

**STATE OF CONNECTICUT
DEPARTMENT OF DEVELOPMENTAL SERVICES
NURSING PROTOCOL # NP 09-1**

Care of Persons With Gastrostomy Tubes

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Purpose:

This protocol is designed to establish the minimal best practice standards of nursing care for licensed nurses supporting person served by the department who have gastrostomy tubes in place.

Applicability:

This protocol applies to all licensed nurses employed by the Department of Developmental Services (DDS). All private residential and/or day providers licensed or funded by DDS shall adopt this protocol or develop a substantively similar protocol that meets accepted standards of nursing practice.

Introduction:

An increasing number of persons with intellectual/developmental disabilities have their nutritional needs met through the use of an enteral feeding tube into the stomach known as a gastrostomy tube or g-tube. The purpose of a g-tube for most people is to provide nutrition, fluids, and/or medications when the person is unable to swallow safely. For other people identified to have gastrointestinal dysmotility or gastric emptying disorder, a g-tube may be placed for the purpose of removal of gastric contents. In these situations, the person would have a second tube placed in the jejunum of the small intestine to meet his/her need for nutrition, fluids and/or medication. Gastrostomy tubes are placed using either a surgical, endoscopic, or radiologic method. When the surgical method is used, a balloon tip tube is placed in the opening. When a g-tube is placed by endoscopy, it is called a PEG tube. The third type of g-tube is called a low profile gastrostomy tube which can be placed once the gastrostomy or PEG stoma tract has matured.

Persons with feeding tubes are at risk for the migration and malpositioning of those tubes which can result in aspiration of the nutritional product, medications, and/or water as well as other serious complications. Three methods have traditionally been used to check gastrostomy tube placement prior to feedings. The first method is air bolus instillation with auscultation. This method has been identified in current nursing literature as not reliable. The second method is by checking the pH of the aspirate. This method involves the use of strips to determine the acidity of the aspirate. This method may be helpful if a person is receiving bolus feedings but may be less reliable if the person is receiving continuous feedings as the formula will buffer the pH of the aspirate. It is also important to know that this method is less reliable in persons who are receiving proton pump inhibitors (PPI) to control gastric acid production. The third method, is observation of the aspirate. Results obtained using this method may also be impacted by the use of PPIs. A fourth method has been identified to check tube placement using the markings on the tube or measuring the length of tube outside the skin if there are no markings on the tube. This process of checking tube placement has been identified as the minimal standard method of choice by DDS Health Services Directors. Other methods may be used as a secondary check as identified by the consumer's health care provider.

This DDS protocol was developed with the assistance of Lisa Baker APRN who shared her expertise in gastroenterology and provided information resulting from an extensive review of the current literature on enteral access feeding tubes. This protocol incorporates evidence based practices that have been identified to promote optimal outcomes.

Definitions:

Balloon tip gastrostomy tube- a type of feeding tube that has a balloon on the distal end that is filled with water to keep the tube in place. It also has an external disk or bumper that helps to stabilize the tube.

Bolus feeding- the method of delivering enteral feedings that identifies a limited amount of nutritional product that is to be administered over a span of 15-30 minutes several times per day.

Continuous feeding- the method of delivering nourishment that involves the drip of formula by gravity or assisted by a pump into a gastrostomy, jejunostomy, or gastrojejunal tube in an ongoing manner over a specified number of hours.

Endoscopy: A procedure in which an instrument containing a camera is inserted into the gastrointestinal tract so that the parts of the gastrointestinal system can be visualized. This procedure is used in the placement of gastrostomy tubes, jejunostomy tubes and gastrojejunal tubes.

Enteral feeding tube: a feeding device placed into the stomach or jejunum through which formula, fluids and/or medication are given to a person as an alternative to oral feeding.

Gastrointestinal Dysmotility: a condition of the gastrointestinal tract in which the muscles do not contract normally to move food through the digestive process.

Gastrojejunal tube- a type of enteral feeding tube that is placed into the jejunum of the small intestine through an established gastrostomy. The tube may have two or more lumen or openings- one that leads to the small intestine for nutritional support, one that is used for inflating/deflating the balloon that secures the tube, and the third that can be used to release pressure in the abdomen or withdraw stomach fluids.

Low profile gastrostomy tube: a also known as a “button” gastrostomy device that is level with the ostomy opening rather than the more traditional tube that extends out of the ostomy opening for several inches. It is inserted into an established tract (8-12 weeks post g-tube placement) formed by a PEG or a gastrostomy tube. This device has a cap that opens and closes and a tube that is attached at the time of feedings.

Percutaneous endoscopic gastrostomy tube - a type of g-tube placement for nutritional support that occurs with the aid of endoscopy to visualize the stomach so that a tube can be threaded through a small opening made in the abdominal wall into the stomach. Referred to as PEG tube, it has an internal bumper secured against the abdominal mucosa and an external bumper that is in place outside the skin to stabilize the tube. It is the most common method of g-tube placement.

1. COMPONENTS/ COMMON CAUSES NECESSITATING G-TUBE PLACEMENT

- a. Dysphagia/ swallowing issues associated with neurological disorders or other diseases (e.g., oral and esophageal cancer)
- b. Extended nutritional support
- c. Gastrointestinal dysmotility
- d. Malnutrition

2. NURSING DIAGNOSES:

- a. Risk for less than body requirements and electrolyte imbalances due to mechanical problems or dislodgement
- b. Risk for impaired skin integrity related to enzymatic action of gastric juices on skin
- c. Risk for infection related to aspiration and/or gastrostomy opening
- d. Risk for aspiration related to position of tube and/or of individual
- e. Risk for altered comfort related to gastrointestinal issues resulting from type of formula, rate of administration of formula, and/or temperature of formula

3. NURSING INTERVENTIONS/ PLAN:

a. Immediate Post-operative period to Discharge

- (1) Actively participate in the discharge planning for the person to understand needs of person, anticipated date of discharge, and to identify issues that impact may discharge (i.e., need for temporary LTC placement)
- (2) Participate with the person's planning team in the modification of the person's individual plan that reflect changes in support/ resource needs (i.e., nursing, staff) and/or ability to return to the home
- (3) Identify supply needs and providers (e.g., nutritional product(s), feeding supplies, spare tubes, IV pole, syringes, dressings, measurement devices for gastric drainage and girth)
- (4) Identify training needs of nurses and/or staff and timeframe for addressing these needs

Training Topics for LPNs and/or delegated staff as applicable to scope of practice and appropriate to consumer need

- Observational skills especially signs and symptoms that indicate change of condition, abnormal response/change in response to feeding, and/or blockage/ dislodgement/ changes in tube integrity
- Reporting responsibilities
- Documentation/ data collection
- Universal precautions and Infection control considerations
- Type of tube, reason for tube, type of nutritional product, method of administration (bolus or gravity drip/pump), tube flushes, and safety considerations (e.g., NPO status , movement and transfer considerations, bathing considerations, aspiration precautions [head elevated at least 30 degrees] and/or other positioning requirements.)
Illustrations of g-tube insertion can be found at:
http://www.nlm.nih.gov/medlineplus/ency/presentations/100125_4.htm
http://www.nlm.nih.gov/medlineplus/ency/presentations/100125_5.htm
- Nursing and/or delegation procedures (e.g., administration of tube feeding, fluids, and/or medication; checking tube placement via use of tube markings or measuring length, method of feeding (i.e., bolus, continuous) pump operation including troubleshooting and connection/ disconnection; connection/disconnection of drainage bags, measurement of drainage, abdominal girth measurement, stoma care, G-tube reinsertion (RN or LPN only)
- Medication Administration concerns (e.g., use of liquid forms of medication, alteration of medication [dissolving tablets, opening capsules, crushing medications] and those that cannot be altered (i.e., enteric coated, time released), medication interactions with nutritional formulas and/or other medications)
- Oral hygiene needs
- Bowel monitoring

b. Re-admission to home (Some of these tasks may be completed prior to person's discharge, delegated to trained staff as appropriate, or completed by the RN within 2 working days of discharge as per DDS Nursing Standard # 08-1, Nursing Process)

- (1) RN assessment of person following discharge to identify new "baseline" (e.g., identify skin integrity issues, note infections, measure abdominal girth, identify tolerance of prescribed nutritional support, document tube markings, determine current weight). At time of re-admission, the RN may direct trained staff to complete a body check to document presence of obvious skin alteration, measure abdominal girth/document tube markings and/or check current weight until the nursing assessment is completed.
- (2) Document type of tube and manufacturer as well as amount of water in balloon (as appropriate)
- (3) Identify procedure for checking tube placement prior to administration that utilizes tube markings/
- (4) measuring length of tube (Refer to Appendix A and B)
- (5) Identify procedure for flushes and amount of water to be used

- (6) Identify procedure for addressing mechanical problems/tube clogging
- (7) Identify process for loss of tube and reinsertion of tube
- (8) Inform RN On Call of the person's change in status, the potential for concerns, and the planned responses that have been identified for the person
- (10) Obtain Dietary consult to ensure that nutritional needs are identified and met
- (11) Modify procedures, directions, etc. based on changes identified following discharge
- (12) Determine need for physical therapy consultation regarding positioning considerations and/or equipment needs
- (13) Contact Primary Care Provider (PCP) to determine blood work needs and frequency
- (14) Identify and provide additional training as appropriate to person

Training Topics for LPNs and/or delegated staff as applicable to scope of practice and appropriate to consumer need

- Changes in person's baseline
- Additions and/or changes to previously provided trainings
- Baseline tube markings and abdominal girth

c. **Chronic Care Management**

- (1) Monitor response to prescribed treatment plan
- (2) Monitor tube function
- (3) Monitor tube placement; Identify new baseline each time that tube is replaced
- (4) Record tube information each time it is replaced (type, size, and amount of water in balloon)
- (5) Monitor stoma site for signs of infection, leakage and skin integrity
- (6) Monitor weight status
- (7) Monitor prescribed blood work
- (8) Review of documentation (e.g., residual results, amount of gastric contents removed, medication administration)
- (9) Obtain periodic Dietary consult as appropriate to needs of the person
- (10) Routinely replace g-tube at prescribed frequency
- (11) Modify delegated procedures as necessary
- (12) Provide training/re-training as necessary

Training Topics for LPNs and/or delegated staff as applicable to scope of practice and appropriate to consumer need

- Periodic required retraining (e.g., signs and symptoms that includes observational skills, infection control and universal precautions, documentation/ data collection)
- Periodic retraining/observation of nursing skills/ delegated responsibilities to ensure continued competence
- Training topics related to changes in prescribed care

d. **Management of Acute Issues related to:**

- (1) Aspiration
 - (a) Signs may include coughing but aspiration can be silent; fever
 - (b) Causes- GERD, Delayed gastric emptying secondary to constipation, poor positioning
 - (c) Actions- monitor for signs of fever, discomfort; correct positioning, contact primary care provider as necessary
- (2) Compromised skin integrity
 - (a) Sensitivity at site
 - Signs include redness, itching without sign of infection

- Causes- Irritation from leakage at g-tube site, lack of hygiene, bumper too tight on skin, moisture retention due to dressing,
 - Action- good hygiene at site, monitor for infection, contact primary care provider if persists
- (d) Infection
- Signs include redness, inflammation, heat at site, fever, discharge
 - Causes- poor asepsis at insertion or contamination of tube or insertion site secondary to poor technique or hygiene; co-morbidities include: Diabetes, obesity, malnutrition , chronic steroid therapy or immunosuppressed
 - Action- good hygiene at site, question need for culture, contact primary care provider for Treatment, frequent observation and reassessment
- (e) Excoriation
- Signs include: redness, irritation, skin damage
 - Causes- leakage of gastric fluids at site, excess tension of the anchoring device against the skin, excessive dressings at stoma site or poor hygiene at site, weight gain or increased abdominal girth
 - Action- good hygiene, evaluation of amount of leakage, consideration of need for change in tube/size, contact doctor for treatment, possible wound consult, wound culture)
- (f) Overgranulation (tissue that grows above the level of surrounding skin)
- Signs- pink to red overgrown tissue, bleeding,
 - Causes- friction or chaffing around stoma or tube dragging downwards causing the tissue to fill in/grow around the gastrostomy opening
 - Action- good hygiene at site, handle tube gently and position above the stoma, contact doctor for treatment (e.g., acid blocking medication, ointments or cream to site, Silver nitrate around the stoma, possible wound consult, wound culture)
- (g) Buried Bumper Syndrome (overgrowth of gastric tissue over the inner bumper of g-tube)
- Signs- ulceration, bleeding, leakage, infection, catheter immobility, pain with infusion or resistance to infusion
 - Causes- complete or partial growth of tissue over the internal bumper secondary to tight opposition of external bolster against abdominal wall, malnutrition, poor wound healing, significant weight gain
 - Action- Medical attention to confirm condition and remove imbedded bumper; Prevent by rotate tube with regular site care,
- (3) Tube leakage
- (a) Signs-
- Enlarged stoma opening
 - Excessive moisture at stoma site with or without skin redness or excoriation
 - Saturated dressings requiring frequent changing
- (b) Causes-
- Weight changes (+/- 10 lb) can alter the tension on the bumper and can cause leakage.
 - Underinflated balloon
 - Incorrect positioning of g-tube
 - Constipation that delays gastric emptying
- (c) Actions
- Re-position tube (above the stoma, not tucked in underwear as necessary)

- Check balloon and inflate to prescribed level
 - Administer treatment for constipation as prescribed
 - Good hygiene to site; Apply absorbent dressing and change frequently, consider benefit of commercial clamping device to prevent side to side motion, removal of tube and replacement after stoma heals
- (4) Tube occlusion
- (a) Signs
- Nutritional product, fluids, and/or medication unable to flow or slowing of flow
 - Inability to clear tube with water flush or to withdraw gastric contents
- (b) Causes
- Medications that were not crushed small enough
 - Inadequate flushing of tube
 - Interactions of incompatible medications administered at the same time
 - Deterioration of tube or balloon
 - Burst balloon that is blocking the tube
 - Kinking of tube
 - Size of tube
 - Aspiration to check residual
- (c) Action
- Administer medication one at a time and flush in between; flush between feeding and medications
 - Use liquid medication form as possible; finely crush and/or melt medications
 - Use of warm water, carbonated beverage (coke), or Pancreatic enzymes dissolved in bicarbonate solution
 - Check for kinking of tube/tubing
 - Replace tube as soon as possible to minimize nutritional impact
- (5) Loss of tube/dislodgement
- (a) Signs- tube “fell out” or was “pulled out”; change in the appearance of gastric residuals,
- (b) Causes-
- Balloon deflation/ deflation of internal fixation device
 - Tube failure
 - Tube accidentally loss due when positioning
 - Person pulled tube out
- (c) Action-
- Stop feeding if tube displacement is suspected
 - Replace tube ASAP to avoid closure of ostomy opening (can occur in minutes to hours of tube coming out) and minimize nutritional impact; Consider use of foley catheter to maintain opening
 - If “new tube” less than 4 weeks since insertion, seek medical intervention
- (6) Migration of tube/ Gastric Outlet Obstruction (the delayed ability or inability of the stomach to empty its contents due to blockage of the opening)
- (a) Signs- Abdominal distention, vomiting, pain
- (b) Causes- Migration of the PEG tube into the duodenum/pylorus blocking emptying of the stomach
- (c) Actions- Measure abdominal girth to check against baseline; Check tube markings/length of tube, Seek medical care

Training Topics for LPNs and/or delegated staff as applicable to scope of practice and appropriate to consumer need

- Provide training on observational skills for issues noted above and action to be taken (emergent and non-emergent)

5. CRITERIA FOR MD REFERRAL:

- a. Stomal infections
- b. Excoriation at stoma due to excessive leakage
- c. Significant changes for the person in abdominal girth measurement especially in combination with nausea, vomiting, abdominal pain, elevated temperature, and/or decreased bowel sounds
- d. Loss of g-tube with need for tube replacement before track has matured (4 to 8 weeks after insertion)
- e. Suspicion of Buried Bumper Syndrome, Gastroparesis
- f. Significant changes in gastric drainage specific to the person

6. CRITERIA FOR CONSULTATION:

a. **LPN to RN**

- (1) All changes in the individual's baseline, condition, vital signs, behavior, and/ or response to treatment that alter the current health care plan shall promptly be reported to the primary RN or RN on call.
- (2) All changes to the prescribed orders/ treatment plan shall be communicated to the primary RN or RN on call **prior** to implementation. If immediate implementation of orders is indicated, the primary RN or RN on call must be notified as soon as feasible.
- (3) Specific considerations to be reported for an individual with a g-tube include:
 - Abdominal distention
 - Vomiting
 - Decreased or diminished bowel sounds
 - Changes in residual returns (i.e., amount, color/appearance)
 - Questionable migration of tube as evidenced by change in external graduation markings
 - Loss of g-tube or inability to reverse blockages
 - Evidence of infection at the stomal site
 - Medication administration or nutritional feeding issues
 - Changes in bowel habits
 - Changes in weight status

b. **RN-to-RN Supervisor**

- (1) When symptoms do not resolve with medical or nursing intervention
- (2) Emergency treatment, hospitalization, and/or change in condition that may impact the type and/ or frequency of nursing support provided to the individual
- (3) Presence of infectious condition (e.g., MRSA)
- (4) Programmatic difficulties that can't be resolved at the RN level (staff compliance, resource difficulties, etc.)

7. RELATED NURSING/DELEGATION PROCEDURES

- a. Stoma Care
- b. Checking residual amounts
- c. Bolus feeding
- d. Continuous feeding

- e. Checking placement of gastrostomy tube by recording markings/ measuring length of tube (Appendix A and B)
- f. Administration of medication
- g. Water flushes
- h. Measuring gastric contents that have been removed
- i. Reinsertion of g-tube

8. DOCUMENTATION:

- a. Documentation in the nursing notes should reflect:
 - (1) The nurse's application of the nursing process specific to the needs of the person and the scope of practice of the nurse
 - (2) The care/ interventions provided to the person and his/her response
 - (3) Communications with others
- b. Documentation on records related to delegated responsibilities (e.g., medication administration records, records of gastric contents drained)
- c. Documentation of review of information related to delegated responsibilities performed by others

E. Attachments

Attachment A- Checking Placement of Feeding Tubes By Visualization of Markings Procedure

Attachment B- Checking Placement of Feeding Tubes By Measurement of Tube Length Procedure

F. References

Coben R, Dimarino AJ. Percutaneous Endoscopic Gastrostomy and Jejunostomy. *Gastrointestinal Disease: An endoscopic approach*. 2004; 38: 653-654.

Carucci L, Levine M, Rubesin S, Laufer I, Assad S, Herlinger H. Evaluation of patients with jejunostomy tubes: Imaging findings. *Gastrointestinal imaging*. 2002: 241-247.

Conner TM, Carver O. The role of pH testing with small-bore feeding tubes: In the intensive care unit. *Dimensions in critical care nursing*. 2005; 24 (5): 210-214. (Sept/Oct).

E Medicine. Percutaneous gastrostomy and jejunostomy. Updated 2/2008

Disario J. Endoscopic approaches to enteral nutritional support. *Best practice and research in clinical gastroenterology*. 2006; 20 (3): 605-630.

Loeffler K, Bumgarner C. (Editors) *Lipincott Manual*. Seventh Edition. 2004

Baker LS, Goglia S. Hartford Hospital tube feed procedure. revised 2006

Bourgault, Annette M. RN, MSc, CNCC(C), Ipe, Laura, RD, MSN, Weaver, Joanne, RN, MSN, Swartz, Sally, RN, BC, MSN, and O'Dea, Patrick J. MD "Development of Evidence-Based Guidelines and Critical Care Nurses' knowledge of Enteral Feeding" *Critical Care Nurse*, August 27, 2007, page 17-29.

Duszak, Richard Jr, MD, FACR, FSIR, Percutaneous Gastrostomy and Jejunostomy, emedicine from WebMD, <http://www.emedicine.com/Radio/topic798.htm>

"Feeding Tube Insertion- Gastrostomy"

http://www.nlm.nih.gov/medlineplus/ency/presentations/100125_6.htm

Guenther, Peggi RN, PhD, CNSN, *Mechanical Complications in Long-Term Feeding Tubes*, Nursing Spectrum Career Fitness Online, copyright 2003

Lynch, Christopher, MD, Fang, John C., MD, “Prevention and Management of Complications of Percutaneous Endoscopic Gastrostomy (PEG) Tubes”, Practical Gastroenterology, November 2004, page 66- 76.

“Management of Gastrostomy Tube Complications for the Pediatric and Adult Patient”, Wound Ostomy and Continence Nurses Society, Clinician Education,
<http://www.nmhealth.org/DDSD/ClinicalSvcsBur/Initiatives/documents/WOCNguidelines.pdf>