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Clinical Practice Panel: Stand by Me: Using an Enhanced Recovery After Surgery (ERAS) Checklist to Guide Early Mobility of Postoperative Craniotomy Patients on a Progressive Care Unit

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Stand by Me: Using an Enhanced Recovery After Surgery (ERAS) Checklist to Guide Early Mobility of Postoperative Craniotomy Patients on a Progressive Care Unit

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Providence Little Company of Mary Medical Center Torrance

Background and Problem Identification

Craniotomy is a high-risk procedure with high hospitalization cost, high incidence of complications, and long hospital stay.

The standard of care for postoperative care following craniotomies has historically been ICU admission.

Recent literature interrogating complications and interventions during this postoperative ICU stay suggests that all patients may not require ICU level of care.

Developing clinical checklists and associated tools and using them effectively all help to create a culture of safety, one in which all patients receive high-quality, high-reliability, and ever-improving care (Moffatt-Bruce et al., 2017).



Pacific Neuroscience Institute South Bay Neurosurgery

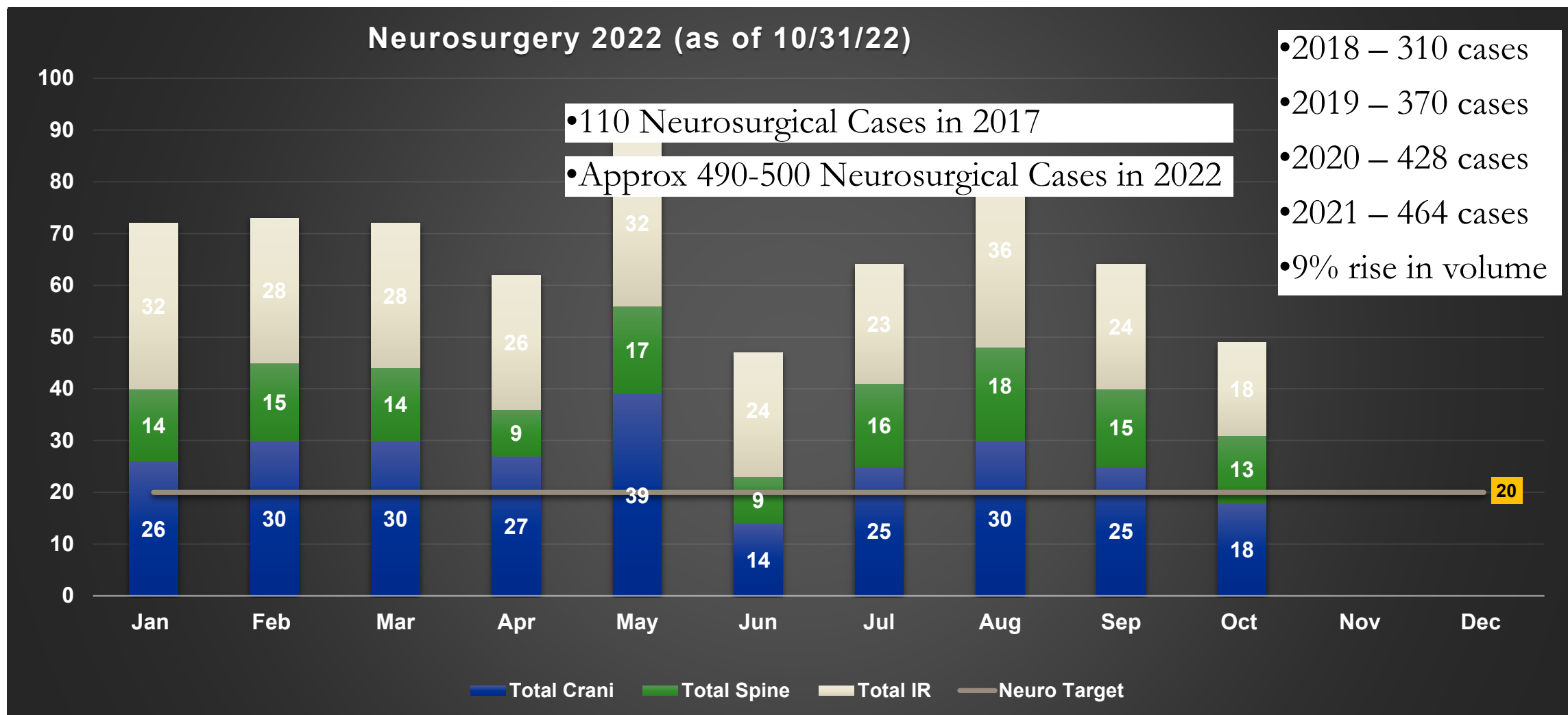


Table 1 Pacific Neuroscience Institute South Bay Neurosurgical Case Report 2022

Bedrest Complications

Major reductions in hospital length of stay (LOS), care costs, and postoperative pain as well as overall complications can be achieved through the application of protocols for enhanced recovery (Stumpo et al., 2021).

COMPLICATIONS OF BEDREST

RESPIRATORY

Increased risk of:

- Pulmonary Infections
- Pulmonary Embolism

CARDIOVASCULAR

Increased risk of:

- Deep Vein Thrombosis
- Orthostatic Hypotension

MUSCULOSKELETAL

Increased risk of:

- Loss of muscle strength
- 1-3% loss of muscle mass/day
- Contractures
- Reduced endurance



PSYCHOSOCIAL

Increased risk of:

- Depression
- Anxiety
- Confusion
- Loss of self-esteem

BOWEL AND BLADDER

Increased risk of:

- Incontinence
- Urinary Tract Infection
- Constipation

SKIN

Increased risk of:

- Pressure injuries

What is Enhanced Recovery After Surgery (ERAS)?



A multimodal perioperative care pathway designed to achieve early recovery for patients undergoing major surgery.



First proposed by Kehlet (1997) and is now widely used in various surgeries.



Patient-centered and evidence-based.



Reduce the patient's surgical stress response, optimize their physiologic function, and facilitate recovery.



Literature Review

Enhanced recovery after surgery - ERAS in elective craniotomies-a non-randomized controlled trial

(Elayat et al., 2021)

Adapted the ERAS protocol to a neurosurgical setting

Feasibility and benefits in early discharge from the ICU

Better pain and blood sugar control postoperatively

Early mobilization in neurocritical care patients

(Kumar et al., 2020)

Early ICU mobilization in medically critically ill patients

Decrease ICU and hospital length of stay

Increase discharge-to-home

Reduce medical costs

The benefits of implementing an early mobility protocol in postoperative neurosurgical spine patients

(Rupich et al., 2018)

Quality improvement initiative in a neuroscience and orthopedics unit

9-hour reduction in LOS in neurosurgical spine patients who underwent lumbar laminectomies

Allowed nurses more autonomy in patient care.

Catalyst for patient involvement in their postoperative mobility

Enhanced recovery after surgery strategies for elective craniotomy: A systematic review

(Stumpo et al., 2021)

Systematic literature review

Application of protocols for enhanced recovery

Major reductions in hospital length of stay (LOS), care costs, postoperative pain, and opioid consumption

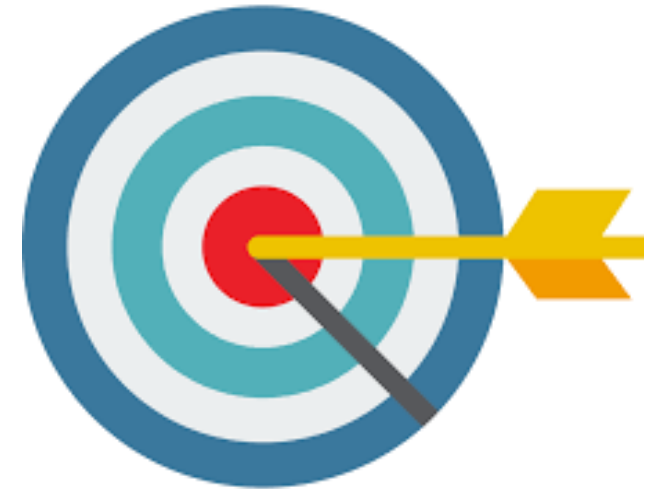
Purpose/Aim

Purpose:

- To develop, implement, and evaluate the effectiveness of an Enhanced Recovery After Surgery (ERAS) checklist on elective postoperative craniotomy patients in the progressive care unit (PCU).

Aim:

- Increase the average number of patients ambulating during the first 24 hours of their postoperative stay in the PCU by 80%.
- Decrease overall hospital length of stay (LOS) within a 12-week study period.
- Educate and empower nursing staff to initiate the ERAS protocol independently and incorporate it in their practice.



Methods/Approach

Quality Improvement Project

Study population and setting:

- Elective post-operative craniotomy patients admitted directly to PCU
- 33-bed Progressive Care Unit
- Providence Little Company of Mary Torrance

Study period:

- 12-week period (July 1, 2022, to September 30, 2022)



Pre-implementation











ERAS Checklist was created.

Post-Op Day 0	Post-Op Day 1	Discharge
<ul style="list-style-type: none"> ✓ Release all orders upon arrival to floor. ✓ Neuro checks Q2H until PM rounding and will decrease to Q4H to allow for sleep. ✓ Assess incision site with neuro checks. ✓ Ensure that the around-the-clock Tylenol/Ibuprofen are given as scheduled and maintain cold therapy to incision site to reduce the need for narcotics. ✓ If SBP is elevated above ordered parameters, notify MD/NP/PA for medication orders if not in signed/held (if Nicardipine wasn't started in PACU). ✓ Mobility orders will be in place and PT/OT will be ordered. Perform a Quick Mobility Screen and ambulate the patient ASAP. PT/OT clearance is not needed to ambulate the patient and they may be unable to evaluate the patient the same day. ✓ If there is a concern, assist patient with standing, marching in place, performing leg pumps, etc. and continue to stimulate them. If family is in the room, involve them to help encourage and motivate the patient to ambulate. ✓ If the patient is still groggy and unable to mobilize or refuses, notify the neurosurgery team. ✓ Patient should only be in bed while napping/sleeping. ✓ Does the patient have any special needs (HD, pacemaker turned off for MRI)? ✓ Any anticipated DC needs? Try to address early. ✓ Post-op imaging (MRI, VAS BLLE). 	<ul style="list-style-type: none"> ✓ Neuro checks Q4H. ✓ Assess incision site with neuro checks. ✓ Ensure that the around-the-clock Tylenol/Ibuprofen are given as scheduled and maintain cold therapy to incision site. ✓ Continue to mobilize, should only be in bed while napping/sleeping. ✓ PT/OT ✓ Clarify any discharge needs and discuss during rounds or directly with case manager. ✓ Cleared by medical team > Discharge. ✓ Have patients look in mirror and/or take a picture before they DC so they are aware of what the incision looks like as a baseline. 	<p>Follow up appointment in AVS, DC meds from pharmacy, DC teaching.</p> <p style="text-align: center;">EXPECTED</p> <p>Be aware of the patient's presenting symptoms and why they were first evaluated by neurosurgery. They may continue to have those presenting symptoms up to 72 hours post-operatively.</p> <p>Some nasal drainage/bleeding is expected in the endonasal approach patients. Review orders for drainage collection details if necessary.</p> <p style="text-align: center;">COMPLICATIONS</p> <p>Complications are rare but the most common complication is stroke followed by worsening vision. Notify neurosurgical team for any changes in level of consciousness, slurred speech, unilateral numbness or weakness, changes in vision, or changes in balance.</p> <p>If unsure and/or emergent, call an RRT.</p>

Quick Mobility Screening for Safe Patient Handling

Prior to moving or mobilization, patient screening must be completed.

Every patient,
Every shift,
Every time!

Quick Mobility Screen				
Patient Action	Patient Instruction	Mobility Classification	Equipment	
Bed Mobility  Scoot  Roll	"Can you move yourself up / scoot sideways or roll over to the side?" — No	Needs Assistance with Bed Mobility Continue to seated balance with either yes or no answer.	Ceiling Lift with Repositioning Sling Slide tube or sheets < 250 lbs. Air Assisted Transfer Device (Example: HoverMatt >250lbs.)	
Seated Balance:  Good Balance  Failed Balance	"Can you sit on the edge of the bed by yourself, hands in lap?" - Hold for 10 seconds.	No → Max Assistance / Dependent Yes	Ceiling Lift / Seated Sling + Floor Lift / Seated Sling	
Must have gait belt on for screen.	Sit to Stand:  Bears weight	Gait belt on; stand to side of patient. "Can you stand up? Nose over toes." Caregiver uses less than 35 lbs. of force to assist. May use assistive device: Walker Cane other	Can weight bear on at least one leg and can use arms. No → Moderate Assistance Yes	 Sit to Stand Device
	Standing Balance: 	Gait belt on; stand to side of patient. "Can you stand and balance?" 10 seconds Caregiver uses less than 35 lbs. of force to assist. May use assistive device: Walker Cane other	No → Minimum Assistance Yes	 Stand and Raise Aids
	March in Place: 	Gait belt on; stand to side of patient. "Can you march in place?" 10 steps May use assistive device. Caregiver assistance required Caregiver assistance NOT required	No → Supervision / Independent Yes	 Use Gait Belt with patients who are not Independent.

Revision 2: 1-2016

Pre-implementation

Baseline Data Collection

PCU Brain Day (Figure 1 & 2)

Caregiver education on ERAS checklist

Quick Mobility Screening Tool

Inservice on Mobility Equipment, i.e. cardiac chair (Figure 2)



Figure 1 Brain Day



Figure 2 Brain Day



Figure 3 Cardiac Chair

Post-implementation



Data collection



Daily chart audits



Follow-up coaching with caregivers



Resource binder and ERAS Craniotomy brochure (Figure 1 & 2)

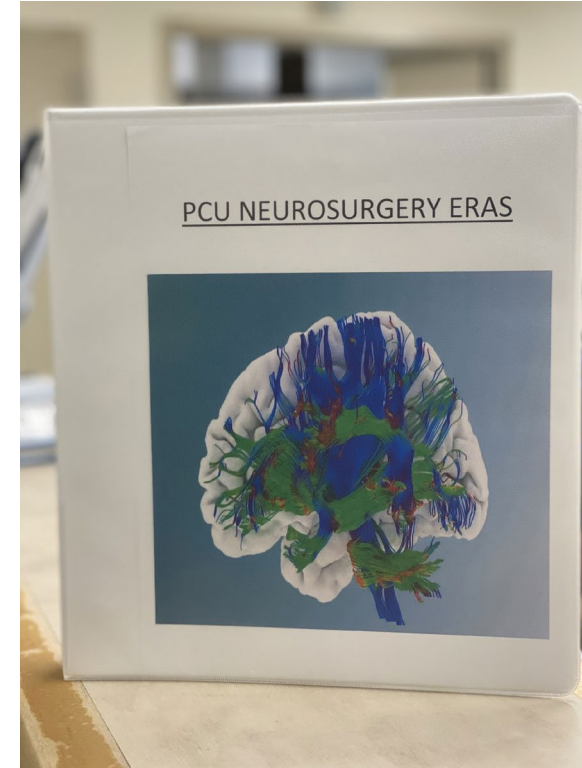


Figure 1

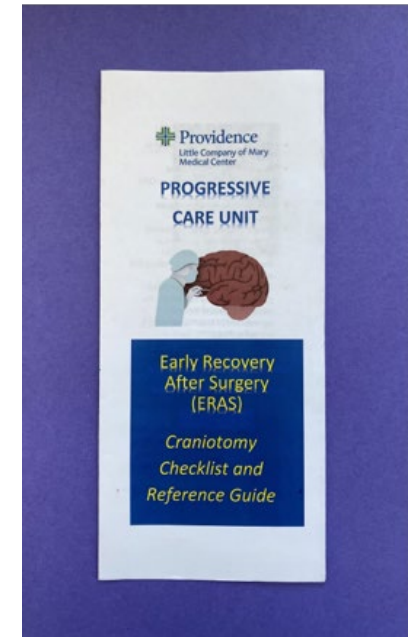


Figure 2

Results

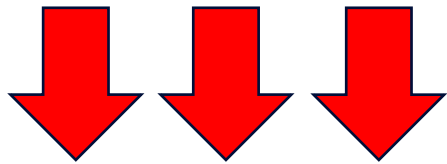
Length of Stay (Table 1)

A total of 50 elective postoperative craniotomy patients were included in the project.

- 24 patients (pre-implementation)
- 26 patients (post-implementation)

Pre-implementation:

- Average LOS = **1.45 DAYS**



Post-implementation:

- Average LOS = **0.92 DAY**

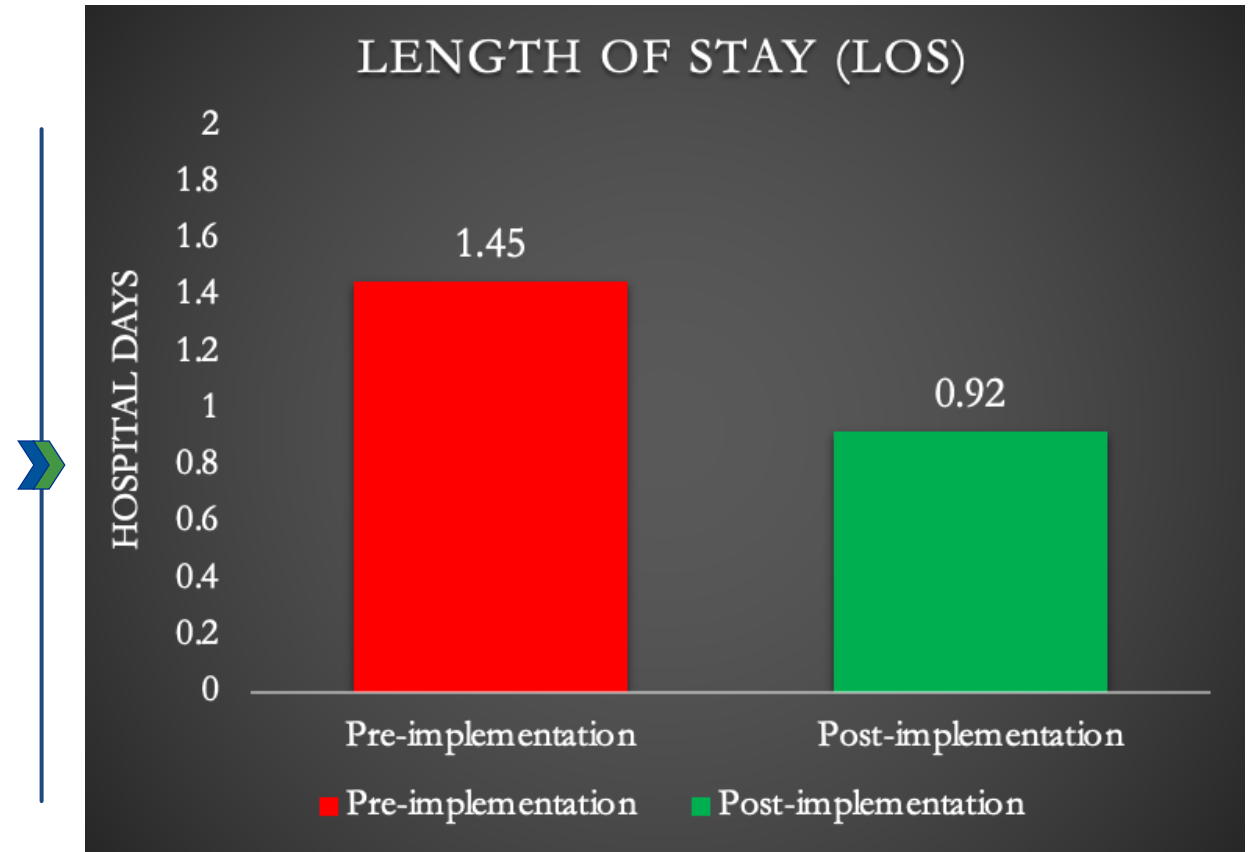
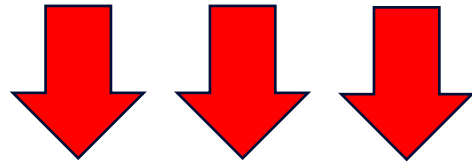


Table 1 Length of Stay

Results

Pre-implementation (Table 1)
19 of 24 (**79%**) patients ambulated during the first 24 hours post-craniotomy.



Post-implementation (Table 2)
24 of 26 (**92%**) patients ambulated during the first 24 hours post-craniotomy.

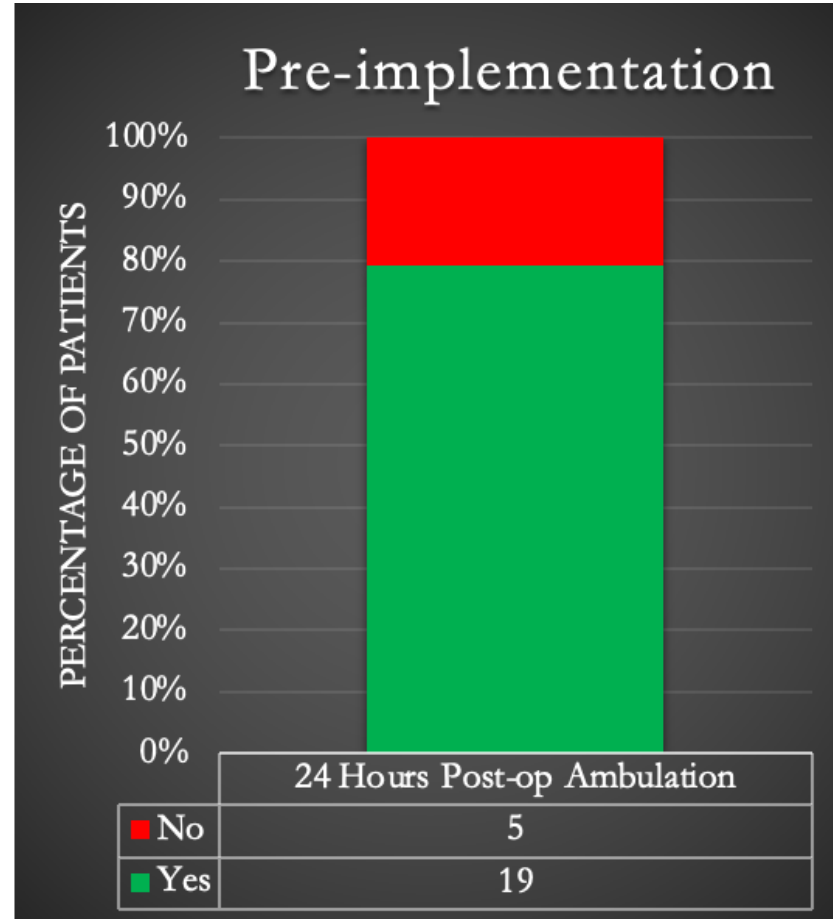


Table 1 Pre-implementation Mobility

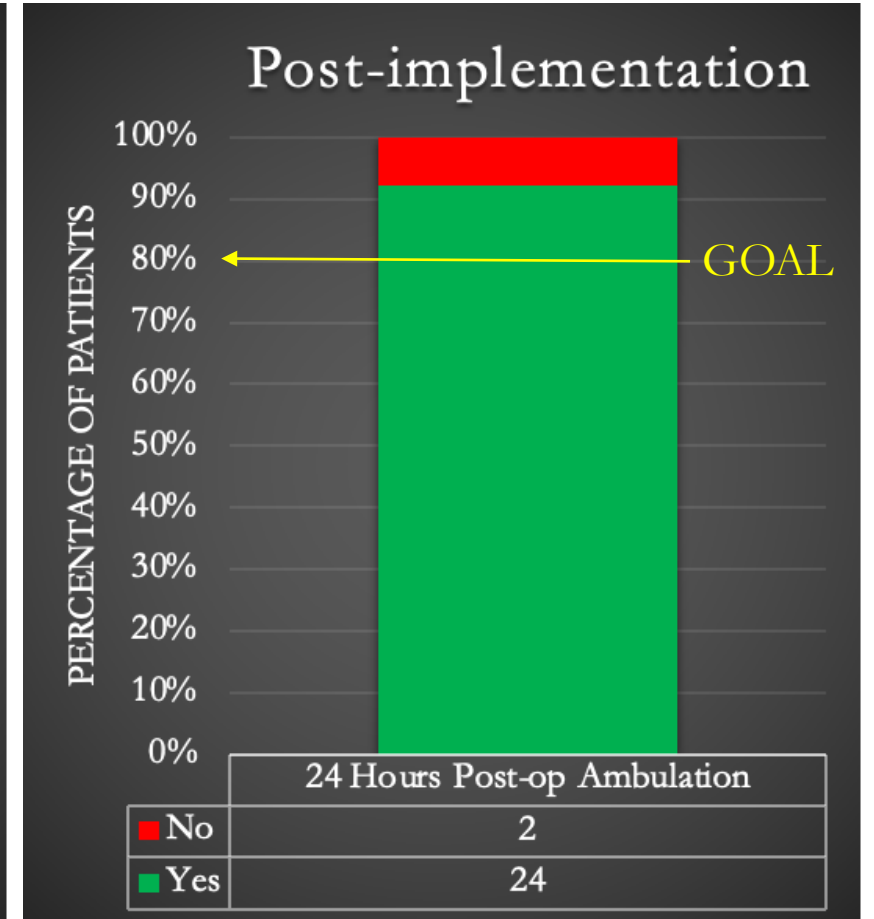


Table 2 Post-implementation Mobility

Conclusion

- This project found an increase in patient ambulation and decrease in LOS.
- Creating and implementing the ERAS checklist was a low cost, high impact way to cultivate multidisciplinary care while improving patient outcomes.



Implication for Practice

- Given the success in early mobility of postoperative craniotomy patients, the ERAS checklist may be utilized on other postoperative populations.
- Future studies should focus on testing nurse-led mobility interventions on other patient care units so higher rates of mobilization and provision of holistic patient care can be achieved.



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Questions?



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