

DNP PROJECT ABSTRACTS

ROOM 6

Implementation of a Protocol-driven Medical Clearance Algorithm in Behavioral Health Crisis Services

Sara Bortner

Problem & Purpose. A lack of standardized recommendations for medical clearance can lead to delayed or inconsistent care for individuals who present to emergency facilities with behavioral health (BH) concerns. Resulting complications include patient distress; increased health care costs; increased length-of-stay (LOS) and decreased bed turnover in emergency care settings; delays in receipt of specialty psychiatric services; and increased morbidity and mortality. The purpose of this quality improvement project was to evaluate the implementation of standardized recommendations for medical clearance in a crisis intervention center. The aim was to reduce LOS, and delays in receipt of specialized psychiatric services.

Methods. A protocol-driven algorithm and checklist were uniquely created for this project, using recommendations gleaned from the literature review. Data collection included: clinically significant findings from the medical history and patient presentation; lab tests ordered; disposition decision; the LOS in minutes from triage to disposition decision; and whether a medical transfer happened within the first 72-hours upon admission to the BH unit.

Results. Data were captured for 425 patients over 11-weeks. Of patients presenting for emergency care, 71.94% had a previous psychiatric history, and 7.42% had a new onset of psychiatric symptoms. The majority of the patients were under age 65 (96.13%). No patients had urgent concerns from their physical examination, but 13 patients (4.19%) had abnormal vital signs. Disposition types included discharge home (84.00%), transfer to the local ED (4.71%), or transfer to the crisis residential unit (11.06%). The mean LOS in minutes from triage to disposition decision was 211.70 (SD=199.07) for the baseline period and 188.90 (SD=205.99) for the implementation period. Only one patient (0.24%) was directly admitted to the inpatient BH unit. There were no transfers to a medical unit within 72 hours after transfer to behavioral health services (safety measure).

Conclusions. Patients presenting for emergency care with BH concerns may not require routine laboratory testing. Lack of on-site laboratory services was a limitation; no laboratory testing was performed prior to disposition decision. The algorithm and checklist did not impact LOS ($p=0.15$) or patient safety. Decreased admissions to the inpatient BH unit were an unexpected yet welcomed outcome.

Paired Spontaneous Awakening Trial and Spontaneous Breathing Trial Protocol Implementation

Luverne B. Diaz

Problem & Purpose: Mechanical ventilation (MV) is a commonly used life-saving modality in the intensive care unit (ICU) patients. Sedation is widely used for improved patient MV tolerance. However, evidence shows a link between sedation use and increased MV duration and risk for MV-associated complications. This quality improvement (QI) project aimed to implement a paired Spontaneous Awakening Trial (SAT) and Spontaneous Breathing Trial (SBT) protocol in the ICU to promote early extubation and endorse a practice change that includes sedation guidelines and safety screening to identify appropriate candidates for extubation with a goal to reduce MV days.

Methods: The QI project was implemented over three months period on all intubated, mechanically ventilated adult ICU patients aged 18 years and older. Data was collected on monthly MV days, and Standardized Utilization Ratio (SUR) obtained from the infection prevention department as reported to the National Healthcare Safety Network (NHSN), and the percentage of mean staff compliance with the protocol implementation using a manual audit.

Results: During the implementation period, the SUR decreased from 0.99 to 0.89, while the MV days increased from 154 to 162, and the percentage of mean staff compliance increased from 3% to 82%.

Conclusion: The staff compliance goal was met, but the MV data is inconclusive. Data from the past 24 months have shown a seasonal variance pattern in the MV days and SUR, and there is insufficient data to analyze the impact of the protocol implementation on the clinical site. Barriers that affected the project implementation includes the synchronous merging of the Neuro and the Cardiothoracic ICUs with the hospital relocation during the implementation month.

Enhanced Recovery after Cesarean Delivery Clinical Practice Guideline: Intraoperative Interventions

Lara Gilmore

Problem & Purpose: Thirty percent of all births in the United States are performed by cesarean delivery (CD) making it the most common surgical procedure performed. Common complications include Spinal Induced Hypotension (SIH) and Post Spinal Shivering (PSS), which can have a detrimental impact on the mother and the fetus. Additionally delayed cord clamping (DCC) is a “no cost” intervention that decreases neonatal morbidity and mortality. Lack of guidelines to manage intraoperative complications results in a variation in practice among anesthesia providers, leading to an increase in maternal and fetal morbidity and mortality. The purpose of this quality improvement project was to develop a clinical practice guideline (CPG) incorporating evidence based best practice interventions to standardize and optimize the intraoperative care of women undergoing planned CD.

Methods: An extensive literature review focused on management of SIH and PSS was conducted. A CPG was written and presented to a team consisting of Director of Obstetrics Anesthesia and Director of Fetal and Maternal medicine who analyzed the CPG utilizing the Appraisal of Guidelines for Research and Evaluation II (AGREE II) tool. Modifications were made based on results and the CPG was presented to the anesthesia providers within organization who evaluated the usability of the CPG utilizing the Peer Feedback Questionnaire (PFQ).

Results: Two AGREE II tools were distributed and completed representing a 100% response rate. Each of the domains on AGREE II tool received a score greater than 70% indicating good quality. The overall guideline assessment score was 91.7%. A total of 39 PFQs were distributed to anesthesia providers, 17 were completed representing a 43% response rate. Analysis of the PFQ revealed a total percentage of agreement of 87.4% with a standard deviation of 6.6. The percentage of agreement was also calculated for the five subscales. Quality and acceptance of CPG received the highest scores of 97.9% and 87.5% respectfully while the lowest score of 39% was obtained in applicability.

Conclusion: Favorable results on AGREE II tool and PFQ demonstrates that the CPG is of good quality and well accepted by anesthesia providers. Implementation of the CPG has the potential to improve the standardization and optimization of women undergoing planned CD.

Increasing Human Papillomavirus Vaccination Rates Among Adolescents in Primary Care

Rachel E. Hodge

Problem and Purpose: Each year, 33,700 men and women in the United States are diagnosed with a cancer caused by infection from the human papillomavirus (HPV), 90% of which could have been prevented through vaccination. Despite the proven safety and effectiveness of this vaccine, rates of uptake are low nationwide, a mere 53.7% for females and 48.7% for males. The purpose of this quality improvement (QI) project was to implement and evaluate interventions guided by the 4 Pillars™ for Practice Transformation Program, an evidence-based tool-kit shown to increase HPV vaccination rates across settings, including in primary care.

Methods: A bundle of interventions was implemented using the 4 Pillars Program. Pillar 1 Convenience and Easy Access: all patient encounters of those aged 11-18 were used as an opportunity to vaccinate (not just well visits). Pillar 2 Patient Communication: providers issued a “strong recommendation” for the HPV vaccine using the Same-Way Same-Day strategy from the Centers for Disease Control and Prevention (CDC). Pillar 3 Enhanced Vaccination Systems: Immunization status was assessed as part of vital signs and Vaccine Information Statements (VIS) were given to all eligible patients’ parents. Pillar 4 Motivation: progress toward improving HPV vaccination rates was tracked and posted in staff break room.

Results: Implementation of this tool-kit resulted in an increase in the HPV vaccination rate from 68% to 76.6%, an 8.6% increase ($p < 0.01$). 100% of patients presenting for 11-year-old well child checks were vaccinated ($n=32$). 100% of eligible patients were given VIS and immunization status was assessed as part of vital signs for 100% of patient encounters. There was no real gender difference discovered in the final HPV vaccination rate. Among males ($n=521$), there was a 78% final rate and 76% for females ($n=574$), echoing the closing of the gender gap nationwide. 15 patients who previously refused, consented and were vaccinated.

Conclusion: This QI project demonstrated this vaccination tool-kit is an effective way to increase HPV vaccination among adolescents in primary care.

Optimization of Oxytocin Dosing During the Intraoperative Period: Rule of Three's

Xuan Hanh Lam

Problem and Purpose: Due to the lack of national guidelines for intraoperative oxytocin administration, anesthesia providers utilize various oxytocin dosing regimens during cesarean deliveries to attain uterine tonicity and prevent postpartum hemorrhage (PPH). Large, unregulated oxytocin infusions result in high serological levels of oxytocin that cause significant hemodynamic instability. The literature has demonstrated similar efficacy with less adverse side effects when using smaller and regulated oxytocin regimens, like the “Rule of Three’s. The “Rule of Three’s” provides a systematic approach to obtain uterine tonicity through small intravenous oxytocin boluses and an infusion. The purpose of this Quality Improvement (QI) project is to develop a Clinical Practice Guideline (CPG) for intraoperative oxytocin administration among the cesarean population at a tertiary Baltimore hospital.

Methods: The first project phase began with the formation of a stakeholder team to design and formulate a CPG based upon an extensive literature review. The proposed CPG underwent quality review utilizing the AGREE II tool. After preliminary approval from the chief anesthesiologist (MDA), a formal presentation was conducted discussing the CPG and current evidence based oxytocin management. CPG feedback was anonymously collected through the Practitioner Feedback Questionnaire (PFQ) and revisions were made based upon the data collected. Final approval was then received from the chief MDA for institutional use. All data was analyzed using inferential and correlational statistics.

Results: The CPG achieved a 93% rating for overall quality based upon the AGREE II tool, which translates to a high quality CPG that would be recommended for clinical use. The PFQ (n=12) results indicated an overall 80.7% agreement among the questionnaires for CPG’s quality, acceptance of recommendations, applicability of recommendations, comparative value, and outcome variables.

Conclusion: Based upon the AGREE II tool and PFQ results, practitioners regarded the CPG as high quality with a high acceptance of recommendations into clinical practice. Limitations of the QI project includes the resistance from anesthesia providers to change current practice and lack of generalizability. Thus, the next phase of this project includes reducing these institutional barriers to sustain a practice change in order to reduce the incidence of PPH, quantitative blood loss and use of secondary uterotonic agents.

Improving Self-Efficacy in Heart Failure Patients Through Motivational Interviewing

Laura Megan Morrison

Problem & Purpose Heart failure patients account for a large percentage of 30-day readmissions to the hospital which can produce grim consequences for both the institution as well as the patient. On the Progressive Care unit (PCU) at an academic medical center the heart failure readmission rate was close to 29% for fiscal year 2018. Literature supports the use of motivational interviewing (MI) for the improvement of self-efficacy and confidence in completing self-care in patients with HF. By improving self-efficacy patients can more successfully manage their HF at home, thus keeping them out of the hospital and promoting positive outcomes long-term.

Methods In July/August of 2019, 30 patients with HF on the PCU were surveyed using the Self-Care Index of Heart Failure (SCHFI) tool twice during their admission. Once toward the beginning and then again prior to discharge. This was done to evaluate the growth in their confidence level over their inpatient stay. Upon completion, nursing staff participated in hybrid format MI training including both in-person and online components. Participants were surveyed pre- and post-training to measure their MI communication skills. Following the trainings, nursing competency was assessed in MI. In November/December post-surveys were completed for 30 new HF patients on the PCU completed in the same way as the pre-surveys, with the confidence section of the SCHFI tool at two points in their admission. A paired t-test was used to test the significance of improvement.

Results Statistically significant improvement was seen in MI communication skills from pre-training (6.6/10) to post-training (8.6/10) using paired t test ($p=0.0035$). There was also a statistically significant improvement in likelihood to use effective communication skills pre-training (1.8/5) to post-training (2.4/5) ($p=0.0216$). There was statistically insignificant improvement in confidence growth in patients cared for by MI-trained nursing staff ($M=3.77$, $SD=3.65$) ($t=2.99$, $p=0.02$) than pre-MI-trained nursing staff ($M=4$, $SD=2.60$).

Conclusion Reducing readmissions by improving the confidence in HF patients will promote more positive patient outcomes overall. Reducing hospital length of stay and improving the current readmission rate of 29% on the PCU, contributes to a culture of patient safety and high-quality patient care overall.

Enhanced Recovery After Cesarean Delivery Clinical Practice Guideline: Preoperative Interventions

Angel R. Patel

Problem & Purpose: Cesarean delivery (CD) is one of the most common elective procedures performed in hospitals, accounting for approximately 30% of annual births at the facility of interest. This facility has identified the high incidence of postoperative nausea and vomiting, increased infectious morbidity due to surgical site infections, and the irrelevance of fasting restrictions. Enhanced Recovery After Surgery (ERAS) originated as a set of evidence-based interventions for patients undergoing colorectal surgery but has since been embraced by other disciplines. It is a set of perioperative interventions implemented to improve surgical outcomes, optimize patient care, and reduce hospital costs. Thus, standardizing care, increasing satisfaction among parturients, and improving outcomes provided the impetus for adopting ERAS strategies to create an Enhanced Recovery after Cesarean (ERAC) Clinical Practice Guideline (CPG) for parturients undergoing elective CD.

Methods: This CPG was composed through the joint efforts of clinicians caring for parturients at a tertiary medical center in Maryland. It underwent three drafts, with each draft incorporating recommendations from stakeholders during the review process. The CPG was evaluated by the Appraisal of Guidelines for Research and Evaluation (AGREE) II Tool and Provider Feedback Questionnaires (PFQs). Based on a comprehensive review of current literature and appraisal of evidence, this CPG modifies the current traditional practice standards to match those of the evidence-based recommendations.

Results: The CPG was reviewed by stakeholders utilizing the AGREE II tool and by clinical staff utilizing the PFQ. Results from the AGREE II Tool and PFQ show satisfactory scores on the quality and usability of the CPG by staff.

Conclusions: The CPG was well received by staff. The future of the CPG involves education and implementation of the protocol which will optimize outcomes for parturients at this facility.

Increasing Nurse Participation During Interdisciplinary Rounds

Aleta A. Skaanland

Problem and Purpose: Miscommunication between members of the healthcare team plays a major causal role in preventable medical errors, which cause 251,000 deaths annually in the U.S. Hospitals employ interdisciplinary rounds (IDR) to foster teamwork and communication, but nurse participation during rounds frequently remains low. Nurses often perceive lower levels of teamwork than other healthcare professionals, and inadequate collaboration is associated with poor patient outcomes. The purpose of this quality improvement project was redesigning IDR to increase nurse participation in a 16-bed intensive care unit (ICU).

Methods: All ICU healthcare professionals who attended rounds were invited to complete the Safety Attitudes Questionnaire to measure perceptions of teamwork, safety, and communication on a five-point Likert scale. Three additional questions measured satisfaction with rounds. T-tests analyzed differences between nurse and physician responses. Observers recorded nurse participation during rounds at random intervals. During eight weeks of implementation, all nurses presented their patients using structured tools. Following implementation, staff surveys were repeated and t-tests determined differences between disciplines and pre-post scores.

Results: The pre-implementation survey achieved a 91% completion rate (intensivists n=6, residents n=10, and nurses n=32). Nurse teamwork scores were significantly lower than physicians (4.19 vs. 4.54; p=.01). Intensivist satisfaction with rounds (3.39) was significantly lower than both residents (4.23; p=.004) and nurses (4.24; p=.002). After incorporating the structured tools, nurse participation during rounds increased from 3% (224 observations) to 100% (317 observations). Post-implementation survey completion was 92% (intensivists n=9, residents n=12, and nurses n=46). Nurses demonstrated significant increase in interdisciplinary teamwork (4.19 to 4.55; p=.01) and communication (4.21 to 4.53; p=.03), thereby closing the nurse-physician collaboration gap (4.50 vs. 4.55; p=.69). Intensivist satisfaction with rounds increased significantly (3.39 to 4.37; p=.001). Satisfaction also increased for residents (4.23 to 4.49; p=.08) and nurses (4.24 to 4.31; p=.44).

Conclusion: Interdisciplinary rounds cannot be fully achieved without active participation from nurses. Presenting on rounds with structured tools may better empower nurses as active members of the interdisciplinary team. Increasing nurse participation during rounds may reduce the gap in perception of collaboration, reduce medication and other errors, and improve patient outcomes including length of stay and quality of life.

Combatting Alarm Fatigue in An Acute Care Unit

Olawale Wale-Aremu

Problem and Purpose: Hospital nurses are exposed to numerous alarms which can overwhelm the senses and lead to the phenomenon of alarm fatigue. On the medical-surgical floor, telemetry alarms notify bedside nursing staff of cardiac rhythm irregularities. However, many of these alarms are false or in actionable. Interview of unit staff identified the frequency of monitor alarms and calls from monitor techs as a primary source of excess noise and alarm fatigue. This quality improvement (QI) project instituted a practice change by implementing evidenced-based (EB) measures aimed at the reduction of false monitor alarms on an acute care unit. The aim was to reduce the number of calls from the remote monitoring station to reduce alarm fatigue.

Methods: Evidence-based interventions for alarm fatigue included changing electrodes daily and daily review of telemetry necessity. Staff were trained in formal sessions, clinical champions and charge nurses received additional training on their supporting roles. Evidence-based interventions were implemented over six weeks. The number of patients on telemetry was tracked and audits done on electrode change, and patient reviews during daily interdisciplinary rounds.

Results: The results showed a decrease in alarm related telephone calls from remote telemetry station and a slight decrease in nurse fatigue level since the implementation of this QI project. Additionally, a decrease in the number of patients on telemetry was observed through daily review of the need for telemetry. T-tests were used to analyze data.

Conclusion: The use of an evidence-based alarm fatigue tool has shown to positively reduce the number of alarms. It is recommended this tool be used in other units with telemetry capability. In solving the problem of alarm fatigue, nurses have a toolbox of EB recommendations that can assist units in decreasing false alarms from cardiac monitors.