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Best Practice Recommendations to Reduce Accidental G-Button/ Tube Dislodgements

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Best Practice Recommendations to Reduce Accidental G-Button/Tube Dislodgements

PICOT: What are the best practice recommendations/guidelines for pediatric inpatient gastrostomy-tube/button securement to reduce accidental tube dislodgements.

Background

Since their introduction in 1980, gastrostomy tubes/buttons (G-tube/button) have become a productive means of providing both short-term and long-term enteral access and nutritional support.

“G-tube/buttons are ubiquitous in many healthcare facilities but carry high rates of unintended dislodgement - a complication that, if not detected promptly, is associated with substantial morbidity and healthcare costs (Shah et al., 2018).”

At Children’s Health, when patients experience an accidental G-tube/button dislodgement, they can experience delays in care and potential trauma to their gastrotomy. Care delays and the added stress of having to replace the g-tube/button in an often non-cooperative patient population highlight the importance of developing effective patient management strategies to reduce dislodgement.

Purpose

- Identify best practice securement guidelines for G-tube/buttons
- Identify products/devices to stabilize/secure g-tube/button and/or extensions
 - Reduce accidental G-tube/button dislodgements
 - Eliminate extraneous imaging (dye studies)
 - Reduce care delays (feeds, medications)

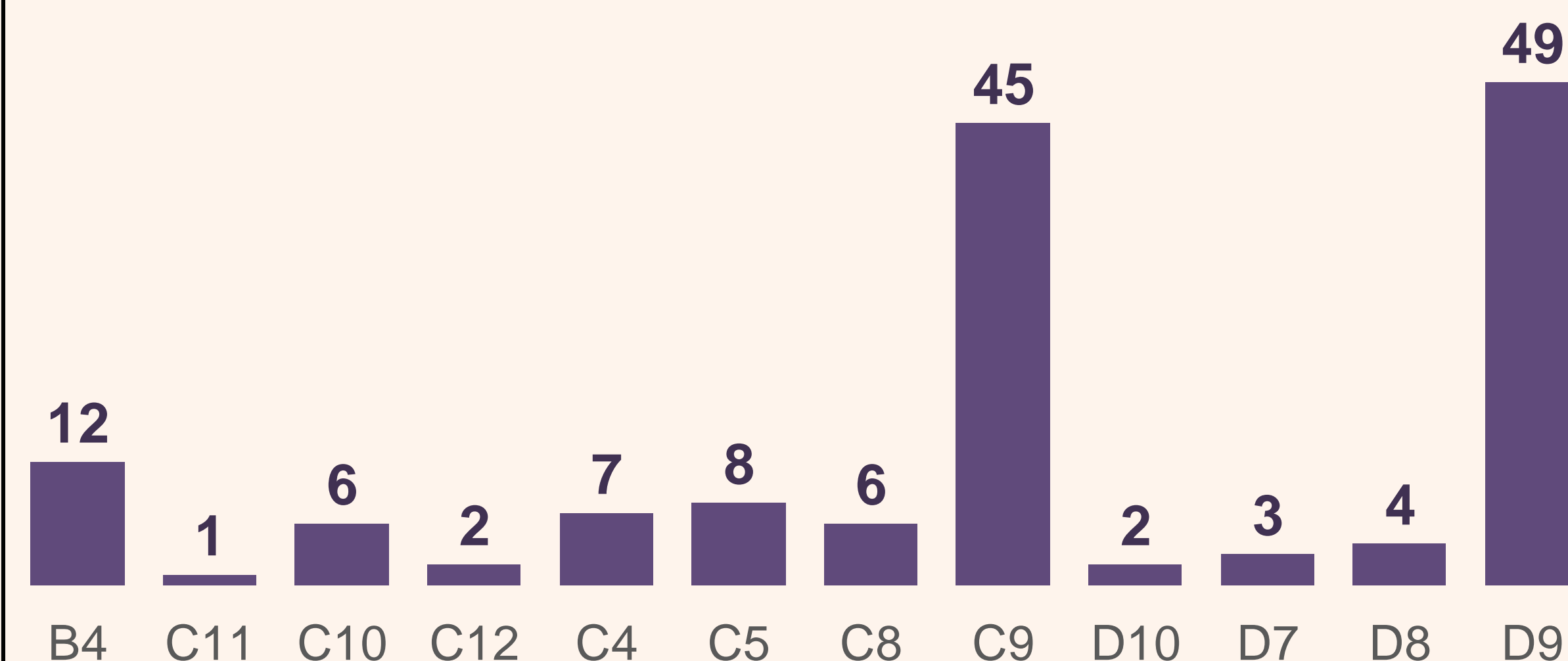
References



Evidence



2019-2024 Reported GT Dislodgements, Dallas Campus



SafeLink Data Analysis Dallas Campus 2019-2024

-8.3% occurred with non-nursing staff at bedside.

-15.8% occurred due to deflated or ruptured balloon.

-21.3% occurred with a CVO at bedside.

-22.7% occurred with reposition or transfer of patient.

-34% occurred when extension tubing was attached. *Some reports did not specify if extension tubing was attached.

-40% traumatic dislodgements: requiring dye study after G-button replacement

Recommendations

- Pilot G-tube/button Care Bundle Practices:
 - Check the balloon water level weekly
 - Remove the extension tubing when not in use
 - Secure the tube with catheter holder (CathGrip, TIDI Grip-Lok) when in use.
 - Patient/Caregiver education

Potential Product Pilot Recommendations



Figure 1 - Ezalife button holder

- Reduce dislodgement
- Reduce granulation
- Minimize leakage

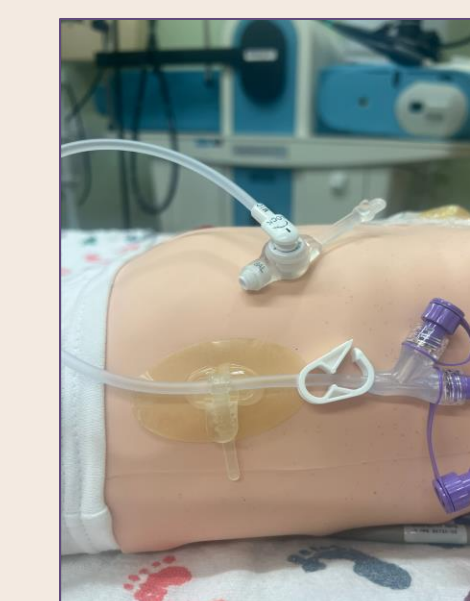


Figure 2 - CathGrip

- Reduce dislodgement
- Hydrocolloid suitable for all skin types
- Allows repositioning
- 7-day wear time
- Low profile



Figure 3 - TIDI Grip-Lok

- Reduce dislodgement
- Current Children’s product
- Soft & flexible
- Low profile

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References

Ruffolo, L. I., Pulhamus, M., Foito, T., Levatino, E., Martin, H., Michels, J., Schriefer, J., Wolcott, K., & Wakeman, D. (2021). Implementation of a gastrostomy care bundle reduces dislodgements and length of stay. *Journal of Pediatric Surgery*, 56(1), 30–36.

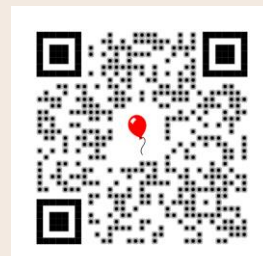
<https://doi.org/10.1016/j.jpedsurg.2020.09.045>

Shah, J., Shahidullah, A., & Richards, S. (2018). Reducing the Unintended Dislodgement of Gastrostomy Tubes in a Long-Term Acute Care Hospital: A QA/QI Pilot Study. *Gastroenterology Research*, 11(5), 369–373.

<https://doi.org/10.14740/gr1084w>

Stevens, J., Reppucci, M. L., Mironuck, T., Nolan, M. M., Choi, Y. M., & Moulton, S. L. (2023). A precision-designed gastrostomy button securement device. *Journal of Pediatric Surgery*, 58(1), 76–81.

<https://doi.org/10.1016/j.jpedsurg.2022.09.025>





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Evidence Synthesis Table

project team members: Chasity Webb, Julia Reyes, Lissa Galvan, Nick Poulides, Pinki Gracy, Prekshya Gautam

Citation (author, date, title, year)	Evidence Type (i.e guideline, benchmark, research)	Sample, size, participants, setting (If applicable)	Findings that help answer the EBP topic/ question	Limitations	Evidence Level/ Quality	Notes
Luis I. Ruffolo, Marsha Pulhamus, Theresa Foito, Elizabeth Levatino, Heather Martin, Julie Michels, Jan Schriefer, Kori Wolcott, Derek Wakeman Journal of Pediatric Surgery 7 September 2020 Implementation of a gastrostomy care bundle reduces dislodgements and length of stay	Quality Improvement	n=130 90 days In-patient care with checkup in out-patient clinic	They were able to reduce G-tube dislodgement within the first 3 months post-op by 47% by implementing a quality improvement post-op G-tube care bundle. The care bundle includes nursing practices (i.e. ensuring extension tubing is disconnected when not being used) and mechanical stability (i.e. hook-and-lock device to secure extension tubing and apparel to cover the g-tube extension tubing)	This study was performed at a single institution which may have different inter-departmental relationships than other locations. It is also difficult to tell which, if any, interventions had a larger effect on reducing dislodgments since multiple interventions were implemented at the same time. The article also does not explicitly list every element included in the care bundle, we would probably need to email the author to request the complete nursing care bundle.	Level 2.D Historic/retrospective control group study	
Shar, J, Shahidullah, A., Richards, S. Reducing the unintended dislodgement of gastrostomy tubes ina long-term acute care hospital.	Quality Improvement	90 days in cohort of 221 patients was determined.	There was a significant difference in unintended dislodgements between the treatment group (1 episode, 5.9%) and the control group (6 episodes, 35.3%). Prior to the study, 221 patients were observed over 90 days, and 64 unintended dislodgements (29.0%) occurred. The incidence of dislodgements was significantly lower in the treatment group compared to the historical group. Discussion: The study emphasizes the importance of systematic assessment and careful management of gastrostomy tubes to avoid complications. It discusses strategies for minimizing unintended dislodgements, such as using T-fastener/anchor systems and intentional replacement with balloon-type tubes.	Limited Hospital and Small Sample: The study was only done in one hospital in New York City, so the results might not apply everywhere. Also, only 34 patients were involved, which is a small number. Short Follow-up: They only looked at the patients for 90 days. It would be better to follow them for a longer time to see if the improvements last. Specific Patient Group: The patients in the study all had dysphagia and needed ventilator support. This might not represent all the people who have gastrostomy tubes, which could make the findings less relevant for everyone. Protocol Adherence Unclear: They made a plan for how to care for the tubes, but they didn't say if everyone followed it exactly. If the healthcare providers didn't all stick to the plan, it could make the results less reliable. Focused Outcome: They mainly looked at how often the tubes accidentally came out. But they didn't consider other important things like how happy the patients were, their quality of life, or how much money was spent on healthcare. These factors could also be important to know.	Level 1.C RCT	

Evidence





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Boeykens K, Duysburgh I, Verlinden W. Prevention and management of minor complications in percutaneous endoscopic gastrostomy	Quality Improvement	85 of 100 patients	Evaluate regularly if the tube is not fixed too loosely or too tightly to the skin and checking balloon inflation volume at weekly intervals (if the tube is a balloon retained gastrostomy tube) and inspect the water for evidence of stomach contents indicating balloon rupture.		Level 5.B Expert consensus	
A. Weszlits SM. ridosh; MM O'Connor. "Displaced Gastristomy tube in the pediatric emergency department	Quality Improvement	Single group design that included pre and post tests for providers- 20 nurses, 4 APRNS and 7 physicians	Although this article does not exactly focus on how to prevent dislodgement- it focuses on how providers can take better care of patients that come in with GT dislodgements. They educated the providers on gtubes and developed an evidenced based algorithm to guide care for GT dislodgements that lowers radiation exposure, lowers cost and providers better care for the patients.	Small convenience sample of cases in a peds emergency department at 1 community hospital After implementing the algorithm, the data was analyzed for a short period of time- longer period of data collection could have different results.	Level 3.E Observational study without control group	
Pediatric gastrostomy stoma complications and treatments Tube adjustment and Tube stabilization (rogers, 2004; Soscia & Friedman, 2011) Tube adjustment (Cahill, 2012; Fascetti-Leon et al., 2012; Friedman, 2004; Lee & Spratling, 2014; Lukish, 2010; Puntis, 2009; Soscia & Friedman, 2011)	Research, systematic review	25 articles, expert opinion papers (n=12), retrospective cohort studies (n=4), prospective cohort studies (n=4), single case studies (n=2)	Tube stabilization, G-tube repositioning, internal/external fixator tightening, balloon volume modification, and counter-traction application to decrease leakage and preserve the skin patients using G tubes	Few articles investigated the efficiency of stoma therapies directly. Therefore, manual screening was used to identify approaches to complication management. Hand searching clinical practice guidelines reduced the likelihood of missing important papers.	Level 3.B Review of comparable cohort and toher study designs	
Stevens, J., Reppucci, M. L., Mironuck, T., Nolan, M. M., Choi, Y. M., & Moulton, S. L. (2023). A precision-designed gastrostomy button securement device. Journal of Pediatric Surgery, 58(1), 76–81. https://doi.org/10.1016/j.jpedsurg.2022.09.025	Quality Improvement	Trial 1: n=14, average age = 4 years. Trial 2: n=10, average age = 4 years.	The final prototype created provided securement to the g-button though a silicone lid that secured to the base layed which used an adhesive to secure the the child's abdomen (lasting 2-7 days). This innovative design offered protection from accidental dislodgement and reduce movement of the g-button within the tract.	The findings of this study are produced in a later article outling the effectiveness of their designed securement device versus the "tic-tac-toe" dressing. Will need to review the next article in order to determine if this device would be a better alternative.	Level 1.C Clinical Trial	

Evidence

