Reduction of Prolonged Length of Stay Admissions for New Gastrostomy Patients:

An Equity-Focused Quality Improvement (EF-QI) Project

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References

Highlights

- Over the past three years, over 150 children underwent gastrostomy creation surgery at CHEO.
- 14% (n=23) had extremely prolonged admissions (EPA; >100 days). Almost half (n=9) of EPAs were preventable, and were related to device availability, funding availability, or prescription challenges.
- Patients from Nunavut compose 4% of new G-tube patients, yet represent 33% of preventable EPAs.
- Improvement initiatives from our working group could reduce preventable EPAs of patients from Nunavut by an average of 2 weeks, and up to 1 month.
- As a direct result of this work, upcoming Epic Orderset improvements for patient-centered prescriptions will reduce 12 yearly pharmacy visits down to 4 for all G-tube patients.

Abstract

Post-gastrostomy creation surgery, when the gastrostomy tract is healed and considered established, patients become candidates for a low-profile gastrostomy tube (G-tube)[1].

Equity-Focused Quality Improvement (EF-QI) interventions address the needs of equity-deserving groups and the root causes of problems without worsening health disparities.[2]

The Nurses Specialized in Wound, Ostomy and Continence Care (NSWOC) team observed that patients from Nunavut were at times admitted significantly longer than other patients. Preventable, extremely prolonged admissions (EPA) related to device availability, funding availability, or prescription challenges can be costly. They may also impact capacity at Larga Baffin, a community-focused home away from home for Nunavummiut travelling to Ottawa for medical services[3].

The Nursing Practice Department and Quality Improvement Team formed a working group to optimize processes and reduce preventable EPAs. Utilizing the Define, Measure, Analyze, Improve, and Control (DMAIC) methodology, communication between multiple provider teams was streamlined, and our working group identified an improvement that benefits all G-tube patients: an update to the orderset for patient-centered prescriptions.

As a result of these improvement measures, we reduced back-and-forth communications, reduced preventable EPAs, and reduced complications with obtaining a prescription, as well as reduced pharmacy visits.

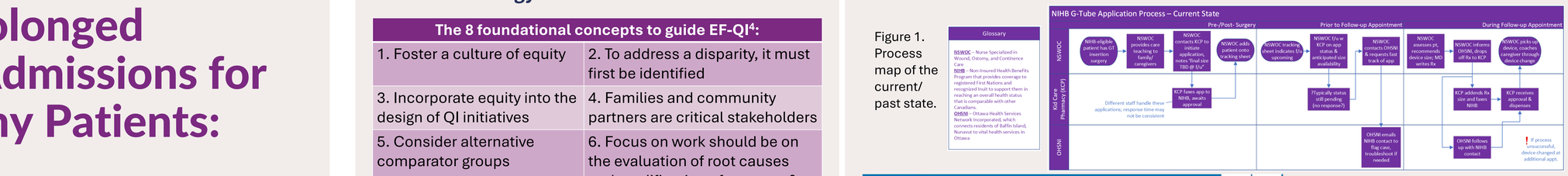
The Methodology

The 8 foundational concepts to guide EF-QI[4]:	
1. Foster a culture of equity	2. To address a disparity, it must first be identified
3. Incorporate equity into the design of QI initiatives	4. Families and community partners are critical stakeholders
5. Consider alternative comparator groups	6. Focus on work should be on the evaluation of root causes and modification of systems & processes
7. Adapt data visualization tools to emphasize disparity trends over time	8. Approach dissemination of data from an equity perspective

1. This QI project employed a retrospective, mixed methods design to analyze data from October 2021 to October 2024.
2. Surgical data for gastrostomy creation were extracted from the EMR and categorized by length of stay to identify EPAs. Subsequent content analysis of qualitative EMR data categorized issues related to device availability, funding, and prescription processes.
3. EF-QI principles were embedded throughout the project, particularly: fostering a culture of equity, identifying disparities, incorporating equity into QI design, and focusing on root cause and systems-level analysis.

The Current State

Figure 1. Process map of the current/ past state.



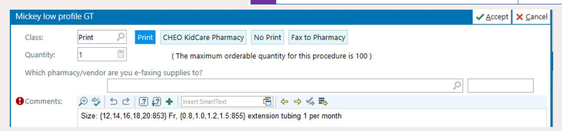


Figure 2. The EMR prescription template, which defaults to 1 g-tube device, in addition to 1 extension set each month.

Analysis

- Analysis revealed 23 extremely prolonged admissions (EPA) out of 159 gastrostomy creation admissions over three years.
- 9 cases were preventable, related to device availability, funding delays, or prescription processes.
- While patients from Nunavut compose 4% of total new g-tube patients, they comprised 33% of preventable EPAs.

Figure 3. Tree map of G-tube Patient Admissions Oct 2021-2024

The Future State

Order Name	Frequency	Preselected?	Defaulted Item(s)
Example: Up with assistance	*Q Shift*	*Yes*	
Gastrostomy tube (G-tube) Low Profile Balloon Device (Avanos Mic-Key)	Discharge		Quantity: 2 Comments: Size: {12, 14, 16, 18,20:853} Fr, {0.8, 1.0, 1.2, 1.5, 1.7, 2.0, 2.3, 2.5:855}
Gastrostomy tube (G-tube) Low Profile Balloon Device (AMT MiniOne)	Discharge		Same as above
Gastrostomy tube (G-tube) extension set	Discharge	Yes	Quantity: 3 Comments: Extension set one per month x3 months, repeat 3x

Figure 4. Order Set Update Request Form to update prescription template to two g-tube devices (initial and a back-up) and "maintenance dosing" of 3 extension sets on the first visit, with refills every 3 months.

Figure 5. Streamlined communication pathway to facilitate interdisciplinary communication between nurses, the community pharmacy, and case managers.

A new patient has successfully completed a gastrostomy creation surgery.
They are a candidate for a low-profile G-tube device.
Please see below for their information, and complete sections relevant to your team as the patient progresses.

Progress (Please copy and paste the "button" to your section's Progress Update)	To do	In progress	On hold	Done

Patient Name: *
DOB: ***
Surgery date: ***
Estimated follow-up appointment date: *

Who:	Does what:	By When:	Progress	Notes (if applicable)
NSWOC	Verify General Surgery team has faxed an Rx	Discharge	To do	
KCP	Submit application to NIHB	Discharge	To do	
OHSNI	Connect with family to identify supports needed (as needed)	Discharge	To do	
NSWOC	Provide estimated device size(s) to KCP	2 Weeks Prior to Follow-Up Appointment	To do	
KCP	Set aside two estimated device sizes	2 Weeks Prior to Follow-Up Appointment	To do	
KCP	Confirm with NIHB that application is cleared for processing, or if any delays to be addressed	2 Weeks Prior to Follow-Up Appointment	To do	
NSWOC	Provide updated Rx to KCP	Day of Follow-Up Appointment	To do	
KCP	Submit invoice to NIHB	Day of Follow-Up Appointment	To do	
KCP	Dispense device	Day of Follow-Up Appointment	To do	
NSWOC	Coach caregiver through device insertion	Day of Follow-Up Appointment	To do	

Figure 6. Quality Improvement control plan.

Measure	What is your target?	Where can you find it?	Who is looking at it and when?	When is it reviewed? How often? With whom?	What to do if it is out of control
LOS of new G-tube patients from Nunavut	No delays to LOS due to funding approval or pharmacy supply	Request a list of new G-tube patients from NSWOC	NSWOC to flag if qualitative observations demonstrate increasing cases	On an as needed basis by the NSWOC team	Flag to Nursing Practice Manager and QI support team

Discussion

QI work may worsen or perpetuate existing disparities when lacking an intentional focus on equity promotion[2].

Whereas QI with a health equity lens introduces some consideration of health disparities, it is not centered around equity[4-5]. EF-QI integrates equity throughout a project, and emphasizes inclusive, collaborative efforts to prioritize and address the needs of equity deserving groups[2,5-6].

This work demonstrates that improvements designed with equity-deserving groups in mind may benefit all patients, and that the EF-QI approach does not necessitate a complex strategy.

Strategies used to achieve EF-QI include fostering a culture of equity, identifying disparities in order to address them, incorporating equity into QI design, and focusing on root cause and systems-level analysis[5].

Next Steps

- Plan-Do-Study-Act (PDSA) of the standardized communication checklist to streamline future cases and for quick status updates.
- Change management to support clinicians with adjusting to new prescription-writing practices.
- Liaise with Business Intelligence team to ensure smooth roll-out of new prescription templates.

Acknowledgements

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