

Gastrostomy

General Information

A. DEFINITIONS

1. **Gastrostomy:** a small surgical opening (stoma) through the abdominal wall into the stomach.
2. **Gastrostomy tube (G-tube):** a small, flexible tube inserted into the stomach through the opening in the abdominal wall. The tube is held in place inside the stomach by a balloon or a retention dome.
3. **Gastrostomy button:** a small skin-level feeding device held in place inside the stomach by a mushroom-shaped dome or fluid-filled balloon.
4. **Bolus tube feeding:** a specific amount of formula given at one time over a period of 20-30 minutes, three to six times per day. Feeding may be given by a pump over a specified amount of time (e.g., one hour) or simply allowed to run into the stomach by gravity.
5. **Intermittent gravity tube feeding:** a specific amount of formula delivered using a feeding bag connected to a feeding tube set and hung on a stand or hook. Feedings are administered according to a schedule, usually three to eight times per day.
6. **Continuous (slow drip) tube feeding:** formula is given slowly over an extended time period. Feedings are delivered at a slow rate by gravity or by a pump.
7. **Stomach residual (“residuals”):** amount of gastric fluid and formula remaining in the stomach just before a feeding, usually four hours after the prior feeding.
8. **Decompression (“venting”):** a technique for removing excess air or fluid from the stomach using a drainage device (a bag or tool) or a catheter-tipped syringe attached to the gastrostomy tube. Venting is used to relieve bloating, distention or gagging.
9. **Fundoplication:** a surgical procedure in which the upper portion of the stomach is brought around the esophagus from behind and then sutured to create a wrap (similar to how a collar fits around a neck). This wrap works like a valve on the esophagus to keep stomach contents from flowing back into the esophagus.

B. GENERAL INFORMATION

1. **The purpose of a gastrostomy tube/button is to administer food, fluids and medication directly into the stomach.** This method is used to bypass the usual route (by mouth) when (a) there is an obstruction of the esophagus; (b) swallowing is impaired, causing a risk for choking and/or aspiration [accidentally inhaling liquid into the windpipe or lungs]; or (c) the person has difficulty taking enough food by mouth to maintain adequate nutrition. The gastrostomy may also be used to drain abdominal contents or to release air/gas if needed.
2. **The two types of feeding device are a gastrostomy tube and a gastrostomy skin-level device (button).** Both types remain in place at all times and are closed between feedings to prevent leakage of stomach contents.

The gastrostomy tube extends externally from the stoma and must be secured inside the clothing using tape or stretch netting. The tube should never be secured by tucking into the underwear or a diaper. There is a higher risk of dislodgement, compared to skin-level devices. This feeding device is used right after a gastrostomy is performed and kept in place for a minimum of 8 weeks while the stoma channel is healing.

A gastrostomy skin-level device uses a detachable feeding tube and has an anti-reflux valve to prevent leakage of stomach contents. This device lies flat against the abdomen, allowing a wider choice of clothing and more freedom of movement. The Bard Button and the MIC-KEY are the most common skin-level devices.

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3. Feedings are administered by two methods, bolus or continuous (slow-drip).

A bolus feeding provides a specific amount of formula administered by gravity or pump over a period of 20–30 minutes. Bolus feedings are given three to six times a day.

An intermittent, slow-drip feeding by gravity involves a container or bag to hold the formula, an IV stand or other method to hang the container and careful regulation of the drip rate.

A pump may be used for pupils who cannot tolerate the faster intake of bolus or slow-drip feeding using a feeding bag or bottle. Feedings are usually given over several hours with breaks at times specified by the authorized healthcare provider. It is not advisable to provide feedings while a pupil is being transported by bus; therefore, breaks should be scheduled during transportation times whenever possible. Most pumps are portable and can be clamped to the pupil's wheelchair or other equipment and operate while the pupil is engaged in classroom activities. Pumps may be time-programmed or may need to be set manually. Follow manufacturer's directions for use.

4. The pupil may be placed in several positions for feeding, some more desirable than others for facilitation of digestion and prevention of vomiting.

Elevating the head to a 30 degree level usually prevents vomiting and aspiration of the feeding into the lungs. The pupil may also be in a semi-sitting, 45 degree position. If the pupil is unable to sit, positioning on the right side facilitates passage of stomach contents into the small intestine and aids digestion. If right side positioning is not possible, a supine position with head elevated to 30 degree level may be appropriate. The least preferred position is on the left side which can create a pooling of the feeding in the stomach. The authorized healthcare provider may specify a feeding position for the pupil.

C. SCHOOL MANAGEMENT OF SERVICE

1. **PERSONNEL: Gastrostomy tube feeding** may be performed in the school setting by the following: (a) licensed credentialed school nurse, (b) licensed registered or vocational nurse under the direct/indirect supervision of a licensed credentialed school nurse, or (c) unlicensed designated trained school staff under the direct/indirect supervision of a licensed credentialed school nurse. Unlicensed designated staff must possess current CPR certification and demonstrate competency in performing the procedure after training by the licensed credentialed school nurse (hereafter, school nurse).

The school nurse determines the level of care required by the individual pupil based on the health assessment conducted by that nurse. The level of care is specified in the Individualized Healthcare Plan (IHP). For additional information about determination of level of care, see Section 2, Provision of Standard Healthcare Procedures in School Settings.

Administration of medication via the gastrostomy tube should be performed by a licensed nursing professional (school nurse, registered nurse or vocational nurse), as required by Business and Professions Code § 2725 (Nursing Practice Act).

Gastrostomy tube replacement if the tube becomes dislodged at school: current standard of practice is that the procedure is performed by a licensed nursing professional or the pupil's parent. Physical assessment is needed to determine correct placement. Evaluation by the authorized healthcare provider may be indicated after tube replacement. Form G, Gastrostomy Tube/Button Replacement Standard Procedure, provides specific information regarding when replacement should and should not be provided in the school setting.

Maintaining gastrostomy patency temporarily, if the tube becomes dislodged at school: current standard of practice is that the procedure can be assigned to unlicensed qualified school staff under the direct/indirect supervision of the school nurse. Immediate follow-up by the school nurse is necessary. The pupil may need to be evaluated by an authorized healthcare provider.

2. School personnel who have regular contact with the pupil with a gastrostomy should receive general information about the pupil's healthcare needs, potential problems and actions to take in an emergency. This information should include whether the pupil can take food by mouth, and, if so, the consistency of that food. Some pupils do not require feeding during school hours if gastrostomy

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feeding is used to supplement oral intake, when pupil is ill or when oral intake is not adequate. Parents should be reassured that this confidential information will be shared only with those who need to know in order to ensure a safe, supportive school environment.

3. Gastrostomy tube feeding can be administered in a clean area that provides the privacy desired by the pupil. The pupil may be fed with other pupils present in the cafeteria or classroom or in a private setting according to his/her preference. However, if the pupil requires decompression (venting) or drainage of the tube, this care should be provided in a private area. During feeding, the pupil must remain stationary but can continue sedentary school activities. The feeding schedule and location is designated in the IHP.

If equipment and supplies are transported with the pupil on a daily basis, designated staff should verify that all necessary items are available when the pupil arrives at school. The parent should be notified immediately of equipment failure or lack of supplies.

4. The pupil's parent is responsible for securing the gastrostomy feeding device on the pupil's abdomen to prevent the device from being pulled out accidentally. The device can be secured with or without a dressing to prevent gastric leakage on clothing.
5. The IHP must include a plan allowing sufficient time for refrigerated formula to warm to room temperature before the feeding. The composition of home-prepared formula should be under the direction of a doctor or nutritionist to ensure adequate nutritional content.
6. Pupils with gastrostomy tubes may be encouraged to participate in the feeding process as much as possible. For example, depending on the age and capability of the pupil, he/she can assist by holding the syringe or pouring in the formula or water. Having the pupil assist in the procedure supports his/her achievement of self-help skills. Goals related to self-help skills may be included in the IHP.
7. The oral intake of food and fluid by the pupil receiving gastrostomy tube feedings in the school setting requires written authorization from the authorized healthcare provider and written parental consent. If oral intake is authorized, the IHP should specify the consistency of the food.
8. Pupils with gastrostomy tubes are usually able to participate in most school activities. However, participation in physical education should be determined on an individual basis in consultation with the authorized healthcare provider. Accommodations and/or modifications can be included in the IHP. Participation in contact sports is usually contraindicated.
9. If the pupil has a latex allergy, appropriate precautions must be implemented in the school setting and documented in the IHP. An emergency plan for accidental exposure to latex may be necessary. The school nurse develops the latex allergy management plan as a part of the IHP.
10. If the gastrostomy tube becomes dislodged, prompt reinsertion of the tube is necessary so that the opening remains patent. Delay of reinsertion may cause the opening to constrict. If constriction occurs, surgical intervention or painful reinsertion may be required. The healthcare provider's authorization should specify the amount of time that can elapse before reinsertion, usually not more than two hours. If temporary reinsertion of the tube is not performed at school, the pupil should be transported immediately to the healthcare provider's office or the emergency room for assistance. The IHP should include specific steps to be taken if the tube is leaking or displaced.

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D. BIBLIOGRAPHY

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RESOURCES

1. **American Latex Allergy Association.** Retrieved February 16, 2011 from <http://www.latexallergyresources.org>
 This organization provides educational information about latex allergy and supports latex-allergic individuals. The web site provides basic information about latex allergy as well as extensive lists of latex-free products. Some educational documents are available for purchase at the Online Store. The *Online Resource Education Manual* (n.d.). Retrieved February 16, 2011 from <http://www.latexallergyresources.org/links/>
 Section 5 offers information for school and daycare settings and Section 9 presents patient information.
2. **Cincinnati Children's Hospital Medical Center Gastrostomy tube (G-tube) home care** (2006). Retrieved June 18, 2009 from <http://www.cincinnatichildrens.org/health/info/abdomen/home/g-tube-care.htm>
 This web resource provides simple explanations of g-tube and button device care, problems and possible solutions. There are also links to Percutaneous Gastrostomy Tube Care and Gastrostomy Feeding by Syringe. Spanish translations are available.
3. **Hands On Learning** (2008-2009). **Nickie® Training Doll.** Retrieved on June 18, 2009 from <http://hands-on-learning.com>
 “Nickie®” is multi-device anatomical training mannequin. The Nickie® doll includes four medical devices: a gastrostomy button, a tracheostomy tube, a PICC line and an intermittent urethral catheter.
4. **Kimberly Clark [MIC-KEY]** (2004). *Frequently asked questions: enteral feeding tubes.* Retrieved June 18, 2009 from <http://www.kchealthcare.com/productpromosite/mickey/www/Index.asp?action=FAQs&id=2085>
Kimberly Clark [MIC-KEY] (2004). *Life with MIC-KEY instructional video.* Retrieved June 18, 2009 from <http://www.kchealthcare.com/productpromosite/mickey/www/index.asp?action=ProductDetails&id=2085>
 The website from the makers of MIC-KEY products contains an extensive list of questions and answers about the MIC-KEY button and problems that may arise. The brief instructional video featuring an active teenage girl provides basic introductory information about the button and its management. The video includes diagrams and close views of the button and feeding equipment and could be used to as an introduction to the training program for designated staff.
5. Lewis, K. & Bear, B. (2009). *Manual of School Health* (3rd ed.). St. Louis: Saunders.
 The chapter “Special Education” includes concise information and helpful tips for gastrostomy tube management.
6. **Los Altos Feeding Clinic** (2007). *Pediatric Tube Feeding.* Retrieved June 18, 2009 from http://www.pediatricfeeding.org/tube_feeding.htm
 This web-based article provides general definitions and information about types of feeding and formulas. The excellent color diagrams of the digestive system and g-tube placement in the stomach could be helpful in staff training.
7. Porter, S., Haynie, M., Bierle, T., Caldwell, T., & Palfrey, J. (Eds.). (1997). *Children and youth assisted by medical technology in educational settings—guidelines for care* (2nd ed.). Baltimore: Paul H. Brookes.
 This book is an excellent resource for both general and procedure-specific information related to specialized healthcare services in schools. A brief overview of universal precautions and infection

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control in the school setting could be helpful in staff training. The chapter “Tube Feeding” includes excellent illustrations of critical steps in the feeding procedures.

8. Reckling, A. (2006). *When Jeremy Jones’ stomach stopped working: A story for children with g-tubes*. Retrieved July 8, 2009 from http://www.mitoaction.org/gtube_book

This booklet is for children in preschool to middle school with a g-tube, as well as their siblings and friends. The book’s goal is to help the child learn more about the g-tube and recognize his/her strengths. It can be used as a door-opener for exploring questions and feelings with the child. The booklet is in PDF format and may be downloaded at no charge.

9. **University of Michigan**, Department of Surgery, Section of Pediatric Surgery (2007). *Gastrostomy tube placement*. Retrieved June 18, 2009 from http://surgery.med.umich.edu/pediatric/clinical/physician_content/procedures/gastrostomy_tube.shtml

This web site’s information is directed to parents of children who will be having surgery for gastrostomy tube placement. Clear and simple information is presented on anatomy and physiology of the G-I tract, preparing for surgery, caring for a g-tube at home, feeding, troubleshooting and switching to a skin-level device. Excellent photos of g-tubes and skin-level devices are included. This resource provides both a good review for the nurse and material for training staff or sharing with parents.

10. **Wound Ostomy and Continence Nurses Society (n.d.)**. *Management of gastrostomy tube complications for the pediatric and adult patient*. Retrieved July 8, 2009 from <http://www.health.state.nm.us/ddsd/ClinicalSvcsBur/Initiatives/documents/WOCNguidelines.pdf>

These guidelines provide an excellent resource for the nurse dealing with possible g-tube complications. The document describes problems and causes and suggests assessment and nursing interventions. The information could also be helpful in communicating with the parent and/or referring the pupil for a medical evaluation.