2024 UTHealth & Memorial Hermann Quality Symposium Abstracts

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Every year, the UTHealth McGovern Medical School and Memorial Hermann-Texas Medical Center jointly organize a Quality Symposium, where oral and poster presentations spotlight the outstanding efforts in quality improvement initiatives ongoing at both institutions. Sixty-three teams dedicated to Quality Improvement were chosen to present their projects during the afternoon Poster Session. The abstracts included in this compilation offer a glimpse into the remarkable Quality Improvement endeavors showcased at the 2024 Quality Symposium.

1: Optimizing the Management of Patients Requiring Gastrostomy Tube: Overcoming Institutional Frustration Using Change Management, Lean, and Six Sigma

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Introduction: Standardization is the foundation of high-reliability processes. In our quaternary care academic hospital, analysis showed significant variation in gastrostomy (g-tube) management, resulting in conflict between healthcare teams and dissatisfaction among those requesting and placing g-tubes. We aimed to identify and address the challenges surrounding g-tubes.

Methods: Institutional performance metrics were analyzed for opportunity. Stakeholder perspectives were collected through sensing sessions to determine pain points and desired future state across pre-, peri-, and post-procedural processes. Stakeholders participated in structured focus groups of procedural, consulting, and other frontline teams to develop targeted solutions for pain points (Table 1). Stakeholders were exclusively frontline staff.

Results: Variability in procedural appropriateness criteria, delays in care, inconsistent peri-procedural management, and ineffective care coordination were identified pain points. Solutions identified by focus groups included establishing standardized 1) clinical pathways facilitating consistent and appropriate patient selection, 2) timeliness expectations, and 3) consistent peri-procedural management practices for patients with g-tubes. Pain points and interventions to achieve the desired future state are provided in Diagram 1. The final work product is a clinical practice guideline for hospital-wide implementation addressing the existing challenges surrounding g-tube placement.

Conclusion: Frontline staff are subject matter experts in identifying pain points and designing effective, practical processes. We utilized change management techniques in focus groups to capture discomfort with current practice and create a shared vision for a future state. Stakeholders incorporated perspectives of the entire care team to create a robust, standardized clinical pathway for g-tube placement in an academic institution.

Table 1: Key stakeholders in the management of patients with g-tubes

	Team Composition
Procedural Teams	Gastroenterologists Interventional Radiologists Emergency General Surgeons Trauma Surgeons
Consulting Teams	Critical Care Physicians - Medical ICU - Neurological ICU - Cardiovascular ICU - Surgical/Trauma ICU Medical/Sub-Specialty Physicians - Medicine - Hospitalists - Geriatricians - Neurologists
Other Frontline Staff Teams	Nurses (diverse unit representation) Educators Speech Language Pathologists Registered Dietitians Case Managers
Project Facilitator	Lean Six Sigma Black Belt

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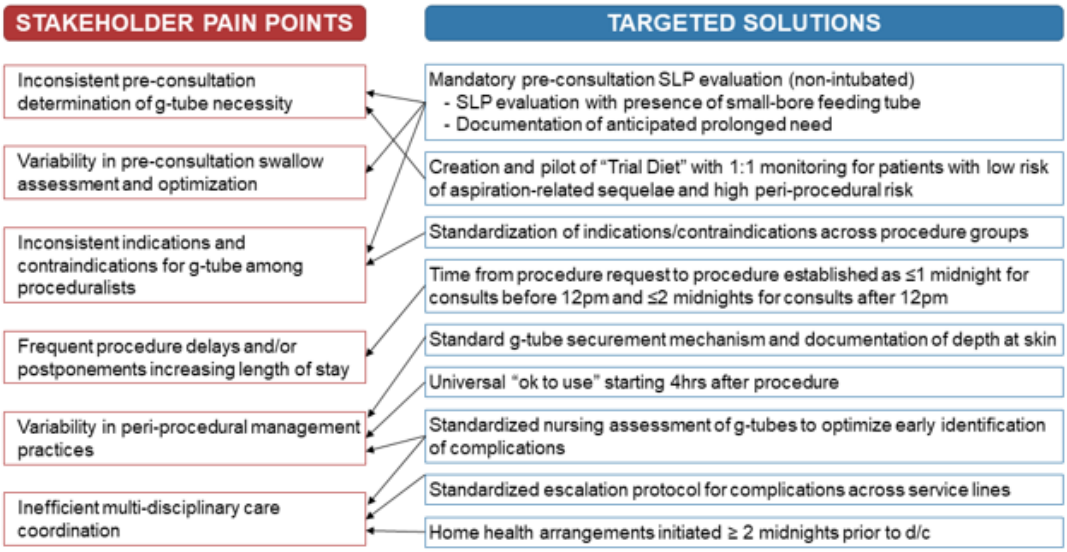
Diagram 1: Identified pain points and targeted solutions in the management of patients with g-tubes



2 Navigating Health Literacy: Comparison of Assessment Tools in a Surgical Safety-Net Population

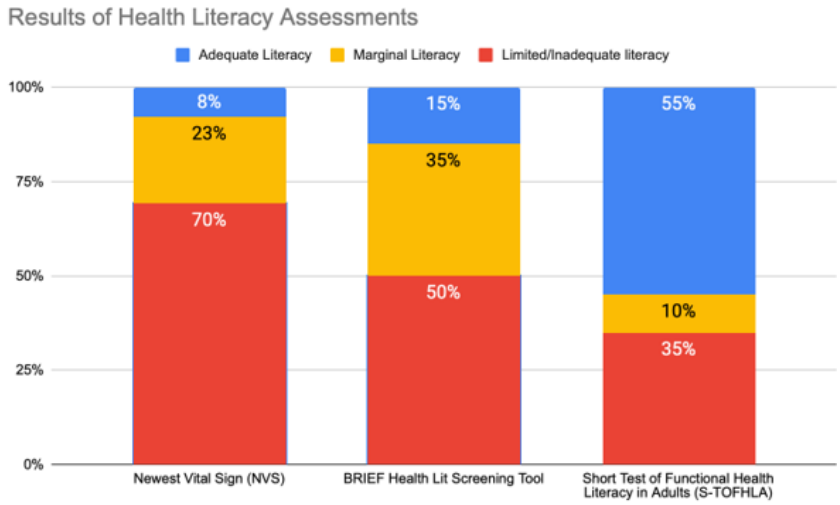
Mokunfayo Fajemisin MD, Stephanie Martinez Ugarte MD, MBA, Gabrielle E. Hatton MD, MS, Jackson Burns BS, Lillian Kao, MD, MBA, MS, Krislynn Mueck MD, MPH, MS

Introduction: Health literacy (HL) is the ability to understand, obtain and use health-related information to make health-related decisions. Despite evidence that low HL is associated with poor outcomes, few institutions regularly assess HL. The aim of this study was to assess the prevalence of low HL within our surgical population utilizing standardized HL tools.

Methods: A survey study was performed at an urban safety-net hospital 11/2023-03/2024. Surgical patients were administered HL assessments, randomized in order of administration. Surveys included the Newest Vital Sign (NVS), Brief Health Literacy Screening Tool (BRIEF), and Short Test of Functional Health Literacy in Adults (S-TOFHLA). Demographics were collected. Descriptive statistics were performed and Cramer's V coefficients were calculated to compare surveys. The Cramer's V ranges from 0, indicating no correlation, to 1, indicating perfect correlation.

Results: Forty patients were included and the median age was 47 (IQR 37-53). Most patients' highest education levels were high school (50%) and elementary school (28%). The majority of patients exhibited inadequate HL (Figure). The lowest scores were observed with the NVS and BRIEF. There was consensus among the three tests in 18% of cases. There was poor correlation between the tests (Cramer's V 0.11 to 0.30).

Conclusions: At a safety-net hospital, most surgical patients had low HL and tools to assess HL correlated poorly with each other. Assessment of HL should include multiple tools, as one survey may incompletely characterize a patient's HL. Routine HL assessment will be vital to addressing gaps in patient outcomes related to HL.



3: Surgical site laterality in gynecologic surgery

Asha Bhalwal, MD, Olivia Dziadek, MD, Paula Igwe, Medical student 3 & Joanna Ma, MD

Background: In the United States, wrong-site surgery is a rare yet possible medical error occurring in 0.09 to 4.5 per 10,000 operations. Medical errors, including wrong-site surgery, account for billions of dollars in annual costs. Protocols are implemented throughout the perioperative period to verify patient and procedure information to prevent surgical errors.

Objective: Investigate adherence of documenting surgical site laterality throughout the perioperative period.

Methods: Enrolled patients undergoing minimally invasive gynecologic surgery or gynecologic oncology surgery during 2023. Pre-intervention includes cases occurring from January to June 2023, and post-intervention includes cases from July to December 2023. Preoperative checkpoints include documentation of surgical site laterality on the history and physical, consent form, and patient site marking. Postoperative checkpoints included documenting laterality of the procedure performed and the laterality of the retrieved specimen.

Results: Prior to intervention, 22% of cases reported laterality on history and physicals, 66% of cases reported laterality on surgical consent forms, and 9% of surgical sites were marked. 100% of cases documented laterality in postoperative notes. Post intervention, there was a 42% increase in reporting laterality in history and physicals, 16% increase in reporting laterality on surgical consent forms, and 25% increase in patient marking.

Conclusion: Adherence to documenting laterality for gynecological surgery cases improved after reviewing proper perioperative protocols, particularly during preoperative checkpoints. Multidisciplinary efforts from physicians, nurses and students should be made to continue adherence throughout the perioperative period to protect patients and ensure optimal outcomes.

4 Enhancing Care in Children Undergoing Pectus Excavatum Surgery: Outcomes from Quality Improvement Pain Control Initiatives

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Background: Pectus Excavatum (PE) is a pediatric chest wall deformity. Postoperative pain control challenges often result in prolonged hospital stays. The adoption of intraoperative cyroanalgesia and intercostal nerve block has improved outcomes. We aimed to assess postoperative opioid consumption, length of stay (LOS), and costs through quality improvement interventions.

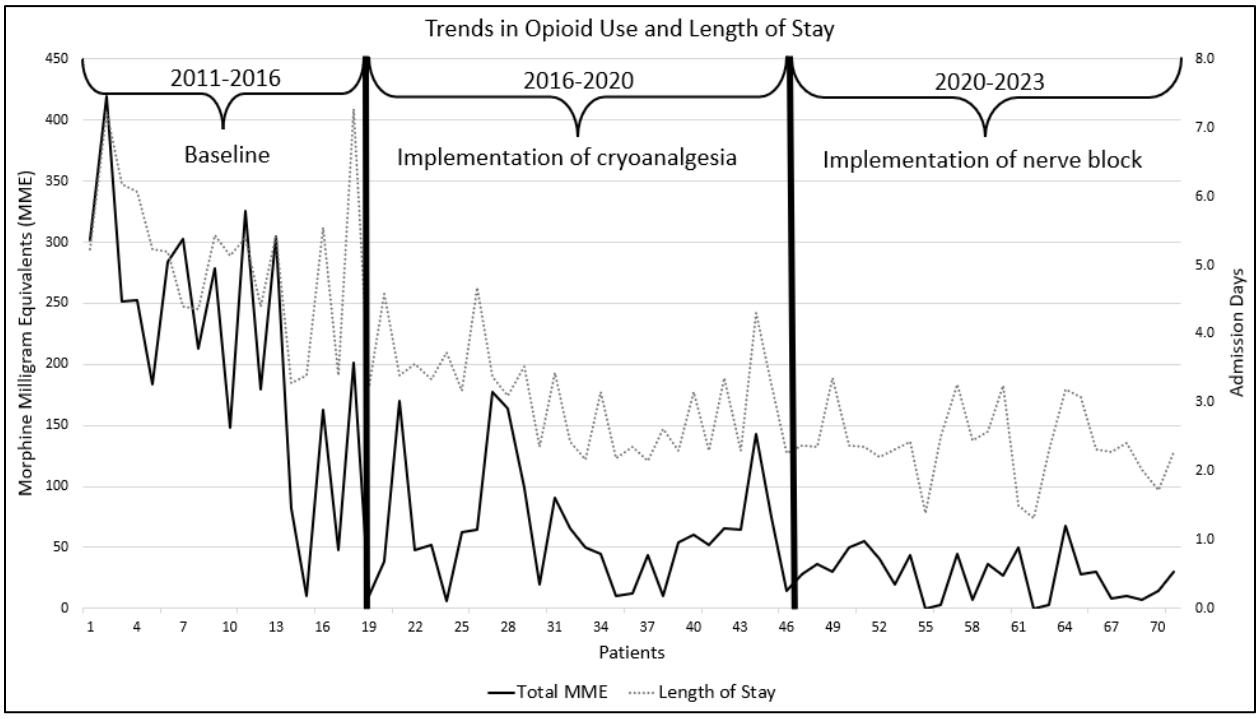
Methods: All patients (<18 years) who underwent PE repair at a single center from 2011 to 2023 were included. Temporally associated cohort groupings were based on pain control modalities received. Total morphine milligram equivalents (MME), LOS, and cost were analyzed utilizing generalized linear regression.

Results: Seventy-one patients (78% male with a mean age of 14.8 years (SD 1.8)) were identified. Groupings included 9 epidural alone, 2 epidural/patient-controlled analgesia (PCA), 6 PCA alone, 20 cryoanalgesia/PCA, 6 cryoanalgesia alone, 5 cryoanalgesia/PCA/liposomal-bupivacaine, and 23 cryoanalgesia/liposomal-bupivacaine alone. Interventions demonstrated an overall 90% reduction in opioid utilization (RR=0.09; 95% CI [0.05-0.17]) from a mean total MME for epidural alone of 277 (95% CI, 217-338) to 27 (95% CI, 18-35) for cryoanalgesia/liposomal-bupivacaine (FIGURE). LOS decreased by 45% with a mean absolute

difference of -2.3 days less with cryoanalgesia (RR=0.55; 95% CI [0.46-0.66]). The mean absolute difference in total costs for patients who received cryoanalgesia was -$456 (95% CI, -$2,842-$1,929) less than those who did not.

Conclusion: Opioid consumption has decreased by 90%. Despite adding operating room costs, the resulting shorter length of stay resulted in a net-neutral cost for better patient care. The utilization of cryoanalgesia and liposomal-bupivacaine appears to be the optimal combination for PE repair.

FIGURE:



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 # 5 Evaluation of Compliance with Sedation Awakening Trials in Medical ICU Patients

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Purpose: The purpose of this quality improvement project is to assess deviations from the current sedation awakening trial (SAT) process in the medical intensive care unit (MICU) at Memorial Hermann – Texas Medical Center (MH-TMC).

Methods: This quality improvement project consisted of survey, education, and implementation phases. A survey was provided to nurses in the MICU to assess their literacy, comfort, and barriers with the current SAT protocol. Baseline retrospective data was collected on patients admitted to the MICU from January 2023 to June 2023. Areas of improvement were identified and the protocol was adjusted. Nurses were educated by pharmacy team members on changes made to the protocol. The pilot was implemented in February 2024 and data was collected through March 2024. The aim of this project was to ensure successful completion of SATs by developing a new SAT protocol after determining compliance and barriers with the current protocol.

Results: Barriers identified from the survey included reluctance weaning sedation due to negative experiences, misunderstanding of appropriate exclusion criteria, and lack of definitions in the current protocol. A total of 119 patients met inclusion criteria, resulting in 259 SATs included in the pre-implementation group analysis and 120 SATs in the pilot group. There was a statistically significant reduction in noncompliance in the pilot group (59% vs 33%); p = <.001.

Conclusion: This project found a reduction in noncompliance with SATs in the MICU. Further evaluations are needed to determine if the pilot has an effect on ICU length of stay or mortality.

6 Evaluation of Atrial Fibrillation Management in the Medical Intensive Care Unit

Jalon Barnes, PharmD; Kayla Cann, PharmD; Jennifer Cortes, PharmD, BCPS, BCCCP, FCCM; Christopher
Harding, MD; Brittany Pelsue, PharmD, BCPS, BCCCP; Stephanie Robertson, PharmD

Purpose: To reduce variability and improve the quality of care in the management of atrial fibrillation
(AF) based on patient characteristics.

Methods: This was a quality improvement project to establish a pathway for management of AF in
critical illness. Baseline data from January 1, 2022 to July 31, 2023 was collected through retrospective
chart review of patients who experienced AF during their Medical ICU (MICU) admission. Providers were
educated about the pathway, and the pilot was implemented from February 1, 2024 to March 31, 2024.
Pilot data was compared to baseline using Plan-Do-Study-Act (PDSA) methodology. Endpoints were
percent of patients that achieved rate control or normal sinus rhythm (NSR), percent of patients receiving each medication, incidence of AF recurrence, time to rate control or NSR, pathway compliance,
and adverse events.

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Results: A total of 130 and 15 patients were included in preliminary and pilot groups, respectively.
Achievement of NSR increased from 21.5% to 66.7% (p = < 0.001), and time to NSR was more likely to
occur within 3 hours (p = 0.007). Use of magnesium sulfate increased from 16.9% to 46.7% (p = 0.006).
Compliance to the pathway was 53.3%, with the majority of noncompliance being due to lack of magnesium sulfate use. There were no differences seen in incidence of rate control, incidence of AF
recurrence, or adverse events.

Conclusion: This study demonstrated increased achievement of NSR and consistency in treatment. Over
the next PDSA cycle, barriers to compliance with the protocol will be further assessed.

 # 7: A Pilot Study Using a Novel Intravenous Labeling System

Team Members: Sue Thomas, MSN-Ed, Amanda Davis, BSN, RN, CPN, NPD-BC, Zhen Lin, PhD, RN, Rosemary Pine, PhD, RN, NPD-BC

Project Overview: The overall goal is to improve patient safety related to high alert medications, in particular heparin, and to develop a uniform process when labeling and identifying IV lines.

Project Background: Nurses are at the sharp end of medication errors, and at least one-third of total medication errors are during the administration phase (Cloete, 2015). Repetitive skills associated with medication administration draw from working memory and help the nurse make quick efficient judgments. This is risky as judgmental errors can lead to medication errors (TJC, 2023). Research reveals that having visual and haptic cues can increase accuracy in performing certain common tasks.

Intervention Detail: In a quasi-experimental like design, newly hired RNs participated in a medication safety escape room alternatively using the novel labeling product or conventional labeling of IV tubing. The intervention approach used a standardized patented series of kitted labels using shape, text, texture and color. Staff were timed on how long it took to identify and correct the deliberate error.

Outcomes/Impact: The novel labeling system significantly reduced the time required by nurses to identify the error in a simulated environment. Nurses participating in the intervention room had fewer IV related errors, recognized and reported the medication errors earlier. The haptic and symbol features stood out to participating nurses as the most useful features.

Future research should focus on testing interventions to support improved labeling to decrease IV medication errors.

8: Fail to Plan and You May Plan to Fail

Amanda Davis, BSN, RN, NPD-BC, CPN; Kandice Cardona, MA LPC; Gabby Edquilang, BSN, RN, SCRN, LSSBB; Stephanie Aurisano, LCSW; Manish Pandya, LCSW, MBA; Keyla Campbell, MSN, RN, NPD-BC; and Shawna Albers, BSN, RN

Project Overview: Managing patients who are a danger to themselves or others can be challenging when there is variability in the care and management of these patients. Care can vary between units and shifts. In an effort to reduce variability to promote patient and staff safety, the Behavioral Emergency Response Team (BERT) Core Team created a safe patient management plan process.

Project Background: Patient admitted for suicide attempts, or who are a danger to themselves or others, require a safe environment to prevent patient harm. Opportunities to reduce variability regarding non-medical decisions such visitors, phone access, patient belongings were identified to improve patient and staff safety.
An interdisciplinary team utilized multiple RPI tools such as the Voice of the Customer, Cause and Effect diagram, Process Mapping, ARMI and Stakeholder analyses during the planning and implementation phases of the project. The tools helped to identify how variability impacts patient care and to assess the readiness of the pilot units. Initial results indicate that the new process improves BERT utilization across the unit and fewer behavioral escalations.

I**ntervention Detail:** When patients were admitted to pilot units with a concern to harm themselves or others, a call was placed to the BERT clinician to assess the patient and create a Behavioral Care Plan (BCP). Within the BCP, BERT clinicians addressed patient-specific triggers,

de-escalation techniques, and recommendations for activity, visitation, and belongings. Metrics included process compliance, patient scores on the aggression screening tool, and behavioral escalations to either a Code BERT or Code Green. Compliance was tracked by the BERT clinicians, confirmed through retrospective chart review, and communicated to team via e-mail and monthly behavioral health meetings.

Outcomes and Impact: The project was piloted on two adult inpatient units at the TMC campus. The two chosen units have a larger population of patients admitted for suicidality or are a danger to themselves or others. During the four month pilot period, there were 20 eligible patients. 90% of patients had a behavioral care plan initiated with 80% initiated within 12 hours of admission or transfer. The BERT team followed up with 60% of the patients to adjust the care plan as needed during their hospitalization. 97% of aggression screening tool scores were negative and none required a behavioral escalation to either a Code BERT or Code Green. Uniquely Innovative Behavioral Emergency Response Teams are increasing in popularity as a way to manage problematic behaviors in the hospital setting. This initiative is novel because it engages the BERT team in a new way. It engages the BERT team on admission and uses their clinical expertise to fill a patient management gap for patients who are a danger to themselves or others. It also utilizes the clinical expertise of the BERT clinicians to provide care that is safe, caring, personalized, and efficient.

9 Becoming RePLASEd: Transitioning from Alteplase to Tenecteplase for Acute Ischemic Stroke

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Background: Each year approximately 795,000 individuals in the United States experience a stroke which is associated with a high degree of morbidity and mortality. The gold standard in the treatment of acute ischemic stroke is thrombolytic therapy using Alteplase (rt-PA). New studies show that Tenecteplase (TNK) is equivalent to rt-PA in effectiveness while being cheaper and easier to mix and administer. Through a system-wide team approach, we aimed to vet the use of TNK and plan a seamless go-live across all campuses.

Methods: We created a small multidisciplinary taskforce (Tenecteplase for Acute Ischemic Stroke Taskforce) comprised of system leaders, subject matter experts, and key stakeholders to ensure a methodical approach to a major culture shift in management of stroke. The Taskforce owned all aspects of the conversion: initial vetting, financial, regulatory, legal, supply, clinical literature review, extensive approval processes, education plan. and monitoring outcomes post-implementation.

Results: TNK was implemented at all campuses in March 2023. In June 2023, an early 3-month rt-PA vs. TNK comparative analysis was completed. The results were similar for both thrombolytics: door to needle median times (< 45minutes) and sICH (< 6%). The Taskforce plans

to conduct an extensive rt-PA vs TNK comparative analysis every 6 months to monitor treatment times and complication rates for improvement.

Conclusions: TNK has proven to be as effective as rt-PA with the same rate of symptomatic intracranial hemorrhage (sICH). Overall, implementation of TNK was shown to maintain our current standard of care while conferring significant savings to the organization.

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