

Background

The emergency department can be challenging for nurse practitioners (NPs) due to the fast-paced and highly stressful environment. With increased demands, such as long shifts, high acuity patients and overcrowding. Physicians completed a survey across the United States with 40% reporting burnout. (Moore, Jr, 2015) These demands have a direct effect on nurse practitioners. NPs are at risk for decreased well being and an increase of stress which leads to burnout in ED NPs.

Purpose

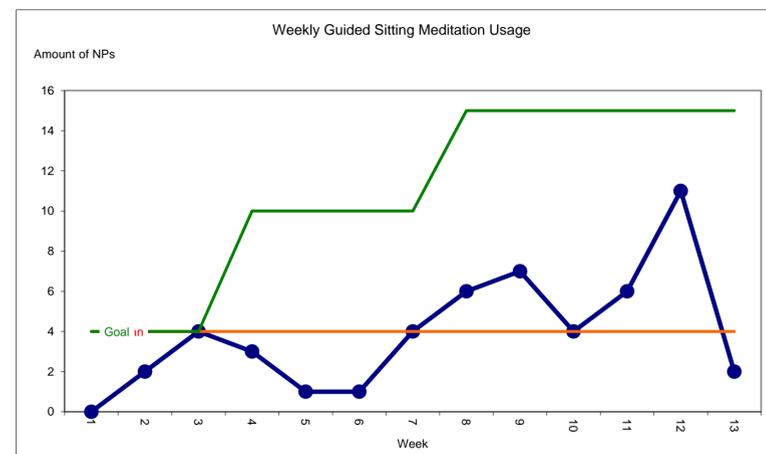
The aim of this DNP project was to:

- Identify burnout in emergency nurse practitioners
- Introduce the skill of mindfulness (guided sitting meditation) so that nurse practitioners practiced 5 days a week for 10 mins a day

Methods

- Quality Improvement project
- Project guided by the theoretical framework, Lewin's Change Theory
- **Population:** Emergency Room Nurse practitioners
- **Setting:** Urban Emergency Department
- **Design:** a pretest/posttest design. Using Maslach Burnout Inventory (MBI) tool
- 4 mindfulness sessions held using a guided sitting meditation MP3 file that was followed.
- NPs were encouraged to practice the guided sitting meditation for 10 mins a day/ 5 days a week independently. –Short term goal
- NPs reported weekly the frequency of use for the guided sitting meditation and the amount of time the intervention was completed.
- After week 13, NPs took the MBI as a post-test to see if the scores of the MBI as a group improved with the use of mindfulness.

Figures



Maslach Burnout Inventory					
	Pre-Intervention Mean	Post Intervention Mean	t	df	p-value
Emotional Exhaustion	25.1	22.9	1.13	34	0.27
Depersonalization	9.9	9.3	0.39	34	0.70
Personal Accomplishment	33.4	33.4	0.41	33	0.41

Results

- 21 NPs participated in the Mindfulness sessions completing the pre-MBI survey while 15 completed the post-MBI survey.
- NPs met the goal of practicing guided sitting meditation 50% of the time.
- Post intervention scores for emotional exhaustion and depersonalization showed a positive decrease when compared to the pre-test MBI scores. Personal Accomplishment scores remained stable at 33.4 for pre and post testing

Discussions

- This DNP project was modeled after the study (Mackenzie, 2006) which showed a decrease in emotional exhaustion after brief mindfulness training however slight modifications had to be done to fit the demands of the emergency nurse practitioners
- An improvement of the post MBI scores was seen showing that mindfulness can have an impact on burnout.
- A limitation to this project was being able to get the nurse practitioners off the clinical floor to attend the mindfulness sessions

Conclusions

- The MBI is feasible and applicable to the ED nurse practitioners for use.
- Emergency nurse practitioners need dedicated and protected time to further their knowledge and skills in mindfulness
- Brief mindfulness can impact burnout scores in a positive way with consistent practice with as little as 10 mins a day, 5 times a week
- Continued education and training is needed to support NPs in their journey of mindfulness

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Problem

- Gynecologic (GYN) surgery is routinely performed each day in the United States
- GYN surgery makes up a large fraction of all surgeries performed at an East Coast community hospital
- Surgery can cause major physiological disruptions
- Barriers to speedy recovery include inadequate pain control, delayed mobility, and postoperative nausea and vomiting (PONV)
- Anesthesia providers sought ways in which hospital length of stay and complications may be reduced in patients undergoing gynecologic surgery

Purpose

- The purpose of the Doctor of Nursing Practice Project is to develop a set of postoperative interventions for enhanced recovery after gynecological surgery
- ERAS pathways were developed with the goal of preserving or expediting the return of normal physiologic function
- This CPG will aid providers in their decision making when providing postoperative care.

Methods

Setting: East Coast Community Hospital

Population: The CPG is intended for use by anesthesia providers of the institution caring for adult GYN patients

CPG creation procedures:

- Literature review was conducted to determine current evidence-based interventions appropriate for the setting
- A CPG was then drafted and presented to the expert panel
- Feedback regarding the quality and usability of the CPG was obtained via the AGREE II tool. Both qualitative feedback and quantitative feedback via a seven-point Likert scale were received
- An updated draft incorporating recommendations from the AGREE II results was presented at an anesthesia department meeting
- Evaluation of the GYN ERAS CPG regarding its providers' attitudes towards the CPG was completed via the Practitioners' Feedback Questionnaire (PFQ).

Results

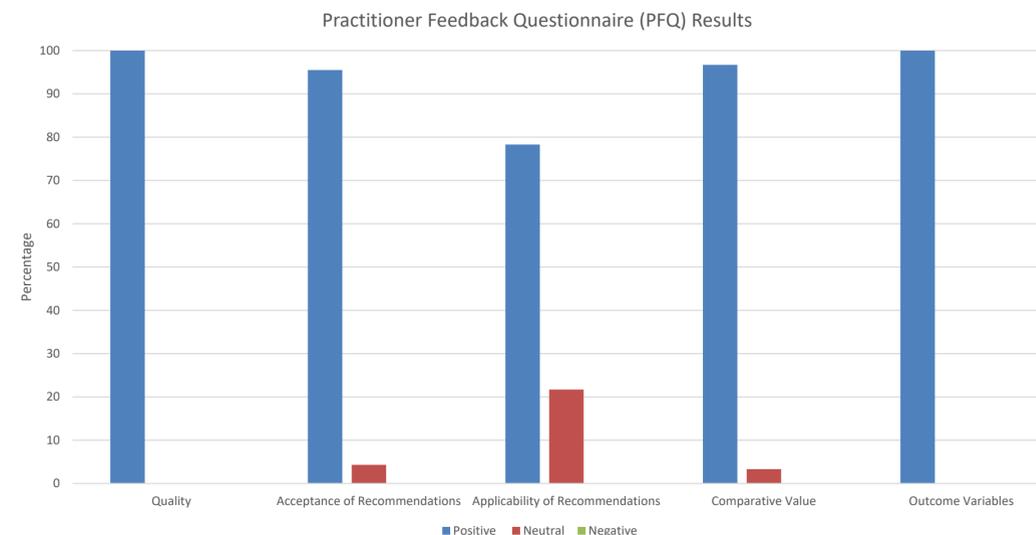
AGREE II Results	
Domain	Score (%)
Scope and Purpose	97.60
Stakeholder Involvement	100
Rigor of Development	89.3
Clarity of Presentation	94
Applicability	92.9
Editorial Independence	91.1

AGREE II

- A total of Four AGREE II tools were completed by the team. The overall calculated domain score was 93.5% which reflects a high grade of quality, ease of use, and sustainability.
- Qualitative data received found the following overall themes: the literature review was strong, and the CPG is well organized, easy to understand, and adaptable to existing workflow.

PFQ

- 15 anesthesia providers were present at the anesthesia department meeting at which the CPG was presented.
- A PFQ was completed and collected from 100% of providers in attendance
- The PFQ revealed positive attitudes towards its use and benefits for patients.



Discussion

- The use of a CPG is a low risk intervention that is both easy to use and cost effective (Johnson et al., 2019)
- Anesthesia providers are accustomed to providing care in a systematic and protocol driven manner. This facilitated the quick stakeholder acceptance of this CPG
- PFQ Results showed approval of the CPG and positive attitudes towards its quality, utility, and adoptability.
 - These results are consistent with successful translation of evidence into practice and sustainability
- Limitations:
 - The scope of this DNP project was limited to the creation and approval of a GYN ERAS CPG
 - The CPG is limited to the care of GYN patients

Conclusions

- Enhanced recovery after surgery guided care facilitate the recovery of surgical patients. These interventions may help decrease hospital length of stay, cost, and complications (Nelson, Kalogera & Dowdy, 2014)
- This GYN ERAS CPG was created to guide anesthesia providers in the provision of evidence-based care.
- The favorable results of the AGREE II Tool and PFQ surveys reflect the high quality of the CPG and positive attitudes of providers towards its use
- Next steps involve the implementation of CPG and possible extension of ERAS CPGs for other specialties

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Acknowledgements

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Implementing Patient Triage Communication, Improving Nurse-Provider Communication and Promoting Safety.

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Background

- Ineffective hand-off communication is a critical patient safety problem (The Joint Commission, 2019):
 - Account for 70% of sentinel events in the healthcare arena.
 - 40% of healthcare team members report problematic handoffs resulted in misinformation.
- National Patient Safety Goals mandate timely, direct communication to the correct person through implementation of communication processes (The Joint Commission, 2019).
- Nurses in the outpatient clinic of an academic medical center use the nursing process to triage patients' symptoms. The lack of a structured communication tool results in messages that are misunderstood or lack valuable information.

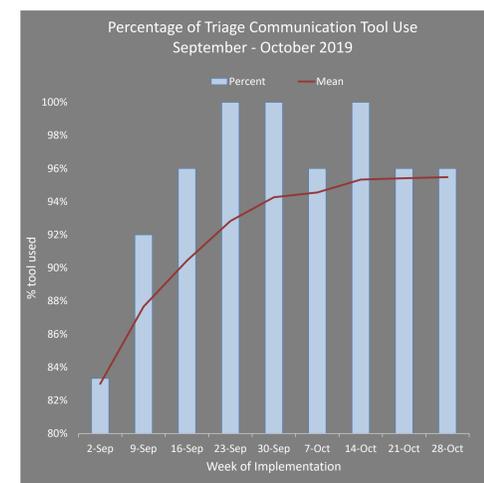
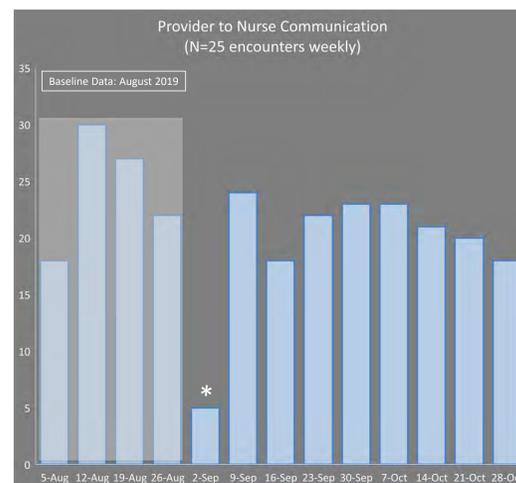
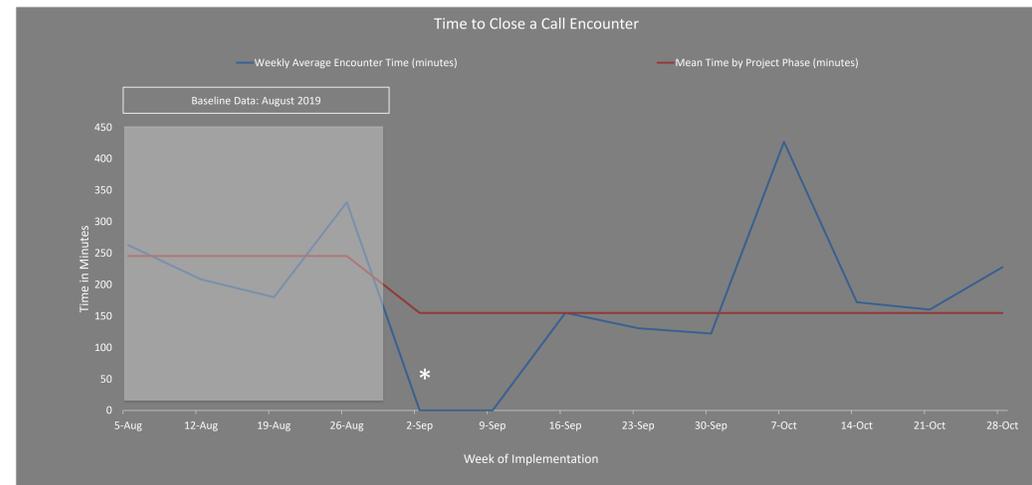
Objectives

- The purpose of this quality improvement (QI) project was to facilitate nurse-provider communication through implementation and evaluation of a patient triage communication tool based upon situation, background, assessment, recommendation (SBAR) methodology in the hospital-based outpatient clinic.
- Short-Term Goals:
 - Educate 100% of triage nurses in the use of the communication tool by week 1.
 - 95% of the triage-provider communication for outpatients under the care of trauma general surgery teams A, B, C, D and ACES will occur on the Situation-Background-Assessment-Recommendation Communication Tool (SBAR-CT) by week 4.
- Long-Term Goals:
 - 100% of triage calls for trauma general surgery teams A, B, C, D and ACES will be complete with one provider response by week 9.
 - Triage calls documented on the SBAR-CT will reduce the open encounter time by 40% by week 9.

Methods

- The SBAR-CT was adapted from SBAR methodology by the clinic leadership in conjunction with the Information Technology leadership.
- This QI project was conducted over 9 weeks.
 - Staff education was completed one week prior to implementation.
 - Safety Attitudes Questionnaire was conducted to assess teamwork and team culture.
 - Baseline data was collected in August 2019.
 - Implementation of the communication tool took place from September 2 thru November 1, 2019.
 - Chart audits were used to evaluate the nurse-provider communication with the SBAR-CT.

Figures



Results

- 100% of triage nurse completed the education training (goal 100%) prior to implementation.
- Safety Attitudes Questionnaire
 - Pre-implementation (n=10): 60% of triage nurses reported a lack of teamwork and 70% reported communication breakdowns.
 - Post-implementation (n=5): 60% of triage nurses reported a lack of teamwork and 40% reported communication breakdowns.
- Short-Term Goals to be achieved by week 5:
 - 93% of triage-provider communication occurred on the tool (goal 95%)
- Long-Term Goals to be achieved by week 9:
 - 100% of triage calls for trauma general surgery teams A, B, C, D, and ACES were completed with one provider response (goal 100%).
 - Time to close the encounter was reduced from an average of 245.5 minutes to 155 minutes (goal 40% reduction: 147.3 minutes).

Discussion

- Ineffective hand-off communication is a critical patient safety problem resulting in delays in treatment and adverse events.
- Implementation of a standardized communication tool led to improved communication between triage nurses and providers resulting reduced time between initial patient call and final care decision and promoting patient safety.
- The findings in this project are consistent with other studies where SBAR methodology improved patient safety outcomes by enhancing nurse-physician communication and created a common language for key patient information (Beckett & Kipnis, 2009; Stewart & Hand, 2017).
- Limitation to the QI project:
 - The loud environment led to difficulty understanding the caller and increased call times.
 - EHR issues during week 1 of implementation (9/2) resulted in the inability to use the SBAR-CT. Data collection was limited.
 - The clinic's use of a primary triage nurse resulted in other nurses being unfamiliar with the tool when needed to perform triage.
 - The triage process could not be defined due to external variables, i.e., messages that lack clarity or volume of calls.
- The participants in this QI project were a convenience sample of triage nurses from the outpatient clinic within an academic medical center. Findings are not generalizable to other settings.

Conclusions

- The Safety Attitudes Questionnaire suggests the SBAR-CT reduced communication breakdowns (70% pre-implementation to 40% post-implementation).
- The 93% use of the standardized communication tool and 100% of calls completed with one provider response suggests that the tool was easy to use and provided clear, concise communication.
- Standardizing the triage nurse-provider communication not only improves team communication but is essential in improving patient outcomes and decreasing hospital readmissions.

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Medical Clearance Algorithm for Adult Behavioral Health Patients in the Emergency Department

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Background

Patients with psychiatric symptoms receive medical clearance in the emergency department (ED) to identify medical conditions which may be contributing to the psychiatric condition or which may require emergent treatment.

(Chennapan et al., 2018)

Diagnostic testing is indicated when specific conditions are revealed on a comprehensive history and physical (H&P), but patients may receive unnecessary testing, which can:

- Delay admission to specialized care
- Contribute to ED over-crowding
- Increase length-of-stay in the ED
- Increase healthcare costs
- Increase wait times for all patients.

(Anderson et al., 2017, Wilson et al., 2017)

Purpose of Project

- To implement standardized, algorithm-driven medical clearance procedures for patients presenting with psychiatric chief complaints to an ED in a small community-based hospital in a rural Maryland county.
- To reduce unnecessary or duplicative medical clearance testing in the ED; and
- To reduce the amount of time it takes for patients to be admitted for specialized care in the inpatient behavioral health unit.

Short- and Long-Term Goals

Short-term:

- Documentation that the new algorithm-based clearance procedures were utilized.

Long-term:

- Documentation of at least a 30% decrease in length-of-stay (triage time to disposition time) for patients with psychiatric symptoms presenting to the ED.

Safety Goal:

- Implement the new medical clearance procedures without negatively impacting patient safety.

Methods

- **Time from triage to disposition decision:** Collected time in minutes over a 3-week baseline and 8-week implementation period.
- **Algorithm checklist:** Used to track presenting symptoms, significant clinical findings from the H&P, and disposition type (Figure 1)
 - Discharge without admission;
 - Admission to the inpatient behavioral health unit (BHU);
 - Admission to a medical unit; or
 - Transfer to another behavioral health program.
- **Safety Balancing Measure:** Medical unit transfers within 72-hours of admission to the BHU were tracked to determine whether the algorithm-based protocol might have missed an important medical condition.

Results

Type of Disposition: Of patients evaluated with the algorithm:

- 53.7% were discharged home
- 32.3% were admitted directly to the BHU
- 4.3% were admitted to a medical unit
- 9.8% were admitted to another BH program.

No significant increase in time from triage to disposition decision:

Non-significant increase of 9.5 minutes ($t = -0.25$; $p = 0.81$) from baseline (320.4 min., $SD = 236.4$) to implementation period (329.9 min., $SD = 234.4$).

Algorithm checklist:

- **Baseline:** All or most patients received laboratory testing
- **Implementation:** 37.7% of patients received no laboratory testing.

Safety measure to rule out unintended consequences:

One patient (1.9%) admitted to the BHU required a transfer to a medical unit for a medical condition (delirium) within 72 hours

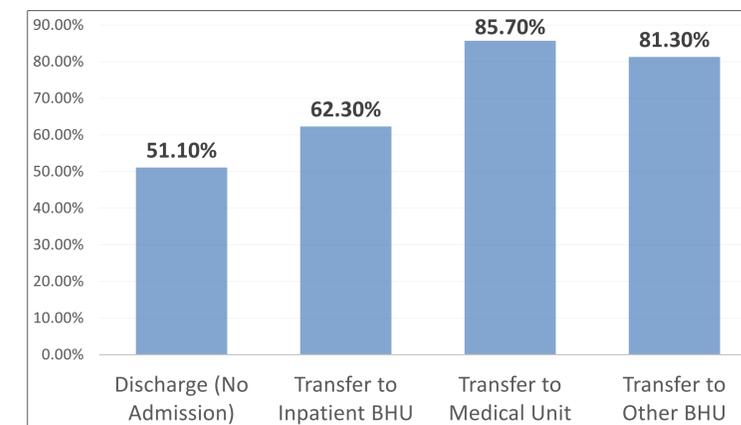


Figure 2. Lab draws per disposition type

Discussion/Conclusions

Algorithm did not appear to compromise patient safety

- Only one (1) of 53 patients (1.9%) required transfer to a medical unit within 72 hours after admission to the BHU
- Patient with delirium not detected in the ED
- 3rd day of implementation (providers adjusting to new protocol)
- ED and BHU Physicians discussed in Peer Review Committee
- Use of the algorithm would have prompted lab draws in the ED prior to admission (age >65 years)

Lower rates of blood draws for patients discharged or transferred to same hospital's inpatient BHU

- Patients being discharged: 51.1%
- Transferred to same hospital's inpatient BHU: 62.3%
- Transferred to a medical unit: 85.7%
- Transferred to different hospital's BHU: 81.3%

Providers favored the practice change and believed it to be safe and acceptable

Limitation: Did not collect data for lab draws and patient presentation during baseline period.

References

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Medical Clearance Algorithm

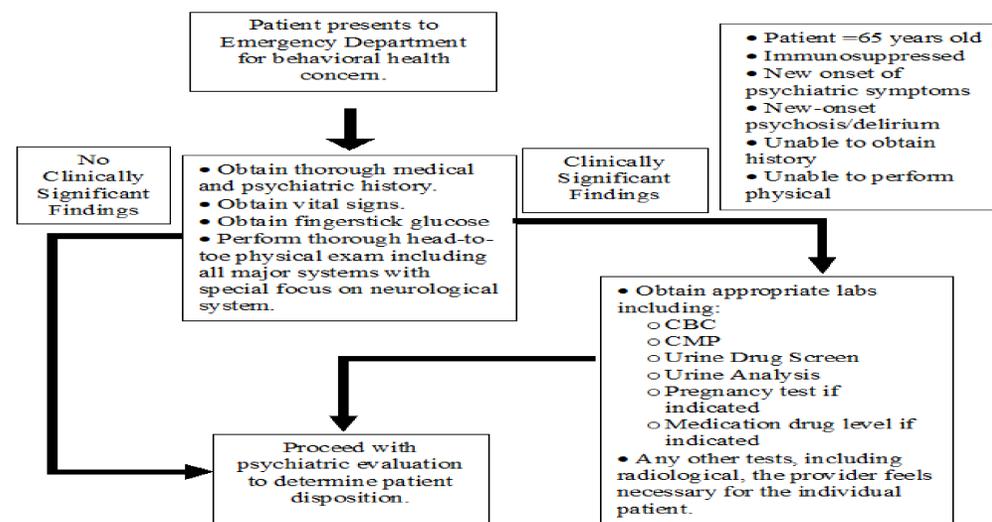


Figure 1. Medical Clearance Algorithm

Stopping Elderly Accidents, Deaths, and Injuries: Fall Prevention for Community-Dwelling Older Adults

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Background

Problem: Lack of routine fall screening and prevention increases older adults' risk for future falls.

- Falls are the leading cause of death due to injury among older adults in the United States.¹
- Most older adults do not report falls to their primary care provider,² and are likely to fall again.
- The Centers for Disease Control and Prevention (CDC) recommend annually screening older adults for falls followed by a risk assessment and individually tailored fall prevention plan to prevent future falls.³
- Fall prevention measures consistent with the CDC's Stopping Elderly Accidents Deaths and Injuries (STEADI) protocol can reduce the number of falls, injuries, and hospitalizations in community-dwelling older adults.

Purpose/Goals

Purpose: A quality improvement project to implement the CDC's fall prevention STEADI protocol in primary care.

Short term goals:

- 80% of positively screened patients will receive the Timed-Up and Go (TUG) test
- 80% of patients at moderate- or high-risk for falls will receive a risk assessment checklist and fall plan of care (FPOC)
- 80% of patients will have correct fall-risk identification
- 80% average overall protocol adherence score

Long term goal: Overall reduction in number of falls at one year follow up.

Methods

Setting: Small east coast primary care office

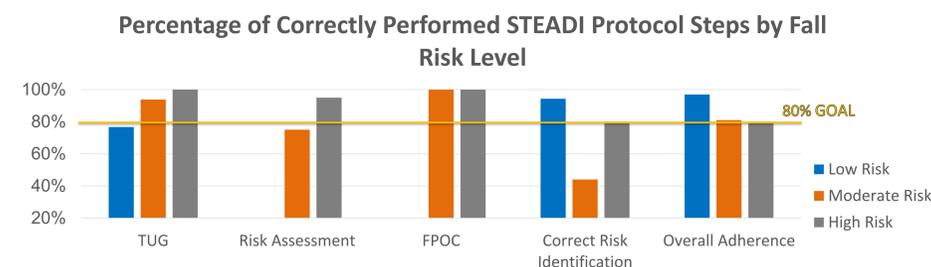
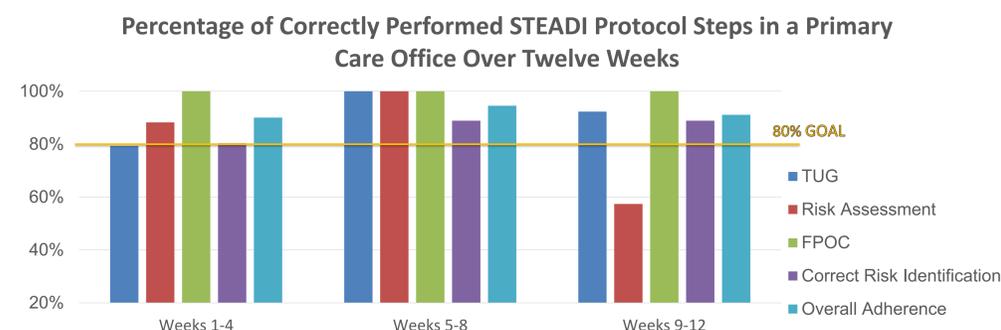
- STEADI resources were adapted into a STEADI packet for patient documentation and data collection.
- An exercise resource guide identified fall prevention exercise programs and community resources.
- STEADI fall prevention brochures were made available to older adult patients.
- Staff were trained in STEADI prior to implementation and during a mid-project reinforcement period.
- One-on-one packet reviews conducted with staff monthly to identify barriers to implementation and reinforce protocol adherence.

STEADI Protocol³

- All older adults screened annually for falls: 1) Did you fall in the past year (How many times and were you injured)? 2) Do you worry about falling? 3) Do you feel unsteady when walking or standing?
- Yes to any question = positive screen and warrants TUG test

Fall Risk Level	Correct Identification	STEADI Intervention
Low	No falls OR 1 fall (no injury) & normal TUG	Provide fall prevention brochure Follow-up screen in 1 year
Moderate	No falls OR 1 fall (no injury) & abnormal TUG	Appropriate risk assessment checklist components Address risk factors in FPOC & exercise referral Follow-up screen in 1 year
High	2 or more falls OR 1 fall with injury	Complete full fall risk assessment checklist Address risk factors in FPOC & exercise/PT referral 30 day follow-up, re-screen 1 year

Figures



Results

- Majority of patients screened positive for falls (54%), of which 91% indicated concerns about falling or feeling unsteady when walking or standing.
- 80% goal was met for patients with a FPOC, correct fall risk identification, and overall protocol adherence scores; however rates varied by risk level.
- Positively screened patients with the TUG overall improved to above goal in the second and final time interval.
- Moderate-risk patients with a fall risk assessment remained above goal in the first two time intervals, and dropped in final interval despite all having a FPOC.

Discussion

- A majority of STEADI goals remained above 80% or improved with continued training.
- Identifying moderate-risk patients was most challenging.
- All moderate- and high-risk patients received a FPOC to prevent falls, although risk assessments for the moderate-risk group dropped below goal in the final time interval.
- Adherence rates were complicated by fall-risk level supporting the 2019 protocol change to remove the three-tier classification.

Limitations:

- Cannot determine if participants adhered to FPOC recommendations.
- Too early to draw conclusions regarding efficacy of STEADI fall prevention interventions in reducing falls.

Conclusion

- Falls among older adults are common, fatal, under-reported, and preventable with tailored fall-risk interventions and fall prevention exercises.
- The CDC's STEADI protocol can be successfully implemented in primary care to screen older adults for falls, address fall-related risk factors, and refer to community exercise resources.
- Continuous staff reinforcement & education is necessary to ensure correct STEADI protocol adherence and sustainability.

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Acknowledgements: Malarie Burgess, EP-C, Exercise Specialist

Cranial Electrical Stimulation in an Outpatient Pain Management Clinic

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Background

- ❖ Managing chronic pain has become more complex and challenging in recent years.
- ❖ Over reliance on opioids to treat chronic pain and the current national epidemic of opioid addiction and overdose deaths have contributed to growing clinical interest in non-pharmacologic adjunct treatment modalities for chronic pain management²
- ❖ Research supports the use of non-pharmacologic adjunct treatment options for chronic pain management in the health care setting¹
- ❖ Cranial electrical stimulation (CES) is one such non-pharmacologic treatment modality with evidence to support its potential as an adjunct therapy to treat chronic pain and anxiety³



Objectives

The purpose of this quality improvement (QI) project was to implement the use of CES as an adjunct treatment therapy for chronic pain and anxiety to an urban outpatient pain management clinic.

Short term goal: Selected outpatient clinic staff will be 100% trained and proficient in the administration of CES treatment to improve implementation of the CES protocol to clinic patients.

Long term goal: 70% of clinic patients who receive CES treatment during the visit with staff psychologists will complete patient satisfaction survey.



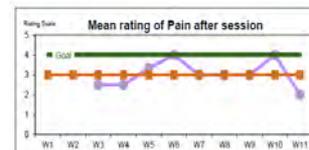
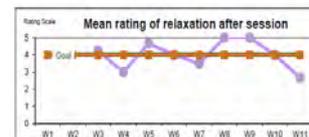
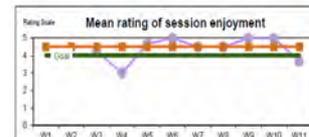
Methods

- ❖ Program site was an adult out-patient pain management clinic located on the grounds of an urban inpatient rehabilitation and orthopaedic facility.
- ❖ Selected outpatient clinic staff were trained in proper administration of CES based on established hospital policy protocol in use for the inpatient population. Training took 45-minutes.
- ❖ CES uses a micro-current waveform that modulates pain signals along the sensory nerve pathway, thus reducing pain of various origins. CES is a safe, feasible, non-pharmacologic treatment for general pain and anxiety³
- ❖ The device used to administer CES was Alpha-Stim AID.
- ❖ Patients were identified by clinic staff psychologists and received the 20-minute treatment during individual therapy sessions.
- ❖ CES audit sheets were collected weekly for 11- weeks to document the number of patients who received information on CES treatment and the number of patients who received CES treatment. Also, patient satisfactions surveys were distributed to patients after treatment.

Results

- ❖ Two clinic staff psychologists and the clinic manager were each provided CES education and trained in the administration of CES during one 45-minute session.
- ❖ Thirty-one patients received CES information sheet and twenty-seven patients received CES treatment.
- ❖ 74% of patients who received CES treatment also completed the patient satisfaction survey.
- ❖ Patient enjoyment with CES averaged 4.5 on a 5-point Likert scale (90%).
- ❖ Patient relaxation averaged 4.0 on a 5-point Likert scale (80%).
- ❖ Patients' change in pain after CES treatment did not reach the intended goal of 4.0 on a 5-point Likert scale (80%).

Figures



Legend: Values (purple line), Goal (green line), Median (orange line)

Discussion

- ❖ Training staff in CES implementation required minimal time.
- ❖ The results of CES enjoyment and relaxation after treatment lend support to findings from the current literature.
- ❖ Patients' changes in pain ratings after CES for this QI project were not significant and did not support the literature findings.
- ❖ Clinic logistical constraints were barriers to treatment frequency and availability compared to the in-patient environment.

Conclusions

- ❖ CES is a feasible and safe adjunct treatment option in an outpatient pain management clinic.
- ❖ Sustaining practice change will require training more clinic staff, purchasing units for clinic use, and allowing units to be checked out for self-administered treatment at home.
- ❖ To elicit change in pain, frequency of treatment must be increased as supported by the literature findings.

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Universal Suicide Screening in a Pediatric Gastroenterology Outpatient Clinic

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Background

- Suicide is the second leading cause of death in young people ages 10-24 in the United States.
 - 1 in 5 teens seriously consider suicide.
 - 2 million young people attempt suicide every year.
 - 90% of attempts are unknown by parents.
- The Joint Commission issued a sentinel event recommending healthcare providers screen all patients for suicide at every encounter.
- Universal screening is a key strategy in suicide prevention for the pediatric population.
 - Screening for suicide does not put ideas of suicide into a patient's head.

Objectives

The purpose of this QI project is to:

- Implement an evidence-based suicide screening tool for patients 10-21 years old in a pediatric gastroenterology (GI) outpatient clinic.
- Identify patients at risk for suicide and refer for further evaluation and treatment.

Methods

- The Ask Suicide-Screening Questions (ASQ) Screening Tool was designed for pediatric patients and has 96.9% sensitivity, 87.6% specificity, and 99.7% negative predictive factor among medical patients.
- Implementation of screening with ASQ tool for all patients 10-21 years old in pediatric GI clinic unless:
 - Parent/guardian refuses
 - Patient is unable to answer questions due to developmental delay
- Education and training for GI clinicians
- Screening Process:
 - Patient screened with ASQ tool by clinic social worker, and results entered into electronic medical record (EHR) by provider.
 - ASQ risk stratification determines next step:
 - Negative: No further action needed
 - Non-Acute Positive: Potential risk identified. Complete brief suicide safety assessment (BSSA) to further evaluate patient's risk. Safety plan created with appropriate referral and follow up.
 - Acute Positive: Imminent risk for suicide. Patient requires emergent psychiatric evaluation.

ASQ Screening Tool

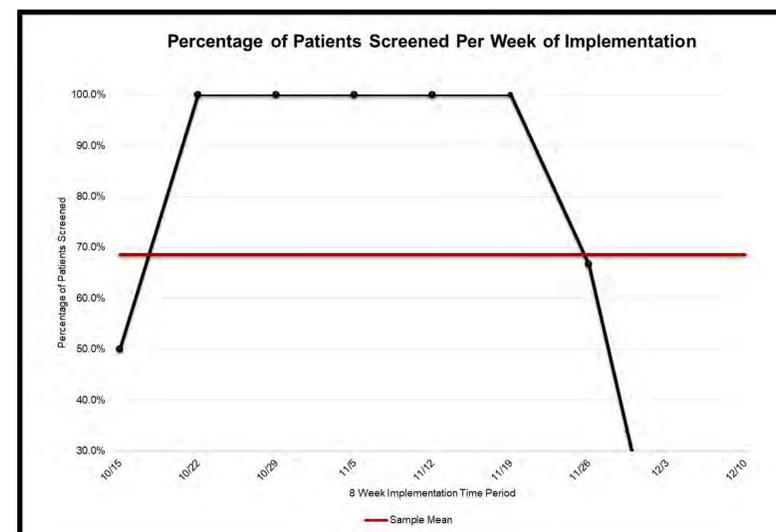
1. In the past few weeks, have you wished you were dead?
2. In the past few weeks, have you felt that you or your family would be better off if you were dead?
3. In the past week, have you been having thoughts about killing yourself?
4. Have you ever tried to kill yourself? If yes, how? When?
If the patient answers yes to any of the above, ask the following question:
5. Are you having thoughts of killing yourself right now?

Negative: "No" to Questions 1-4

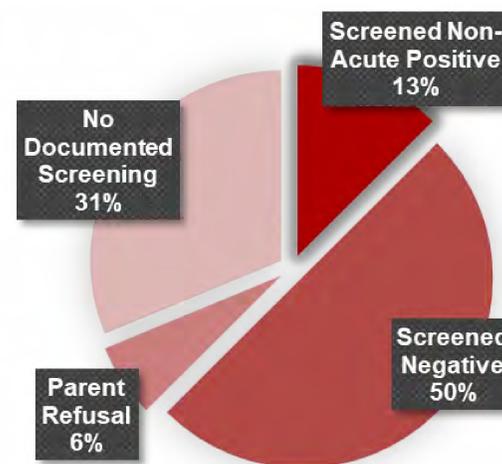
Non-Acute Positive: "Yes" to any of Questions 1-4, "No" to Question 5

Acute Positive: "Yes" to Question 5

Figures



ASQ Screening Results (n=16)



Results

- 3 clinicians in clinic were trained and self-reported competency with the ASQ screening tool and BSSA (100% compliance).
- 100% of patients were screened during first 5 weeks of implementation but dropped to 33% during the final 3 weeks.
- Demographics of screened patients (n=10):
 - 10-20 years old ($\bar{x} = 14$), 60% male, 50% African American
- Characteristics of potential risk patients (n=2):
 - 14 and 16 years old
 - Identified as non-acute positive risk because of previous suicide attempt(s)

Discussion

- Previous suicide attempt (Q4) reveals patient's history of acquired capacity to attempt suicide
 - Helps clinician predict which patients are at risk for suicidal behaviors in the future
 - Safety planning is crucial for mitigating risk
- Strengths
 - Willingness of clinicians to embrace practice change
 - Expertise of social worker
- Limitations:
 - Social worker did not have EHR access resulting in an added step for documenting screening results

Conclusions

- Suicide screening in the outpatient specialty clinic is feasible and worthwhile – 20% of patients found to be at risk and were referred to mental health resources.
- Future QI projects:
 - Spread implementation to other subspecialty clinic settings
 - Improve EHR documentation process
 - Inform primary care provider of screening results

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Problem Statement

- Hemorrhage causes 30 to 40% of trauma deaths, and is the leading preventable cause of death following an injury
- Complex coagulopathies may potentiate traumatic hemorrhage in up to one-third of trauma patients
- Standard methods of assessing coagulopathies are time-consuming and misapplied
- Goal-directed resuscitation strategies with rapid thromboelastography (rTEG) optimize outcomes of severely injured trauma patients by targeting coagulation deficiencies
- In current unit, rTEG is under utilized due to lack of knowledge and resources

Purpose

Evidence-based quality improvement (QI) project to facilitate the process of goal-directed hemostatic resuscitation in trauma patients by protocoling the use of an algorithm for rTEG-guided hemostatic resuscitation during massive transfusion events (MTE).

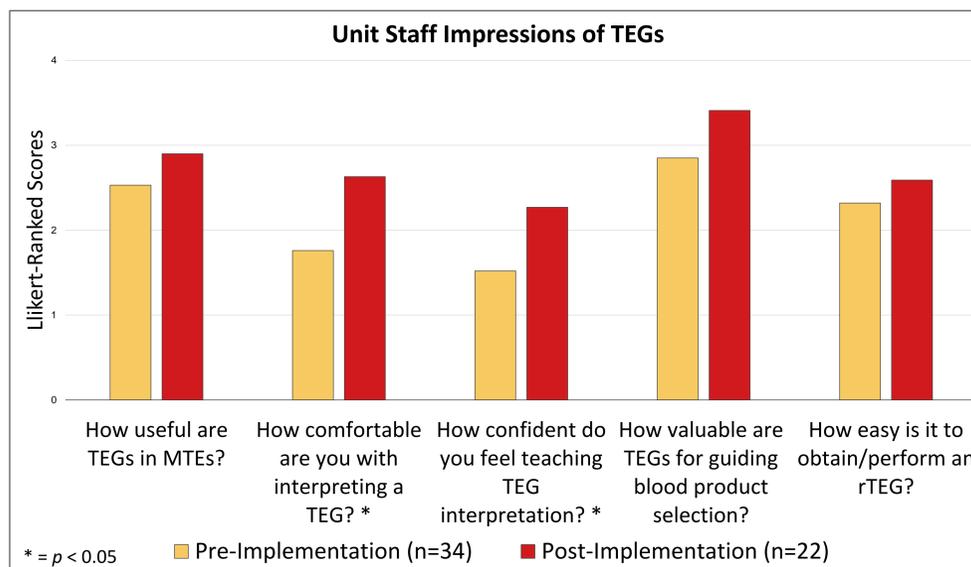
- Short term goal: 66% of staff will correctly interpret normal rTEG values
- Long term goal: Every MTE will utilize rTEG values and algorithmic treatment when appropriate for the patient

Methods

- Admitting trauma unit; Level I academic medical center
- 8-week implementation; September - October 2019
- Inclusion: Adult trauma patients with a MTE; Exclusion: No MTE
- Implementation Procedures:
 - Massive Transfusion Protocol for Trauma algorithm adapted to guide provider selection of hemostatic products during MTE
 - Collaboration with blood bank, laboratory, point of care (POC), nursing and trauma technicians to run rTEG with each MTE
 - Multi-modal educational resources for rTEG interpretation provided throughout implementation
 - Structures and processes affecting workflow practices for rTEG integration addressed (document scanner; electronic order)
 - Total number of blood products given during MTEs were compared to 2018 MTE data set using unpaired t-tests.
 - Staff perceptions of rTEG value assessed before and after implementation of algorithm, compared using unpaired t-test

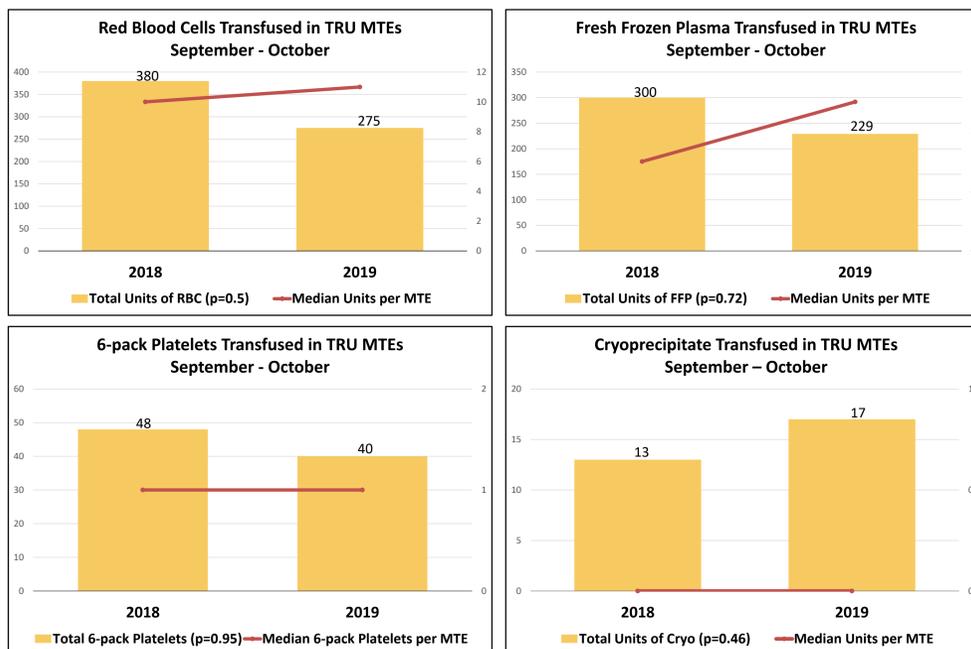
Results

- Overall increase in staff valuation of utilizing rTEGs in MTEs ($p=0.005$)
 - Significant increase in comfort with rTEG interpretation ($p=0.002$) and confidence in teaching others to interpret rTEGs ($p=0.04$)



	Sept-Oct 2018	Sept-Oct 2019
Total MTEs	27	23
Total rTEGs run	8	5

- No significant difference between units of product in 2018 and 2019
 - Increased ratio of cryoprecipitate to number of MTEs



Discussion

- This QI project offers preliminary considerations for methods of implementation and application of rTEG in a trauma setting
- Multi-modal education and readily accessible resources for rTEG interpretation likely improved staff confidence and may be valuable methods for simplifying this complex diagnostic
- Consistent with Prat et al.'s (2017) findings, increased volumes of CRYO were administered in the implementation period, despite having less total MTEs than the comparison. This may be due to increased emphasis and unit-based education on goal-directed hemostatic resuscitation during implementation phase.

Barriers: Truncated data collection due to limited supplies; understaffing; loss of key stakeholders; multi-disciplinary regulations

Limitations: Length of implementation; small number of rTEGs run; low survey response rate

Conclusions

Strategic education and use of a systematic algorithm to guide rTEG interpretation have a positive effect on nurses' comfort level and advocacy for rTEGs, and should be utilized when establishing a unit-based process for rTEG.

With extensive interdisciplinary and interdepartmental collaboration required for a POC rTEG process, a designated process champion role may facilitate communication and better address barriers to achieve optimal patient care.

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