify family of any problems.

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## Procedure for Checking Placement of the Nasogastric Tube

*\*Proper tube placement should be checked before every feeding (or medication administration) and whenever there is a question about position because the tube can migrate between feedings.*

**Note: Parent provides equipment and supplies.**

1. Wash hands.
2. Assemble equipment:
  - 60 cc catheter-tipped syringe
  - pH tape
  - Stethoscope
  - Gloves
3. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
4. Wash hands and don gloves.
5. Position student on left side for best results.
6. Unclamp or remove cap from NG-tube
7. Connect 60 ml catheter-tipped syringe to the end of the NG-tube.
8. Gently draw back on the plunger of the syringe until contents of stomach are seen.  
*Aspirated stomach contents would indicate that the tube is in the stomach. No stomach contents could indicate that the tube is in the lungs. **Return stomach contents to stomach** after checking because they contain needed electrolytes and digestive enzymes.*
9. Measure pH of aspirate. If NG-tube is in the stomach, then the gastric aspirate will have an acidic pH 1-4. If pH is greater than 6, tube is likely either in the lungs or small intestine.  
*Acid blocking medications can raise the pH of stomach contents to 4-6.*
10. Place a stethoscope over the mid-left abdomen and inject 5-10 ml of air with syringe. A whooshing sound may be heard if NG-tube is placed correctly. Although this method for checking placement has been very popular, research indicates it may not be as effective as checking pH aspirate. If NG-tube does not appear to be in place, **do not give feeding**. *Replacement or repositioning of the NG-tube should only be done by a school nurse with appropriate training and if ordered by the student's health care provider. (Check student's individualized health care plan.)*
11. Ask the student to talk (if able).  
*Student will probably be unable to talk if NG-tube has passed through vocal cords.*
12. If ordered, gently draw back on the plunger to remove any liquid or medication that may be left in the stomach (i.e., residuals).  
*Refer to student's individualized health care plan for guidelines to check residuals. Note the amount that was withdrawn from the feeding tube and return the contents to the stomach (unless ordered otherwise). Adjust the feeding volume according to the health care provider's orders if a residual is present. If the residual is greater than recommended, hold feeding, wait 30-45 minutes, and check again. Some students may not need to have residuals checked. Follow student's individualized health care plan.*
13. Clamp the tubing and disconnect the syringe.

14. Proceed with feeding by method prescribed for student.  
*Feedings may be given bolus (feeding given over a short period of time by gravity) or slow drip (feeding given by pump or over a long period of time by gravity).*
16. Document procedure. Notify school nurse and family of any problems.

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## Procedure for Nasogastric Tube Feeding-Bolus Method

**Note: Parent provides equipment and formula.**

1. Wash hands.
2. Gather and assemble equipment:
  - Liquid formula or feeding solution, at room temperature
  - 60 ml catheter-tipped syringe or other feeding container for feeding
  - Clamp or plug for end of tube
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure G-tube to clothing)
  - pH tape, to check placement
  - Stethoscope, to check placement
  - Gloves

*Identify size and type of G-tube. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*

***Tube feedings should be administered at room temperature.** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.*

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student plan.  
*Students usually sit (or may lie on their right side with their head elevated) during feeding. Tubing may be pinned to shirt. Make sure clamp is not pressing on skin.*
6. Wash hands and don gloves.
7. **Check placement of NG-tube.** (Refer to procedure on preceding pages.)  
*Always check placement before giving a feeding or medication because tubing can migrate between feedings.*
8. Remove plug (cap) from NG-tube and insert a catheter-tipped syringe into the end of feeding tube.  
*NG-tube is still clamped. Do not pull on nasogastric tubing as this can cause pain and injury to the nares.*
9. Unclamp the tubing and gently draw back on the plunger to remove any liquid or medication that may be left in the stomach (i.e., residuals). Return residuals to stomach.  
*Some students may not need to have residuals checked. Note the amount that was withdrawn from the feeding tube and return the contents of the syringe to the stomach*

*because stomach contents contain electrolytes and digestive enzymes. Removing them can result in electrolyte imbalance. Adjust the feeding volume according to health care provider's orders if a residual is present. If the residual is greater than recommended, hold feeding, wait 30-45 minutes, and check again.*

10. Clamp the NG-tube, disconnect the syringe, and remove plunger from syringe.
11. Reinsert catheter tip of syringe into tubing.  
*Syringe should be held 6 inches above level of stomach or at prescribed height.*
12. Unclamp tube, and allow bubbles to escape.
13. NG-tubes should be flushed with 15-30 cc tepid tap water before feedings or medication.  
Follow student's individualized health care plan.
14. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
15. Pour feeding/fluid into syringe and allow to flow in by gravity.  
*If a container other than a syringe is used for the feeding, unclamp tubing and allow it to flow in by gravity, using the same procedure. The flow of feeding may need to be initiated by placing plunger into barrel of syringe and depressing slightly to get it started (and then remove plunger).*

**Be alert to any unusual changes in the student's tolerance of the feeding. Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

16. Continue to pour feeding into syringe as contents empty into stomach. Keep syringe partially filled to prevent air from entering stomach.  
*Depending on the age and capabilities of the student, have him/her assist with the feeding by holding syringe or pouring fluid into it. Provide oral stimulation, if ordered.*
17. Raise or lower syringe or container to adjust flow to prescribed rate.  
*The higher the syringe is held, the faster the feeding will flow into the stomach.*
18. When feeding is completed, pour prescribed amount of water, usually 15-30 cc, into syringe and flush tubing.  
*This will clear tubing of feeding and medication.*
19. Vent NG-tube to air, if ordered.  
*Venting allows drainage of fluid or release of gas bubbles in the stomach. May help if student has a problem with gas.*
20. Clamp tubing, remove barrel of syringe, and reinsert plug into end of tubing.  
*Clamp tubing prior to removing the syringe; otherwise, stomach contents may leak out of the tube.*
21. Make sure tubing is securely attached to cheek and not pulling on nose or causing discomfort.
22. Refer to student's individualized health care plan regarding positioning and activity after feeding.
23. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.

*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in clean plastic containers, labeled correctly (not the original can) in the refrigerator. Discard any open formula after 48 hours.*

24. Remove gloves. Wash hands.
25. Document feeding, record feeding amount, any medication, residual amount, feeding tolerance, and any concern about gastrostomy site in student's log. Notify school nurse and family of any changes or concerns.

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## Procedure for Nasogastric Tube Feeding—Slow Drip and/or Continuous Feeding by Pump

**Note: Parent provides equipment and formula.**

1. Wash hands.
2. Assemble equipment:
  - Liquid feeding solution/formula at room temperature
  - 60 ml or cc catheter-tipped syringe or other feeding container for feeding
  - Feeding pump and IV stand (optional)
  - Feeding bag and tubing
  - Clamp or cap for end of tube (optional)
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure NG-tube to clothing)
  - pH tape, to check placement
  - Stethoscope, to check placement
  - Gloves

*Identify size and type of G-tube. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*

***Tube feedings should be administered at room temperature.** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.*

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student plan.  
*Students usually sit (or may lie on their right side with their head elevated) during feeding.*
6. Wash hands and don gloves.
7. **Check placement of NG-tube.** (Refer to procedure on preceding pages.)  
*Always check placement before giving a feeding or medication because tubing can migrate between feedings.*
8. Remove plug (cap) from NG-tube and insert a catheter-tipped syringe into the end of feeding tube.  
*NG-tube is still clamped. Do not pull on nasogastric tubing as this can cause pain and injury to the nares.*

9. Unclamp the tubing and gently draw back on the plunger to remove any liquid or medication that may be left in the stomach (i.e., residuals). Return residuals to stomach. *Some students may not need to have residuals checked. Note the amount that was withdrawn from the feeding tube and return the contents of the syringe to the stomach because stomach contents contain electrolytes and digestive enzymes. Removing them can result in electrolyte imbalance. Adjust the feeding volume according to health care provider's orders if a residual is present. If the residual is greater than recommended, hold feeding, wait 30-45 minutes, and check again.*
10. Pour feeding/fluids into feeding bag. Run through tubing and fill drip chamber according to tubing directions. Run through rest of tubing to the tip. Clamp.
11. Hang bag on pole above pump or at height to achieve prescribed flow. If a pump is used, insert tubing in pump mechanism and set proper flow rate. Some students may have pumps which are designed to hold the feeding and be worn around the waist or over the shoulder. Follow manufacturer instructions for use and student's individualized health care plan for activity level.
12. NG-tubes should be flushed with 15-30 cc tepid water before administration of feeds or medications.
13. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
14. Insert tip of feeding bag tubing into G-tube. Connection may be taped or luer-locked to prevent disconnection. Unclamp G-tube.  
*Be careful not to apply unnecessary pull on gastrostomy.*
15. Open clamp of feeding bag tubing and adjust until drips flow at prescribed rate. If pump is used, open clamp completely and monitor for correct rate.

**Be alert to any unusual changes in the student's tolerance of the feeding.**

**Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

16. For continuous feeding with pump, add feeding as needed to prevent bag from becoming empty. No more than 4 hours worth of feeding should be hung at any time to prevent contamination.
17. If a single feeding is completed (bag empties), clamp feeding bag tubing, and clamp NG-tube.
18. Disconnect feeding bag and tubing from NG-tube.
19. Unclamp NG-tube and use a syringe to flush with water (usually 15-30 cc), unless ordered otherwise.  
*This will clear tubing of feeding and medication.*
20. Open NG-tube to air, if ordered.  
*Venting allows drainage of fluid or release of gas bubbles in the stomach. This may help if student has a problem with gas.*
21. Clamp and plug NG-tube.
22. Secure tubing and tuck inside clothes, but not inside diaper or underpants.



23. Refer to student's individualized health care plan regarding positioning and activity after feeding.  
*The feeding tube can be disconnected while the student is being transported to and from school.*
24. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.  
*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in clean plastic containers, labeled correctly (not the original can) in the refrigerator. Discard any open formula after 48 hours.*
25. Remove gloves. Wash hands.
26. Document feeding, any medication, residual amount, feeding tolerance, and any concern about gastrostomy site in student's log. Notify school nurse and family of any changes or concerns.

**Sources:**

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## **Possible Problems That May Occur with Nasogastric Tubes**

<b>Assessment</b>	<b>Intervention/Rationale</b>
Breathing difficulties, choking, coughing, and/or color changes while receiving feeding	<b>Stop feeding immediately.</b> There may be aspiration of feeding into the lungs. Call school nurse if not present. <b>Notify family and be ready to activate the school emergency plan.</b>
Breathing difficulties, choking, coughing, and/or color changes when not receiving feeding	Color changes or breathing difficulties are not always related to NG-tube feeding. In addition to checking NG-tube placement, it is important to carefully assess the student for other problems. Notify school nurse and family and be ready to activate the school emergency plan. <b>Do not initiate feedings if there is any question about correct placement of NG-tube.</b>
Respiratory distress continues	<b>Call for help and initiate school emergency plan.</b>
Nausea and/or cramping	Make sure feeding is at room temperature. Check feeding rate. Rate may need to be decreased. If problem continues, notify school nurse and family.
Vomiting	If all the above have been checked, stop feeding, call school nurse or family. If not receiving feeding, carefully assess for other problems and contact school nurse and family. Remove residual, if ordered.
NG-tube falls out	Follow guidelines in student's individualized health care plan. Notify family, school nurse, and/or health care provider. NG tube may need to be replaced by properly trained person, but placement must carefully be checked prior to using.

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## General Information for Students with Nasogastric Tubes

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has a nasogastric tube (NG-tube). The NG-tube runs from the nostril into the stomach and is used to administer food, medicines, and fluids directly into the stomach.

The NG-tube is held in place by tape and is clamped between feedings or medication administration. The student should experience no discomfort from the NG-tube.

The student may be able to participate in physical education classes as long as the tubing is not dislodged.

Special arrangements may need to be made for feedings and medication administration during field trips.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the NG-tube.

**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.

# Jejunostomy Tube

## Overview

A jejunostomy is a surgically created opening into the part of the small intestine that lies between the duodenum and the ileum. The jejunostomy tube (J-tube) is a silicon or polyurethane catheter that may be placed directly through the skin of the abdomen into the jejunum and can usually be found on the right side of the abdomen.

Some students may have a G-tube and a J-tube in the same stoma. There may be two separate tubes or one tube with several different ports. Other students may have two stomas with a gastrostomy device in one and a jejunostomy device in the other. When there are two stomas, the gastrostomy device may just be used for venting.

The gastrojejunal tube (G-J tube) is a single tube with three limbs, including a gastric port, a jejunal port, and a balloon inflation limb to hold the tube in place. It is inserted through a gastrostomy site and threaded through the pylorus into the jejunum. The tube remains in the small intestine at all times and must not move in or out. There may be a tube on the outside of the skin or a skin-level feeding device.

Used to bypass the mouth and stomach and to administer food and fluids directly into the jejunum, the jejunostomy poses less risk for aspiration and gastroesophageal reflux. It may be used when the student has a depressed gag reflex, an obstruction in the esophagus or stomach, or an intestinal pseudo-obstruction. It may also be used when the stomach cannot be used, such as after stomach surgery or when there is a problem with stomach emptying.

Jejunal feedings are administered slowly as a continuous drip over a number of hours. The jejunum does not tolerate larger, bolus feeds.

## Potential Settings

Students can receive feedings anywhere. Many of the pumps are small and designed to be easily worn or carried at all times. Student's desire for privacy and possible need for stationary activities during a feed should be considered in determining where feeds will take place. A few students with J-tubes may not need to receive feeds during the school day.

Students who require venting or drainage of their gastrostomy tubes should have this done in a clean, private area such as the health office. Some children may have the gastrostomy tube part vented continuously to a small drainage bag. J-Tubes and G-Tubes are usually covered by the student's clothing and do not interfere with normal school activities. Participation in physical education activities may require modification and are determined on an individual basis.

## Staff Preparation

A jejunostomy feeding may be administered by the school nurse (RN or LPN). It should not be done by a non-licensed health assistant. The student should be encouraged to assist with the J-tube feeding as much as possible.

School personnel who have regular contact with a student who has a J-tube should receive training covering the student's specific needs, potential problems, and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

### **Components of the Individualized Health Care Plan**

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for J-tube care and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with a jejunostomy tube, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Size and type of feeding device
- Amount, type, and frequency of formula to be received
- When the tube should be flushed, such as before and after administration of feeds or medications
- Volume of flushes
- Length of J-tube outside of the body (important to know in determining whether J-tube has migrated either in or out)
- Whether G-tube needs venting during jejunostomy feeds
- Type of portable pump and its specific instructions
- Positioning during and after feeding
- Activity level during and after feeding
- Medication administration schedule, if needed, and need for flushing before and after medication
- Whether medications are administered through J-tube or G-tube
- Amount of food or drink a student can take by mouth
- Patency of jejunostomy tract and time frame for reinsertion should the J-tube fall out
- Actions to take if student has vomiting, abdominal distension, or pain
- Manufacturer's specific instructions for any supplies or equipment
- Feeding guidelines during student transport
- Latex allergy alert
- Standard precautions

#### **Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238.
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## Procedure for Jejunostomy Tube Feeding— Continuous Feeding by Pump

**Note: Parents supply equipment and formula.**

1. Wash hands.
2. Gather and assemble equipment:
  - Liquid formula or feeding solution, at room temperature
  - 10 ml syringe
  - Feeding bag and tubing
  - Feeding pump and stand or carry-pack, if needed
  - Clamp or plug for end of tube
  - Water (to flush tubing before and after feeding)
  - Rubber bands and safety pins (to secure J-tube to clothing)
  - Gloves

*Identify size and type of J-tube. Shake can well to mix formula and note expiration date. It is recommended that students receive a ready-to-feed commercial formula. Potential problems with a homemade blenderized recipe include inaccurate mixing, which may alter the nutrients and calorie content; separation of solids and liquids in the solution, which may clog the tube; and increased risk of contamination due to improper handling, preparation, or storage.*

***Tube feedings should be administered at room temperature.** Some students get cramps if the feeding solution is too cold. If a blenderized formula is brought to school, it should be refrigerated until mealtime and warmed to room temperature. This may be achieved by holding the container with the formula under warm water for several minutes. A microwave should **not** be used for this procedure due to its uneven heat distribution.*

3. Measure prescribed amount of formula to be infused.
4. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
5. Position student upright as specified in student's individualized health care plan. *Students usually sit (or may lie on their right side with their head elevated) during feeding. Tubing may be pinned to shirt. Make sure clamp is not pressing on skin.*
6. Inspect skin at gastrostomy/jejunostomy site(s) for redness, tenderness, swelling or irritation, or presence of drainage or gastric leakage. *Report abnormal findings to school nurse and family.*
7. Wash hands and don gloves.
8. Pour feeding/fluids into feeding bag. Run through tubing and fill drip chamber according to tubing directions. Run through rest of tubing to the tip. Clamp.
9. Hang bag on pole above pump or at height to achieve prescribed flow. If a pump is used, insert tubing in pump mechanism and set proper flow rate. Some students may have pumps which are designed to hold the feeding and be worn around the waist or over the shoulder. Follow manufacturer instructions for use and student's individualized health care plan for activity level.



10. J-tubes should be flushed with 5-10 cc tepid water before the administration of feeds or medications. Follow student's individualized health care plan.
11. Administer medication, if prescribed, either before or after a feeding, as specified in student's individualized health care plan. Always flush before administering medications. Use liquid medication, if possible. Flushing with water between each medication and not mixing the medications can help to prevent clogging of tube.
12. Insert tip of feeding bag tubing into J-tube. Connection may be taped or luer-locked to prevent disconnection. Unclamp J-tube.  
*Be careful not to apply unnecessary pull on jejunostomy.*
13. Vent G-tube if ordered during feeding. Syringe or drainage bag may be used for venting.
14. Open clamp of feeding bag tubing and adjust until drips flow at prescribed rate. However, feeding pump will usually be ordered. If feeding pump is used, open clamp completely, set rate on pump, and monitor for correct rate.

**Be alert to any unusual changes in the student's tolerance of the feeding. Nausea/vomiting, cramping, or diarrhea may indicate that the feeding is being given too quickly or formula is too cold.**

15. For continuous feeding with pump, add feeding as needed to prevent bag from becoming empty. No more than 4 hours worth of feeding should be hung at any time to prevent contamination.
16. If a feeding is completed (bag empties) during school time, clamp feeding bag tubing, and clamp J-tube.
17. Disconnect feeding bag and tubing from J-tube.
18. Unclamp J-tube and use a syringe to flush with amount of water, usually 5-10 cc, in student's individualized health care plan.  
*This will clear tubing of feeding and medication and help to prevent obstruction.*
19. Clamp and plug J-tube.
20. Secure tubing and tuck inside clothes, but not inside diaper or underpants.
21. Refer to student's individualized health care plan regarding positioning and activity after feeding.
22. Wash syringe and other reusable equipment in soapy water. Rinse thoroughly, dry, and store appropriately.  
*Open formula is good for 24-48 hours. Check label or student's individualized health care plan to determine how long it may safely be used. Open formula should be stored in clean plastic containers, labeled correctly (not the original can) in the refrigerator. Discard any open formula after 48 hours.*
23. Remove gloves. Wash hands.
24. Document feeding, record amount, any medication, residual amount, feeding tolerance, and any concern about jejunostomy/gastrostomy site in student's log. Notify school nurse and family of any changes or concerns.

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## **Possible Problems that May Occur with Jejunostomies**

<b>Assessment</b>	<b>Intervention/Rationale</b>
Breathing difficulties/color changes	<i>Some students may experience increased respiratory secretions while receiving feedings and may need suctioning. Stop feeding and follow student's individualized health care plan for suctioning. If problem continues after suctioning, notify school nurse and family.</i>
Sweating, increased heart rate, pale skin color, irritability, diarrhea	<i>This may be signs of dumping syndrome, which can occur when volume or type of formula is increased. The feeding will usually need to be stopped until symptoms subside. Notify school nurse and family and follow student's individualized health care plan.</i>
Nausea and/or cramping	<i>Make sure feeding is at room temperature. Check feeding rate. Rate may need to be decreased. If problem continues, notify school nurse and family.</i>
Vomiting	<i>Jejunostomy tube may be dislodged from jejunum. Stop feeding. Notify school nurse, health care provider, and family. May need to vent G-tube if it was clamped during jejunal feeding.</i>
Jejunal feeding contents in G-tube drainage	<i>J-tube may be dislodged from jejunum. Stop feeding. Notify school nurse, family, and/or health care provider.</i>
Blocked jejunostomy tubing	<i>May be due to inadequate flushing, slow flow rate, or very thick fluid. Check tube position. Flush with 5 cc warm water. Carbonated beverages and juice have not proven effective in unclogging the tubing. Make sure all tubing clamps are open. Squeeze or roll jejunostomy tubing with fingers moving slowing down toward student's stomach. Do <u>not</u> use stylet (guidewire) to try and unclog as it may damage tube. If blockage remains, contact school nurse or family.</i>
Leakage	<i><b>Drainage from jejunostomy is very caustic.</b> Make sure tubing is not being pulled. Check position of tube. Make sure length of tubing outside the skin remains the same (catheter has not migrated).</i>
Redness/irritation/bleeding at site	<i>Check site for leakage. Drainage from jejunostomy is very caustic. Clean stoma site if leakage of food/fluid/medication/stomach or intestinal contents come in contact with skin. Keep site dry. Make sure tubing is not being pulled. Loosen</i>

Assessment	Intervention/Rationale
	<i>external stabilizer if it is too tight. Avoid allowing tube to dangle—secure to clothing. Refer to student’s individualized health care plan for cleaning and skin care instructions. Monitor for other signs of infection. Notify school nurse and family of any concerns.</i>
J-tube falls out	<i>Follow guidelines in student plan. The J-tube may need to be reinserted immediately if a student’s tract closes quickly. Cover the site with dry dressing or large bandage. Notify school nurse, family, and health care provider.</i>

**Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 229-238.
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## General Information for Students with Jejunostomy Tubes

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has a jejunostomy tube (J-tube) inserted into the small intestine. The J-tube is used to administer food, medication, and fluids directly into the small intestine.

The J-tube is held in place at all times and is clamped or capped between feedings or medication administration.

The J-tube is covered by clothing and should not cause the student discomfort.

The student's privacy should be assured during feedings and medication administration.

The student should be able to fully participate in physical education classes unless he or she has another condition that would interfere with full participation.

Special arrangements may need to be made for feedings and medication administration during field trips.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the J-tube.

**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.

# Nasojejunal Tube

## Overview

The two major sites for delivery of tube feedings are the stomach and the small intestine. The student with delayed gastric (stomach) emptying or a tendency to aspirate may benefit from transpyloric feedings (feedings into the jejunum or small bowel).

Despite its potential benefits, transpyloric feeding has its drawbacks. The feeding bypasses the stomach's anti-infective mechanisms and appears to result in less mixing of the food with pancreatic enzymes. Also, the position of the nasojejunum tubes must be ascertained frequently as they are likely to become malpositioned into the stomach instead of the jejunum.

## Potential Settings

There are no restrictions as to where a student may be fed. The student may be fed with other students, or, if the student prefers, in a more private setting (e.g., health room). Students require feedings continuously or every 2-3 hours. Students may have their feeding administered in the classroom. They may need to remain stationary, but should be able to continue sedentary school activities (e.g., reading, doing art, singing, working on a computer). Some students do not require feedings during school hours.

## Staff Preparation

Nasojejunal tube feedings should be administered by a registered nurse (RN or LPN). It should not be done by a non-licensed health assistant. School personnel who have regular contact with a student who has a nasojejunostomy should receive general training covering the student's specific needs, potential problems, and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

## Components of the Individualized Health Care Plan

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for J-tube care and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with a J-tube, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Size and type of feeding tube
- Whether the student receives bolus or continuous feeds
- Proper placement of the nasojejunum tube
- Amount, type, and frequency of formula to be received

- When the tube should be flushed, such as before and after administration of feeds or medications
- Volume of flushes
- Proper placement of the nasojejunal-tube
- Method of securing the nasojejunal-tube
- Activity level after feeding
- Positioning during and after feeding
- Measurement of gastric residuals, if needed
- Actions to take if student has vomiting, abdominal distension, or pain
- Medication administration schedule, if needed
- Amount of food or drink a student can take by mouth
- Manufacturer's specific instructions for any supplies or equipment
- Recommended cleaning of equipment
- Adherence to feeding schedule to prevent overfeeding or dumping syndrome symptoms
- Latex allergy alert
- Standard precautions

**NOTE: The procedure for nasojejunal tube feedings is identical to nasogastric continuous/slow drip tube feedings with the exception of the placement check. (See nasogastric continuous/slow drip tube feeding procedure.) The next section contains the procedure for checking placement of the nasojejunal tube. Placement must be checked before every use of the nasojejunal tube.**

**Source:** Skale, N. (1992). "Nasojejunal Tube Insertion." In *Manual of Pediatric Nursing Procedures*. Baltimore: J. B. Lippincott, pp. 410-412.

## Procedure for Checking Placement of Nasojejunal Tube

*\*Placement must be checked before every use of nasojejunal tube.*

**Note: Equipment supplied by parent.**

1. Wash hands.
2. Assemble equipment
  - 5- or 10- ml syringe
  - Stethoscope
  - Gloves
  - pH tape
3. Explain the procedure to the student at his/her level of understanding.
4. Position the student.  
*Place the student in sitting or high Fowler's position.*
5. Wash hands and put on gloves.
6. Verification of nasojejunal tubes is best determined by x-ray. To check placement of the nasojejunal tube in the jejunum in the school setting:
  - Attach a 5 or 10 cc syringe to the tube and gently aspirate. Aspirated contents should be golden in color with a pH of 6 or above. If there is no aspirate, or pH is less than 6, **leave the tube in place and do not feed the student.** Notify the school nurse, family, and health care provider.
  - Placement may also be checked by injecting 2-5 cc of air into the tube, while holding a stethoscope over the right lower quadrant of the abdomen. If the tube is in position as air is injected, a crackling or swishing sound will be heard. **However, this method may not adequately ensure correct placement.**
  - Use verification guidelines in student's individualized health care plan.
7. If the tube is in place, feed student as ordered.  
*Procedure for nasogastric feedings can be used as a reference.*
8. Document procedure.

**Source:** Skale, N. (1992). "Nasojejunal Tube Insertion." In *Manual of Pediatric Nursing Procedures*. Baltimore: J. B. Lippincott, pp. 410-412.



## General Information for Students with Nasojejunal Tubes

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has a nasojejunal tube (NJ-tube) running from the nostril to the small intestine. The NJ-tube is used to administer food, medicines, and fluids directly into the small intestine.

The tube is held in place and is clamped closed between feedings or medication administration.

The NJ-tube is covered by clothing and should not cause the student any discomfort.

The student's privacy should be assured during feedings and medication administration.

The student should be able to fully participate in physical education classes unless he or she has another condition that would interfere with full participation.

Special arrangements may need to be made for feedings and medication administration during field trips.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the NJ-tube.

**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.

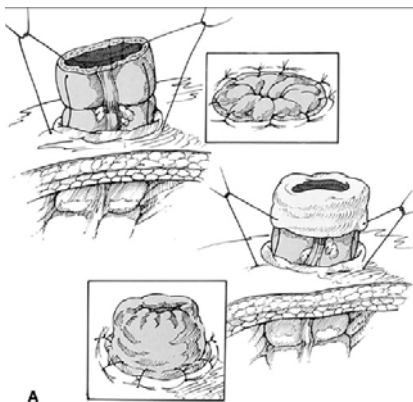
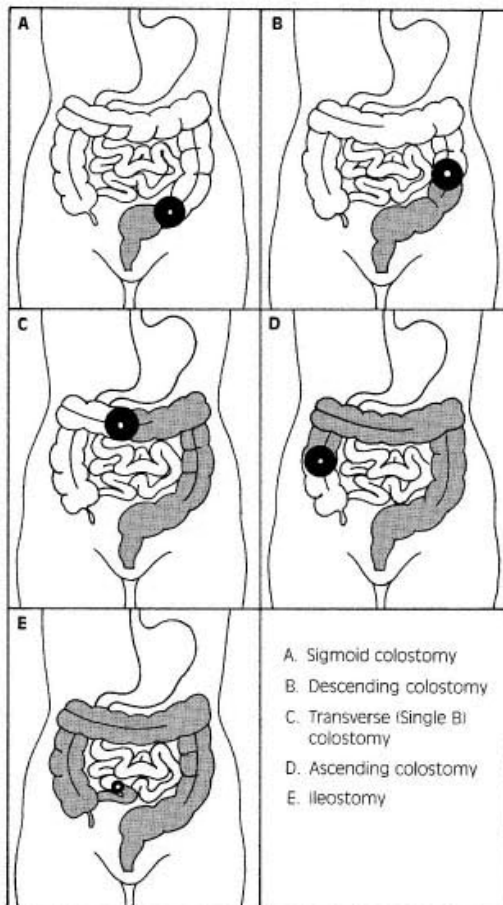
# Colostomy

## Overview

A colostomy is a surgically-created opening in the large intestine (colon) used to eliminate fecal material. A piece of the colon is brought through the abdominal wall out to the skin surface of the abdomen and folded back onto itself to form a *stoma*. The stoma is red or dark pink in color and moist, much like the mucosal lining of the mouth. A colostomy can be permanent or temporary.

Colostomies are named for the portion of the colon used to form the stoma. The character of the stool that is drained also depends on the location of the colostomy. An ostomy in the sigmoid or descending colon (most common) will be found on the left side of the abdomen and will pass stool that is soft and semi-formed because it will have passed through most of the colon where the water is absorbed. However, an ostomy in the transverse colon or ascending colon will pass stool that is semi-liquid.

Some students may have two stomas. One stoma connects to the proximal end of the intestine and functions as the colostomy where stool will come out. The other end, the *mucus fistula*, is connected to the remaining part of the intestine which passes only the mucus that is produced by the portion of the colon no longer connected to the rest of the digestive tract.



Students receive ostomies for a variety of reasons. Some have birth defects such as imperforate anus, spina bifida, or Hirschsprung's Disease that require an alternate method of bowel elimination. Others may receive a colostomy due to ulcerative colitis, Crohn's disease, polyposis, injury, or nerve damage.

A pouch is worn over the colostomy to collect stool. Pouch systems can be reusable or disposable, drainable or close-bottomed, and one-piece or two-piece. Pouches typically last 1-7 days. They protect the stoma, as well as the skin around the stoma (peristomal). Stomas are rich in blood supply and may bleed slightly if irritated or rubbed. Because the stoma itself does not have nerve endings, irritation of the stoma does not usually cause discomfort. However, the skin surrounding the stoma does have nerve endings and may be sensitive to manipulation of the stoma or to contact with any discharge from the stoma. Therefore, good skin care and a properly fitting pouch are

essential to preventing irritation and breakdown at the stoma site. If the opening of the pouch is too large, it can expose skin to fecal matter and moisture. If it is too tight or constrictive, it can cut or injure the stoma. A skin barrier is also usually applied around the stoma to protect it.

### **Potential Settings**

The pouch should be emptied whenever it is one-third to one-half full or if a leak occurs. The student's privacy must be assured whether the student cares for the ostomy by him/herself or receives assistance. Pouch changes are routinely performed at home, but may need to be done at school if a leak occurs. A student should be able to participate in all school activities, including physical education.

### **Staff Preparation**

Emptying and cleaning the pouch can be done by the student, the school nurse, or any adult trained in appropriate techniques and problem management of ostomies. Application of the pouch should be done by a registered or licensed practical school nurse if the student requires assistance. School staff who have regular contact with a student with a colostomy should receive general training covering the student's specific needs, potential problems, and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

### **Components of the Individualized Health Care Plan**

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for colostomy care and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with a colostomy, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Type of ostomy and pouch
- Ability for self-care
- Access to a change of clothing at school
- Access to private bathroom
- Stoma care—cleansing supplies and frequency
- Stoma appearance and changes that require reporting
- Usual stool consistency, frequency, amount
- Latex allergy alert
- Standard precautions

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**Illustration Sources:**

imagesMD. Used with permission.

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## Procedure for Emptying a Colostomy

**Note: Parent provides equipment and supplies.**

1. Wash hands.
2. Assemble equipment:
  - Tissue, wet washcloth, paper towel, or wet wipe
  - Toilet or container to dispose of wastes
  - Gloves, if pouch is to be emptied by someone other than student
  - Clean pouch with clip closure

*Student should have a complete set of ostomy supplies at school with a spare pouch and clip/pouch closure.*
3. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
4. Wash hands and don gloves.
5. Tilt the bottom of the pouch upward and remove the clamp.
6. Fold the bottom of the pouch up to form a cuff before emptying.  
*Cuff helps keep bottom of pouch clean during emptying.*
7. Slowly unfold end of pouch and empty contents of pouch into toilet or container.
8. Wipe the bottom of the pouch with tissue, wet washcloth, paper towel, or wet wipe and unfold cuff.
9. Re-apply clamp closure.
10. Flatus can be released through the gas release valve, if the pouch has one. If there is no valve, flatus can be expelled by tilting the bottom of the pouch upward, releasing the clamp, and expelling the flatus. Re-apply clamp.
11. Flush wastes in toilet.
12. Remove gloves and wash hands.
13. Report any change in student's usual pattern to school nurse and family.
14. Document actions.

### Sources:

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 463.
- Hockenberry, M.J. (2003). *Wong's Nursing Care of Infants and Children*. (7<sup>th</sup> ed.). St. Louis: Mosby, 1166-7.
- Houska AE, Doyle, R, Priff, N, & JF Walker, (Eds.). (2003). *Nursing Procedures & Protocols*. Springhouse, Pennsylvania: Lippincott Williams & Wilkins, 424-425.
- National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. (2003). *Ileostomy, Colostomy, and Ileoanal Reservoir Surgery*. NIH Publication No. 03-4641. Available online at <http://digestive.niddk.nih.gov/ddiseases/pubs/ileostomy/index.htm>.
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## Procedure for Changing a Colostomy Pouch

**Note: Parent provides equipment and supplies.**

1. Wash hands.
2. Assemble equipment:
  - Water
  - Skin cleanser
  - Soft cloth or gauze or tissues
  - Clean pouch with clip closure
  - Protective paste or powder, if used
  - Skin barrier
  - Measuring guide, if needed
  - Belt, if used
  - Gloves, if pouch is to be changed by someone other than student
  - Tape, if needed
  - Scissors, if needed

*Student should have a complete set of ostomy supplies at school with a spare pouch and clip/pouch closure.*
3. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
4. Wash hands and don gloves.
5. Empty contents of old pouch into toilet, bedpan, or other designated container.
6. Starting at the outer top edge, use the dominant hand to carefully pull away the used pouch and skin barrier while pressing the skin downward from the bag with the nondominant hand.
7. **Save clamp** for reuse (unless specified otherwise). Dispose of used pouch in appropriate receptacle.
8. Wash the peristomal area with water and a clean cloth or gauze or whatever is specified in student's individualized health care plan. **Do not scrub.** Use minimal pressure to prevent a prolapse of the stoma. Cover the stoma with gauze or tissue to prevent leakage. Make sure the skin around the stoma is clean and allow to dry. *Scrubbing can damage the stoma and cause bleeding.*
9. Examine the stoma for integrity (note whether it has come further out or moved further in) and any of signs of necrosis. Assess the skin for redness, irritation, rash, bleeding, or breakdown.

*If there is any change in the stoma, notify school nurse and family immediately. If there is skin irritation, follow student's individualized health care plan. Medications, ointments, or adhesives are generally not used on the damaged skin because they make it more difficult for the pouch to stick. Skin irritation should be reported to school nurse and family.*
10. If a skin barrier is used that requires fitting, measure stoma using measuring guide or per student's individualized health care plan. Cut wafer-barrier and pouch to fit stoma. Some wafer-barriers are single items, but many are attached to pouch. Remove paper from wafer. Save paper to use as a guide for cutting openings for future pouch changes (if stoma size is stable).

11. If specified, apply a ring of protective paste to opening on wafer barrier or apply around stoma. Remove used gauze/tissue from stoma and discard in appropriate receptacle.
12. If one-piece wafer/pouch used, remove paper from outer adhesive area of pouch and apply wafer/pouch over stoma. If two-piece setup used, place wafer barrier on skin around stoma, remove backing from pouch, and apply pouch to wafer and skin. Some two piece systems require pouch to be snapped together.
13. Firmly press the pouch and skin barrier so there are no wrinkles and no leaks. Hold in place for 30-60 seconds.  
*Body warmth will soften rigid wafer and improve adhesion to skin*
14. Use clamp to seal pouch. Make sure bowed end of clamp is next to body.  
*Bowed end conforms to body providing a better fit and keeping clamp from sticking out through clothing.*
15. If a belt is used to fasten pouch, attach to pouch.
16. Remove gloves and wash hands.
17. Document in student log that procedure was done and condition of stoma and skin. Report to school nurse and family any change in stoma, skin, or tolerance of the procedure.

**Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 460-464.
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- Smith, SF, Duell, DJ, & BC Martin. (2004). *Clinical Nursing Skills*. (6<sup>th</sup> ed.). New Jersey: Prentice Hall, 760-762, 776-782.
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- United Ostomy Foundation. *My Child Has an Ostomy*. Educational brochure available online at: <http://www.uoa.org/new/files/childhas.pdf>.

## **Possible Problems When Changing a Colostomy Pouch**

<b>Assessment</b>	<b>Intervention/Rationale</b>
Odor	<i>Odor should not be detected when the student keeps pouch closed. If there is an odor, check for a leak around the stoma or for a leak in the pouch itself. Do not make any pinholes in pouch to release gas because doing so destroys the odor proof seal. Commercial deodorants are available if family wants them.</i>
Leakage	<i>Empty pouch and do not allow it to get over 1/3 full before emptying. Check to see if there are any wrinkles or leaks and if the pouch is the proper size for the stoma. Reapply pouch. Use skin barrier paste, if ordered, to help form a seal.</i>
Bleeding from stoma	<i>Stomas are rich in blood supply and may bleed slightly if irritated or rubbed. Be careful not to rub during cleaning or nick with a fingernail. Check to see if the opening of the pouch may be cutting or rubbing the stoma. If the bleeding does not stop quickly, apply gentle pressure and notify the school nurse and family. If a large area of the stoma appears to be bleeding, notify the school nurse, family, and health care provider.</i>
Dark, dusky colored or black stoma	<b><i>Activate the school emergency plan and notify school nurse, family, and/or health care provider immediately.</i></b> <i>Integrity of stoma may be compromised.</i>
Irritation or skin breakdown around stoma; discharge from area; itching or burning under the pouch	<i>Make sure pouch and skin barrier are sized correctly. If leaking or incorrectly sized, replace with proper sized pouch and barrier. Follow student's individualized health care plan for skin care. Apply protective paste between barrier and skin, if ordered. Check to see if student is using any new ostomy products which could be causing an allergic reaction. Notify the school nurse, family, or health care provider.</i>
Red papular rash; rash may extend beyond peristomal area	<i>Student may have a yeast infection. Clean and dry the skin carefully and notify the school nurse and the family.</i>
Stoma appears to increase in size; part of intestine showing through stoma, or stoma sinks below skin surface	<i>If the amount of intestinal tissue showing is more than usual, the stoma may be prolapsing (intestine being pushed out through the opening). The tissue may appear swollen, and the student may experience cramping and vomiting. If</i>



	<i>stoma sinks below skin level, it may be retracting. <b>Contact the school nurse, family, and/or health care provider immediately.</b></i>
Change in stool pattern	<i>Assess recent diet history for changes. Assess for other signs of infection or illness such as fever or pain. If the student experiences a significant change in the number or consistency of stools, contact the school nurse and family.</i>
Pain and tenderness in the stoma or abdominal area, no output from the stoma for 4-5 hours, cramping, nausea and/or vomiting; watery green or ribbon-like output;	<i>Intestine or stoma may be developing an obstruction. <b>Notify school nurse and family immediately.</b></i>
Student has body image concerns	<i>Encourage student to voice concerns. Discuss with family as appropriate. Refer to United Ostomy Association (<a href="http://www.UOA.org">www.UOA.org</a> or 1-800-826-0826) or nearest enterostomal therapy nurse (wound ostomy certified nurse) for assistance. Videos and brochures are available from UOA and other organizations such as the Crohn's and Colitis Foundation of America.</i>

**Sources:**

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 460-464.
- Hockenberry, M.J. (2003). *Wong's Nursing Care of Infants and Children*. (7<sup>th</sup> ed.). St. Louis: Mosby, 1166-7.
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- Rice, R. (1999). *Manual of Pediatric and Postpartum Home Care Procedures*. St. Louis: Mosby, 192-193.
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- United Ostomy Foundation. *My Child Has an Ostomy*. Educational brochure available online at: <http://www.uoa.org/new/files/childhas.pdf>.

## General Information for Students with Colostomies

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has a colostomy or opening into the large intestine to allow the body to eliminate stool. The opening, or stoma, is covered by a pouch that collects waste.

The student, if able, empties the pouch and cleans the stoma. This procedure occurs in the bathroom and the student should be allowed to go to the bathroom on an as needed basis.

The student's privacy should be assured during this procedure.

The student should be able to fully participate in physical education classes unless he or she has another condition that would interfere with full participation. It is very difficult to injure a stoma. The pouch should not come off during normal circumstances.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the colostomy.

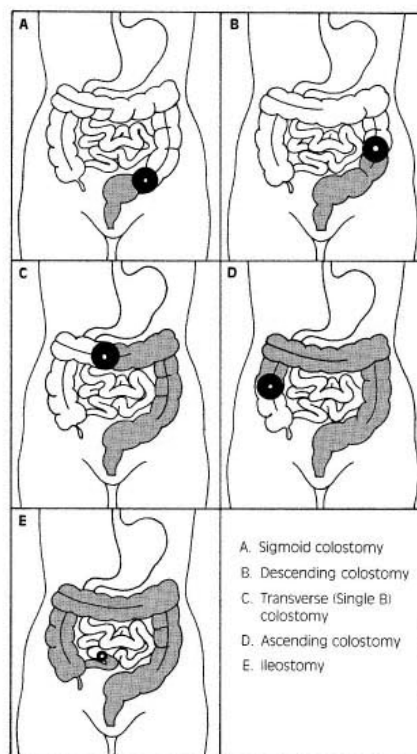
**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.

# Ileostomy

## Overview

An *ileostomy* is a surgically-created opening in the section of the small intestine called the *ileum* that is used to eliminate fecal material. A piece of the ileum is brought through the abdominal wall out to the skin surface of the abdomen and folded back onto itself to form a *stoma*. The stoma is red or dark pink in color and moist, much like the mucosal lining of the mouth. It is about the size of a quarter and is usually located in the lower right part of the abdomen near the beltline.

The discharge from an ileostomy is much looser and more liquefied than the fecal material from a colostomy because food is not completely digested until it passes through the colon where most water absorption takes place. The discharge also contains digestive enzymes, which are very irritating and caustic to skin. Ileostomies drain fairly constantly with more after meals and less during the night. Some foods may pass through fairly intact without being digested very much.



A pouch is worn over the ileostomy to collect waste. Because the output from an ileostomy is so caustic, it is very important to have a proper fitting pouch and good skin care. Pouches for ileostomies sometimes protrude or use convex inserts to help the stoma protrude more to decrease the possibility of stool getting under the pouch. Pouch systems can be reusable or disposable, drainable or close-bottomed, and one-piece or two-piece. Pouches typically last 1-7 days. They protect the stoma, as well as the skin around the stoma (peristomal). Stomas are rich in blood supply and may bleed slightly if irritated or rubbed. Because the stoma itself does not have nerve endings, irritation of the stoma does not usually cause discomfort. However, the skin surrounding the stoma does have nerve endings and may be sensitive to manipulation of the stoma or to contact with any discharge from the stoma. Therefore, good skin care and a properly fitting pouch are essential to preventing irritation and breakdown at the stoma site. If the opening of the pouch is too large, it can expose skin to fecal matter and moisture. If it is too tight or constrictive, it can cut or injure the stoma. A skin barrier is also usually applied around the stoma to protect it. The best time to change an ileostomy pouch is when the bowel is least active, usually 2-4 hours after meals.

The *continent ileostomy* allows the student not to have to wear a pouch to collect wastes. In a continent ileostomy, the surgeon removes the diseased part of the large and small intestine, but leaves the outer muscles of the rectum intact. An internal pouch is made from the end of the ileum and connected to the rectum and anus. Fecal waste is stored in the pouch and passed through the anus in the usual manner. Or, a valve may be made from the intestine, which keeps gas and stool inside the pouch until it is emptied with a drain (4-6 times a day).

Bowel movements will be more frequent and watery than a student with an intact colon, but the continent ileostomy can prevent the need for an external pouch.

### **Potential Settings**

The ileostomy pouch should be emptied whenever it is one-third to one-half full or if a leak occurs. The student's privacy must be ensured whether the student cares for the ostomy by him/herself or receives assistance. Pouch changes are routinely performed at home, but may need to be done at school if a leak occurs. A student should be able to participate in all school activities, including physical education.

### **Staff Preparation**

Emptying and cleaning the pouch can be done by the student, the school nurse, or any adult trained in appropriate techniques and problem management of ostomies. Application of the pouch should be done by a registered or licensed practical school nurse if the student requires assistance. School staff who have regular contact with a student with an ileostomy should receive general training covering the student's specific needs, potential problems, and implementation of the established emergency plan.

The basic skills checklist in Appendix B can be used as a foundation for competency-based training in appropriate techniques. It outlines specific procedures step by step. Once the procedures have been mastered, the completed checklist serves as documentation of training.

### **Components of the Individualized Health Care Plan**

Each student's IHCP must be tailored to the individual's needs. The following section covers the procedure for ileostomy care and possible problems and emergencies that may arise. It is essential to review it before writing the IHCP.

A sample plan is included in Appendix A. For a student with an ileostomy, the following items should receive particular attention:

- Underlying condition and possible problems associated with the condition or treatment
- Type of pouch and supplies
- Ability for self-care
- Access to a change of clothing at school
- Access to private bathroom
- Stoma care—cleansing supplies and frequency
- Stoma appearance and changes that require reporting
- Usual stool consistency, frequency, amount
- Diet modification, if needed
- Frequency of drainings, if type of continent ileostomy that requires draining.
- Latex allergy alert
- Standard precautions

#### **Sources:**

Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 460-464.

- Hockenberry, M.J. (2003). *Wong's Nursing Care of Infants and Children*. (7<sup>th</sup> ed.). St. Louis: Mosby, 1166-7.
- Houska AE, Doyle, R, Priff, N, & JF Walker, (Eds.). (2003). *Nursing Procedures & Protocols*. Springhouse, Pennsylvania: Lippincott Williams & Wilkins, 421-425.
- National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. (2003). *Ileostomy, Colostomy, and Ileoanal Reservoir Surgery*. NIH Publication No. 03-4641. Available online at <http://digestive.niddk.nih.gov/ddiseases/pubs/ileostomy/index.htm>.
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- Smith, SF, Duell, DJ, & BC Martin. (2004). *Clinical Nursing Skills*. (6<sup>th</sup> ed.). New Jersey: Prentice Hall, 760-762, 776-782.
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- United Ostomy Foundation. *My Child Has an Ostomy*. Educational brochure available online at: <http://www.uoa.org/new/files/childhas.pdf>.

**Illustration Source:**

- National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. (2003). *Ulcerative Colitis*. NIH Publication No. 03-1597. Available online at <http://digestive.niddk.nih.gov/ddiseases/pubs/colitis/index.htm>.

## Procedure for Emptying an Ileostomy

**Note: Parent provides equipment and supplies.**

1. Wash hands.
2. Assemble equipment:
  - Tissue, wet washcloth, paper towel, or wet wipe
  - Toilet or container to dispose of wastes
  - Gloves, if pouch is to be emptied by someone other than student
  - Clean pouch with clip closure

*Student should have a complete set of ostomy supplies at school with a spare pouch and clip/pouch closure.*
3. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
4. Wash hands and don gloves.
5. Tilt the bottom of the pouch upward and remove the clamp.
6. Fold the bottom of the pouch up to form a cuff before emptying.  
*Cuff helps keep bottom of pouch clean during emptying.*
7. Slowly unfold end of pouch and empty contents of pouch into toilet or container.
8. Wipe the bottom of the pouch with tissue, wet washcloth, paper towel, or wet wipe and unfold cuff.
9. Re-apply clamp closure.
10. Flatus can be released through the gas release valve, if the pouch has one. If there is no valve, flatus can be expelled by tilting the bottom of the pouch upward, releasing the clamp, and expelling the flatus. Re-apply clamp.
11. Flush wastes in toilet.
12. Remove gloves and wash hands.
13. Report any change in student's usual pattern to school nurse or family.
14. Document actions.

### Sources:

- Bowden, VA & CS Greenberg. (2003). *Pediatric Nursing Procedures*. Philadelphia: Lippincott William & Williams, 463.
- Hockenberry, M.J. (2003). *Wong's Nursing Care of Infants and Children*. (7<sup>th</sup> ed.). St. Louis: Mosby, 1166-7.
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## Procedure for Changing an Ileostomy Pouch

**Note: Parent provides equipment and supplies.**

1. Wash hands.
2. Assemble equipment:
  - Water
  - Skin cleanser
  - Soft cloth or gauze or tissues
  - Clean pouch with clip closure
  - Protective paste or powder, if used
  - Skin barrier
  - Measuring guide, if needed
  - Belt, if used
  - Gloves, if pouch is to be changed by someone other than student
  - Tape, if needed
  - Scissors, if needed

*Student should have a complete set of ostomy supplies at school with a spare pouch and clip/pouch closure.*
3. Explain procedure using explanations the student can understand. Encourage the student to do as much of the procedure as is capable, so as to achieve maximum self-care skills.
4. Wash hands and don gloves.
5. Empty contents of old pouch into toilet, bedpan, or other designated container.
6. Starting at the outer top edge, use the dominant hand to carefully pull away the used pouch and skin barrier while pressing the skin downward from the bag with the nondominant hand.
7. **Save clamp** for reuse (unless specified otherwise). Dispose of used pouch in appropriate receptacle.
8. Wash the peristomal area with water and a clean cloth or gauze or whatever is specified in student's individualized health care plan. **Do not scrub.** Use minimal pressure to prevent a prolapse of the stoma. Cover the stoma with gauze or tissue to prevent leakage. Make sure the skin around the stoma is clean and allow to dry.  
*Scrubbing can damage the stoma and cause bleeding.*
9. Examine the stoma for integrity (whether it has come further out or moved further in) and any of signs of necrosis. Assess the skin for redness, irritation, rash, bleeding, or breakdown.  
***If there is any change in the stoma, notify school nurse and/or family immediately.***  
*If there is skin irritation, follow student's individualized health care plan.*  
*Medications, ointments, or adhesives are generally not used on the damaged skin because they make it more difficult for the pouch to stick. Skin irritation should be reported to school nurse and family.*
10. If a skin barrier is used that requires fitting, measure stoma using measuring guide or follow guidelines in student's individualized health care plan. Cut wafer-barrier and pouch to fit stoma. Some wafer-barriers are single items, but many are attached to pouch. Remove paper from wafer. Save paper to use as a guide for cutting openings for future pouch changes (if stoma size is stable).

11. If specified, apply a ring of protective paste to opening on wafer barrier or apply around stoma. Remove used gauze/tissue from stoma and discard in appropriate receptacle.
12. If one-piece wafer/pouch used, remove paper from outer adhesive area of pouch and apply wafer/pouch over stoma. If two-piece setup used, place wafer barrier on skin around stoma, remove backing from pouch, and apply pouch to wafer and skin. Some two piece systems require pouch to be snapped together.
13. Firmly press the pouch and skin barrier so there are no wrinkles and no leaks. Hold in place for 30-60 seconds.  
*Body warmth will soften rigid wafer and improve adhesion to skin.*
14. Use clamp to seal pouch. Make sure bowed end of clamp is next to body.  
*Bowed end conforms to body providing a better fit and keeping clamp from sticking out through clothing.*
15. If a belt is used to fasten pouch, attach to pouch.
16. Remove gloves and wash hands.
17. Document in student log that procedure was done and condition of stoma and skin. Report to school nurse and family any change in stoma, skin, or tolerance of the procedure.

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- United Ostomy Foundation. *My Child Has an Ostomy*. Educational brochure available online at: <http://www.uoa.org/new/files/childhas.pdf>.



## **Possible Problems When Changing an Ileostomy Pouch**

<b>Assessment</b>	<b>Intervention/Rationale</b>
Odor	<i>Odor should not be detected when the student keeps pouch closed. If there is an odor, check for a leak around the stoma or for a leak in the pouch itself. Do not make any pinholes in pouch to release gas because doing so destroys the odor proof seal. Commercial deodorants are available if family wants them.</i>
Leakage	<i>Ileostomy drainage is particularly caustic to the skin. Empty pouch and do not allow it to get over 1/3 full before emptying. Check to see if there are any wrinkles or leaks and if the pouch is the proper size for the stoma. Reapply pouch. Use skin barrier paste, if ordered, to help form a seal.</i>
Bleeding from stoma	<i>Stomas are rich in blood supply and may bleed slightly if irritated or rubbed. Be careful not to rub during cleaning or nick with a fingernail. Check to see if the opening of the pouch may be cutting or rubbing the stoma. If the bleeding does not stop quickly, apply gentle pressure and notify the school nurse and family. If a large area of the stoma appears to be bleeding, notify the family, school nurse, or health care provider.</i>
Dark, dusky colored or black stoma	<b><i>Activate the school emergency plan and notify the school nurse, family, and/or health care provider immediately.</i></b> <i>Integrity of stoma may be compromised.</i>
Irritation or skin breakdown around stoma; discharge from area; itching or burning under the pouch	<i>Make sure pouch and skin barrier are sized correctly. If leaking or incorrectly sized, replace with proper-sized pouch and barrier. Follow student's individualized health care plan for skin care. Apply protective paste between barrier and skin, if ordered. Check to see if student is using any new ostomy products which could be causing an allergic reaction. Notify the school nurse, family, or health care provider.</i>
Red papular rash; rash may extend beyond peristomal area	<i>Student may have a yeast infection. Clean and dry the skin carefully and notify the school nurse and the family.</i>
Stoma appears to increase in size; part of intestine showing through stoma, or stoma sinks below skin surface	<i>If the amount of intestinal tissue showing is more than usual, the stoma may be prolapsing (intestine being pushed out through the opening). The tissue may appear swollen, and the student</i>

Assessment	Intervention/Rationale
	<i>may experience cramping and vomiting. If stoma sinks below skin level, it may be retracting. <b>Contact the school nurse, family, and/or health care provider immediately.</b></i>
Change in stool pattern	<i>Assess recent diet history for changes. Assess for other signs of infection or illness such as fever or pain. If the student experiences a significant change in the number or consistency of stools, contact the school nurse and family.</i>
Pain and tenderness in the stoma or abdominal area, no output from the stoma for 4-5 hours, cramping, nausea and/or vomiting; watery green output;	<i>Intestine or stoma may be developing an obstruction. <b>Notify school nurse and family immediately.</b></i>
Student has body image concerns	<i>Encourage student to voice concerns. Discuss with family as appropriate. Refer to United Ostomy Association (<a href="http://www.UOA.org">www.UOA.org</a> or 1-800-826-0826) or nearest enterostomal therapy nurse (wound ostomy certified nurse) for assistance. Videos and brochures are available from UOA and other organizations such as the Crohn's and Colitis Foundation of America.</i>

**Sources:**

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## General Information for Students with Ileostomies

**Date:** \_\_\_\_\_

**To:** \_\_\_\_\_ (Teachers, Instructional assistants, Bus drivers, etc)

**Name of Student:** \_\_\_\_\_

This student has an ileostomy, or opening into the small intestine to allow the body to eliminate stool. The opening, or stoma, is covered by a pouch that collects stool.

The student usually empties the pouch and cleans the stoma. This procedure occurs in the bathroom and the student should be allowed to go to the bathroom on an as needed basis.

The student's privacy should be assured during this procedure.

The student should be able to fully participate in physical education classes unless he or she has another condition that would interfere with full participation. It is very difficult to injure a stoma. The pouch should not come off during normal circumstances.

Contact \_\_\_\_\_ at \_\_\_\_\_ (phone number/pager) for additional information or if the student experiences any problems with the ileostomy.

**Source:** Adapted from: Porter, S, Haynie, M, Bierle, T, Caldwell, TH, & Palfrey, JS (Eds.). (1997). *Children and Youth Assisted by Medical Technology in Educational Settings: Guidelines for Care*. (2<sup>nd</sup> ed.). Baltimore: Paul H. Brookes Publishing.