

TEXAS CHILDREN'S HOSPITAL
EVIDENCE-BASED OUTCOMES CENTER
Postoperative Gastrostomy Tube Management
Evidence-Based Practice Course Evidence Summary

Inclusion Criteria

- Age 0-17 years
- Gastrostomy tube insertions via PEG, open, or laparoscopic procedure by the general surgery team

Exclusion Criteria

- Patients >18 years
- Surgery by a physician outside of the general surgery team
- G-tube revisions
- Patients undergoing another abdominal surgery at the time of G-tube placement (may be included at discretion of the surgeon)
- Comorbidity precluding early initiation of G-tube feeds

Background

Gastrostomy tube (GT) placement is used when patients are unable to obtain nutrition by mouth. It is the method of choice for providing nutrition to children who require long term nutritional support, for reasons such as birth defects, traumatic brain injuries, neurologic deficits, and esophageal injuries. A GT placement is performed in an outpatient or inpatient setting, using percutaneous endoscopic, laparoscopic, or open laparotomy methods.

Critically Analyze the Evidence

The **GRADE criteria** were used to evaluate the quality of evidence presented in research articles reviewed during the development of this guideline. The table below defines how the quality of evidence is rated and how a strong versus a weak recommendation is established.

Recommendation	
STRONG	Desirable effects clearly outweigh undesirable effects or vice versa
WEAK	Desirable effects closely balanced with undesirable effects
Quality	Type of Evidence
High	Consistent evidence from well-performed RCTs or exceptionally strong evidence from unbiased observational studies
Moderate	Evidence from RCTs with important limitations (e.g., inconsistent results, methodological flaws, indirect evidence, or imprecise results) or unusually strong evidence from unbiased observational studies
Low	Evidence for at least 1 critical outcome from observational studies, from RCTs with serious flaws or indirect evidence
Very Low	Evidence for at least 1 critical outcome from unsystematic clinical observations or very indirect evidence

PICO Question 1: In pediatric gastrostomy tube patients, is video education as effective as live education in reducing postoperative complication rates?

Recommendation(s): Strong recommendation with low quality evidence to use video education as a tool to deliver discharge instructions postoperatively. ⁽¹⁻⁴⁾

Remarks: Video groups across all studies showed similar or higher caregiver satisfaction ratings, and fewer unplanned clinic and ED visits, compared to groups given print and verbal discharge instructions only.

PICO Question 2: Do patients who start gastrostomy tube feeds the same day as surgery have similar postoperative outcomes as patients whose feeds start at or later than post-op day 1?

Recommendation(s):

Consensus recommendation to initiate feeds on postoperative day 0. ⁽⁵⁻¹⁰⁾

Strong recommendation with very low quality evidence to create a standardized implementation pathway for postoperative GT management. ⁽⁶⁾

Critical Points of Evidence*

Evidence Supports

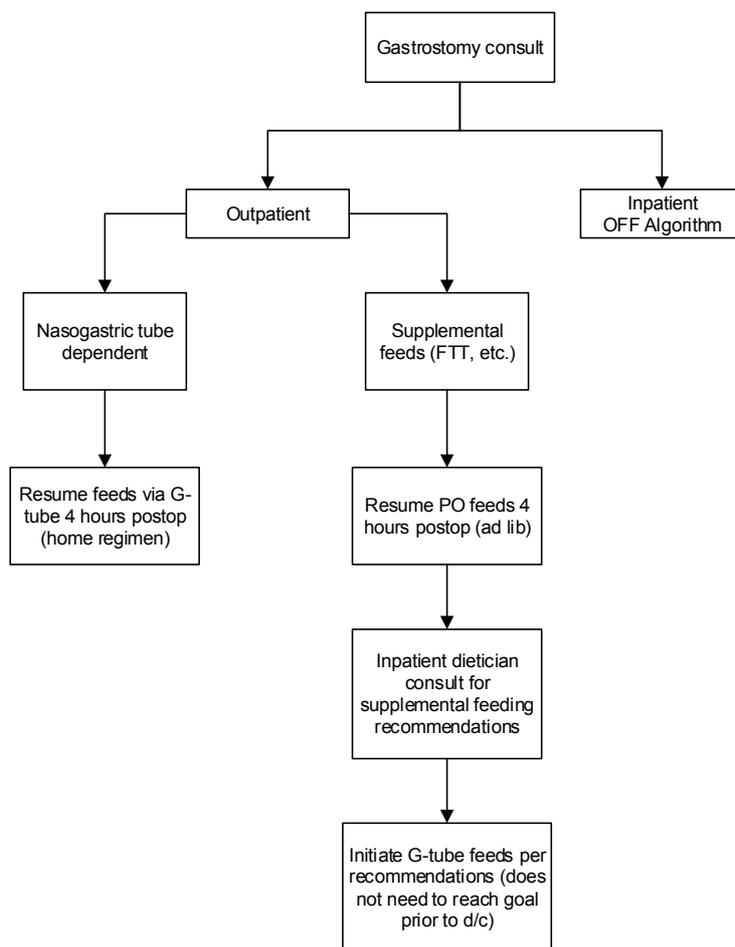
- Use video education as a tool to deliver discharge instructions postoperatively. ⁽¹⁻⁴⁾ – Strong recommendation, low quality evidence
- Create a standardized, implementation pathway for postoperative GT management. ⁽⁶⁾ – Strong recommendation, very low quality evidence

Evidence Lacking/Inconclusive

- Initiate feeds on postoperative day 0. ⁽⁵⁻¹⁰⁾ – Consensus recommendation

*NOTE: The references cited represent the entire body of evidence reviewed to make each recommendation.

**TCH Evidence-Based Outcomes Center
Clinical Algorithm for G-Tube Postoperative Feeding Pathway**



Developed by Dr. Sohail Shah

Clinical standards are developed for 80% of the patient population with a particular disease. Each practitioner must use his/her clinical judgment in the management of any specific patient.

References

1. Bloch, S. & Bloch, A. (2013). Using video discharge instructions as an adjunct to standard written instructions improved caregivers' understanding of their child's emergency department visit, plan, and follow-up. *Pediatric Emergency Care, 29*(6), 699-704.
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6. Richards, M. K., Li, C. I., Foti, J. L., Leu, M. G., Wahbeh, G. T., Shaw, D., . . . Goldin, A. B. (2016). Resource utilization after implementing a hospital-wide standardized feeding tube placement pathway. *Journal of Pediatric Surgery, 51*(10), 1674-1679.
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8. Rosenfeld, E. H., Mazzolini, K., DeMello, A., Yu, Y. R., Lee, T. C., Naik-Mathuria, B., . . . Shah, S. R. (2017). Postoperative feeding regimens after laparoscopic gastrostomy placement. *Journal of Laparoendoscopic & Advanced Surgical Techniques, 27*(11), 1203-1208.
9. Agency for Clinical Innovation and the Gastroenterological Nurses College of Australia. (2015). A clinician's guide: Caring for people with gastrostomy tubes and devices.
10. Seattle Children's Hospital. (2015). Gastrostomy tube placement.

Clinical Standards Preparation

This clinical standard was prepared by the Evidence-Based Outcomes Center (EBOC) team in collaboration with content experts at Texas Children's Hospital. Development of this clinical standard supports the TCH Quality and Patient Safety Program initiative to promote clinical standards and outcomes that build a culture of quality and safety within the organization.

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The following financial and/or intellectual conflict(s) was/were identified and addressed to ensure objectivity: Annalyn DeMello and Dr. Sohail Shah were authors on one of the studies included for PICO question #2.

Development Process

This clinical standard was developed using the process outlined in the EBOC Manual. The literature appraisal documents the following steps:

1. Review Preparation
 - PICO questions established
 - Evidence search confirmed with content experts
2. Review of Existing External Guidelines
 - Agency for Clinical Innovation and the Gastroenterological Nurses College of Australia; European Society of Pediatric Gastroenterology, Hepatology and Nutrition; Seattle Children's Hospital
3. Literature Review of Relevant Evidence
 - Searched: PubMed
4. Critically Analyze the Evidence
 - 1 randomized controlled trial and 7 observational studies
5. Summarize the Evidence
 - Materials used in the development of the clinical standard, literature appraisal, and any order sets are maintained in a Postoperative Gastrostomy Tube Management evidence-based review manual within EBOC.

Evaluating the Quality of the Evidence

Published clinical guidelines were evaluated for this review using the **AGREE II** criteria. The summary of these guidelines are included in the literature appraisal. AGREE II criteria evaluate Guideline Scope and Purpose, Stakeholder Involvement, Rigor of Development, Clarity and Presentation, Applicability, and Editorial Independence using a 4-point Likert scale. The higher the score, the more comprehensive the guideline.

This clinical standard specifically summarizes the evidence *in support of* or *against* specific interventions and identifies where evidence is *lacking/inconclusive*. The following categories describe how research findings provide support for treatment interventions.

"Evidence Supports" provides evidence to support an intervention

"Evidence Against" provides evidence against an intervention.

"Evidence Lacking/Inconclusive" indicates there is insufficient evidence to support or refute an intervention and no conclusion can be drawn *from the evidence*.

The **GRADE** criteria were utilized to evaluate the body of evidence used to make practice recommendations. The table below defines how the quality of the evidence is rated and how a strong versus weak recommendation is established. The literature appraisal reflects the critical points of evidence.

Recommendation	
STRONG	Desirable effects clearly outweigh undesirable effects or vice versa
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Quality	Type of Evidence
High	Consistent evidence from well-performed RCTs or exceptionally strong evidence from unbiased observational studies
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Recommendations

Practice recommendations were directed by the existing evidence and consensus amongst the content experts. Patient and family preferences were included when possible. The Content Expert Team and EBOC team remain aware of the controversies in the postoperative management of gastrostomy tubes in children. When evidence is lacking, options in care are provided in the clinical standard and the accompanying order sets (if applicable).

Approval Process

Clinical standards are reviewed and approved by hospital committees as deemed appropriate for its intended use. Clinical standards are reviewed as necessary within EBOC at Texas Children's Hospital. Content Expert Teams are involved with every review and update.

Disclaimer

Practice recommendations are based upon the evidence available at the time the clinical standard was developed. Clinical standards (guidelines, summaries, or pathways) do not set out the standard of care and are not intended to be used to dictate a course of care. Each physician/practitioner must use his or her independent judgment in the management of any specific patient and is responsible, in consultation with the patient and/or the patient's family, to make the ultimate judgment regarding care.

Version History

Date	Comments
Jun 2018	Originally completed