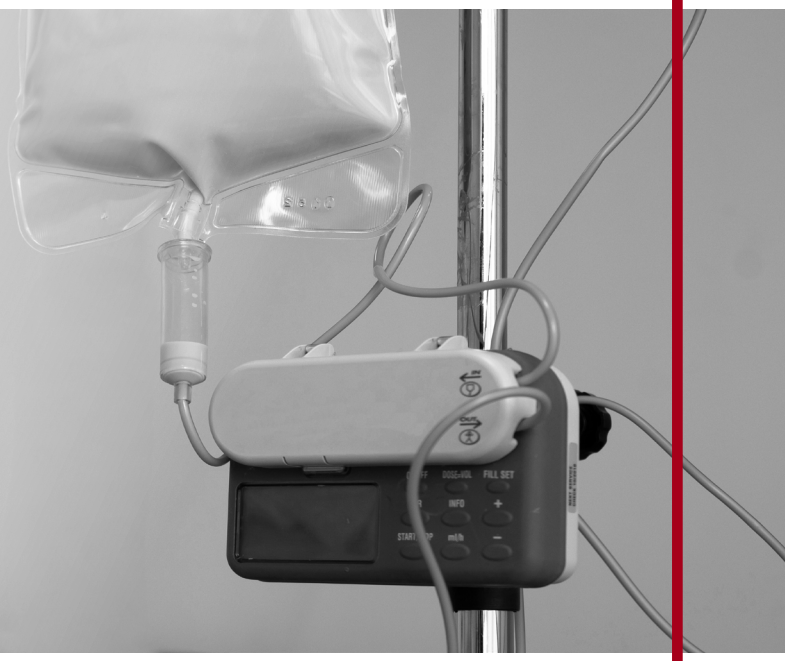
Enteral Feeding Safety: Protecting Patients While Meeting Nutritional Needs



Keywords: nasogastric tube, NG tube, percutaneous endoscopic gastrostomy tube, PEG tube, patient safety

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Ensuring patients with acute and chronic illnesses maintain appropriate nutrition is a critical component of patient care.[1-4] Malnutrition in hospitalized patients is associated with adverse outcomes such as impaired wound healing, prolonged hospital stays, and poorer overall quality of care.[1,2] During many disease processes, receiving adequate nutrition by eating and drinking can be challenging. When oral intake is insufficient, providing patients with nourishment (calories, macronutrients and micronutrients, and fluids) via an enteral route like a nasogastric (NG) tube or other similar mechanisms can help to improve a patient's nutritional status,[1] positively contributing to the patient's care and treatment plan.[1]

While enteral feeding offers significant benefits to patients, it is a complex process and can present patient safety risks.[5-7] The amount and rate of enteral nutrition must be individualized for each patient according to their nutritional and fluid needs.[6] Feeding infusions can be administered continuously or intermittently (e.g., bolus feeding). Common risks associated with enteral feeding include feeding intolerance,[6] aspiration,[5-7] and refeeding syndrome.[6]

A recent review of serious events submitted to the Pennsylvania Patient Safety Reporting System (PA-PSRS) identified two patient deaths related to feeding tube complications involving feeding rate and patient positioning during bolus administration. One patient receiving enteral nutrition via an NG tube was given a feed at an incorrect rate, which led to hypoxia. A second patient administered a bolus feed via their percutaneous endoscopic gastrostomy tube while lying flat, resulting in aspiration.

Both feeding rate and patient positioning are imperative to safe administration of enteral feeds. As mentioned above, the rate of each feed is carefully calculated for each patient.[6] If a feeding is set to a rate that is too fast, the patient is at increased risk of hypoxia from gastric distension and/or aspiration.[6] If a feeding rate is too slow for a prolonged period of time, malnutrition can result. Patients are also at an increased risk of aspiration when enteral feeds are administered while they are lying flat.[5-7] During an enteral feeding, the backrest of a patient's bed should be elevated 30–45 degrees to mitigate aspiration risk.[5-7] If this degree of elevation is not feasible due to other medical issues, the backrest should be elevated as much as possible and the time the patient is lying flat on their back should be limited.[6]

Other strategies to mitigate the risks associated with enteral feedings include:

- Observe patients for clinical signs of feeding intolerance, such as gastric distention, abdominal discomfort, diarrhea, nausea, reflux of feeds, and vomiting[6]
- Monitor electrolyte levels daily until these levels are stable[6]
- Observe patients for signs of "dumping syndrome" such as sweating, tachycardia, and diarrhea, and adjust the feeding rate or formula to address this issue[1]
- Consider a post-pyloric feeding tube if a patient is at high risk of aspiration or is unable to tolerate gastric feeds[1,5]

Promoting safe and effective enteral feeding requires careful attention to individualized feeding rates,[6] patient positioning,[5-7] and ongoing monitoring for complications.[1,6] By implementing evidence-based strategies, healthcare teams can optimize nutritional support while minimizing patient safety risks.

References

1. Heuschkel R, Duggan C. Enteral Feeding: Gastric Versus Post-Pyloric. UpToDate. https://www.uptodate.com/contents/enteral-feeding-gastric-versus-post-pyloric. Updated February 5, 2025. Accessed February 2026.

2. Tappenden KA, Quatrara B, Parkhurst ML, et al. Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition. *J Acad Nutr Diet.* 2013;113(9):1219-37. doi:10.1016/j.jand.2013.05.015; PubMed PMID: 23871528

3. Cass AR, Charlton KE. Prevalence of Hospital-Acquired Malnutrition and Modifiable Determinants of Nutritional Deterioration During Inpatient Admissions: A Systematic Review of the Evidence. *J Hum Nutr Diet*. 2022;35(6):1043-58. doi:10.1111/jhn.13009; PubMed PMID: 35377487; PubMed Central PMCID: PMCPMC9790482

4. Barker LA, Gout BS, Crowe TC. Hospital Malnutrition: Prevalence, Identification and Impact on Patients and the Healthcare System. *Int J Environ Res Public Health*. 2011;8(2):514-27. doi:10.3390/ijerph8020514; PubMed PMID: 21556200; PubMed Central PMCID: PMCPMC3084475

5. Mizock BA. Risk of Aspiration in Patients on Enteral Nutrition: Frequency, Relevance, Relation to Pneumonia, Risk Factors, and Strategies for Risk Reduction. *Curr Gastroenterol Rep*. 2007;9:338-44. doi:10.1007/s11894-007-0039-7

6. Seres D, Patel J. Nutrition Support in Critically Ill Adult Patients: Enteral Nutrition. UpToDate. https://www.uptodate.com/contents/nutrition-support-in-critically-ill-adult-patients-enteral-nutrition. Updated June 10, 2025. Accessed February 2026.

7. Metheny NA. Preventing Respiratory Complications of Tube Feedings: Evidence-Based Practice. *Am J Crit Care*. 2006;15(4):360-9. doi:10.4037/ajcc2006.15.3.252

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