Nursing Service Guidelines
General

Title: **STANDARD GASTRIC RESIDUAL VOLUMES (GRV) PROTOCOL**

Responsibility: Registered Nurse (RN)

Purpose: To assess tolerance of enteral feeding and minimize the potential for aspiration.

Specific Notes: High gastric residual volumes (GRV) may increase the risk for pulmonary aspiration (the most severe complication of tube feedings). However, aspiration can occur without the presence of "high" GRV. Further, GRV is more predictive for vomiting & reflux, not aspiration. Therefore, physical exam is equally important when assessing tube feeding tolerance.

Residual refers to the amount of fluid/contents that are in the stomach. Excess residual volume may indicate an obstruction or some other problem that must be corrected before tube feeding can be continued.

Continuous Feeding: Continuous drip feeding which may be delivered without interruption for an unlimited period of time each day.

Bolus Feeding: A set amount of feeding usually delivered four to eight times per day; each feeding lasting about 15 to 30 minutes.

Check GRV every 6 hours for continuous feedings or prior to bolus feedings (not applicable for tube feeding through Enteroflex or NJ/J-tubes). For patients who have reached goal and established TF tolerance, GRV check is not necessary in the absence of physical s/s of intolerance.

Equipment:

60ml oral syringe
Graduated cylinder
Water
Clean gloves

Procedure	Point of Emphasis
1. Review physician order.	The physician order will be individualized for each patient's nutritional requirements.
2. Confirm patient's identity with two patient identifiers.	Using two patient identifiers will reduce the number of medical errors.
3. Educate patient and/or family on procedure.	Focus on purpose and risk for aspiration.

Procedure	Point of Emphasis
4. Position patient in bed semi fowler's (HOB 45-60 degrees) as tolerated.	Patients on spinal precautions may be placed in reverse trendelenburg at 30–45° if no contraindication exists for that position. Patients with femoral lines can be elevated up to 30°.
5. Perform hand hygiene and don clean gloves.	
6. Connect 60 ml oral syringe to opening of gastric/nasogastric (NG) tube and gently aspirate gastric contents.	Use a new 60ml oral syringe daily. Empty contents of syringe into a graduated cylinder if volume reaches 60 ml and repeat process until no further content is aspirated into syringe. Make note of total GRV obtained.
7. Flush tube with 30ml water after the complete residual volume is obtained.	
8. For a GRV < 250 ml; re-infuse aspirate, flush tube with 30 ml water, resume enteral feedings and continue checking residuals every 6 hours.	Note total amount of intake (flushes and re-infusing of aspirate) administered.
9. For a GRV 250-500 ml; re-infuse up to 250 ml of the aspirate, flush tube with 30 ml water, assess for physical signs of intolerance. Hold TF for 1 hour if any s/s intolerance observed. Otherwise, resume TF.	**Physical signs of intolerance**: Abdominal distension/discomfort, bloating/fullness and/or nausea/vomiting.
10. If after 1 hour GRV remains > 250 ml; notify physician to consider a promotility agent; restart enteral feeding at the highest previously tolerated rate. Evaluate glycemic control and bowel regimen.	**Holding feeds for GRV < 500 ml, in the absence of other signs of intolerance should be avoided.**

Procedure	Point of Emphasis
	Considerations/limitations: location & diameter of the feeding tube, viscosity & temperature of the formula, technique of the clinician (i.e. force used, angle the syringe is held), administration schedule (gravity vs. pump vs. syringe), recent medication and/or free water flushes. **Too frequent starts/stops and GRV check can contribute to development of an ileus.**
11. For GRV > 500 ml; re-infuse up to 250ml of the aspirate, flush tube with 30 ml water, assess for physical signs of intolerance, evaluate sedation, HOLD enteral feeding and notify physician to consider promotility agent, if not already ordered. If bolus fed, consider continuous administration.	If GRV is consistently > 500 ml, and no beneficial effect from promotility agent noted, and glycemic control & bowel regimen have been addressed, consider small bowel feeding tube placement.
12. Remove contaminated gloves, discard and wash hands.	To prevent the spread of infection.
13. Maintain elevation of patient's head of bed 30-45 degrees unless medically contraindicated not only during feedings, but during all aspects of the patient's daily routine.	**Risk factors most commonly associated with aspiration in tube-fed persons are**: • Depressed level of consciousness • Impaired cough or gag reflex • Inadequate gastric emptying • Increased gastric residual volume • Lying flat in bed • Inadequate oral care • Vomiting, regurgitation, reflux
Perform tube placement checks prior to bolus feedings or every 8 hours if fed continuously.	Tubes can be dislodged or migrate
Follow established protocol for administering tube feedings and competency-based training. (See Standard of Care and Practice L12 & L12a)	
14. Document date, time, procedure performed, amount of residual obtained, description of residual, patient's tolerance, and any signs/symptoms of intolerance observed (or absence thereof) in the patient's medical record.	

Procedure	Point of Emphasis
15. Document the total amount of intake (flushes and re-infusing of aspirate) and output for each GRV checked in the I&O section of the patient's medical record.	

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References:

Cresci, G. (2015). *Nutrition Support for the Critically Ill Patient: A Guide to Practice.* 2nd edition. Boca Raton, FL/US. CRC Press.

Mueller, C. (2017). *The ASPEN Adult Nutrition Support Core Curriculum.* 3rd edition. US. American Society of Parenteral & Enteral Nutrition.

Journal of Parenteral and Enteral Nutrition, DOI: 10.1177/0148607108330314 (2009); pp 33 (122), (Originally published online January 26, 2009; *JPEN J Parenter Enteral Nutrition*), Norma A. Metheny, Charles Mueller, Sandra Robbins, Jacqueline Wessel and the A.S.P.E.N. Board of Directors; Robin Bankhead, Joseph Boullata, Susan Brantley, Mark Corkins, Peggi Guenter, Joseph Krenitsky, Beth Lyman, A.S.P.E.N. *Enteral Nutrition Practice Recommendations*, Retrieved March 26, 2013 from website: http://pen.sagepub.com.

HEALTH & SAFETY: ASPIRATION PREVENTION "Management of Gastric Residuals", (2013). Bureau of Quality Improvement Services, Outreach Services of Indiana. Retrieved March 19, 2014 from website http://www.in.gov/fssa/files/aspiration_prevention_8.pdf.