

Problem Statement

Patients aged 65 and older are at increased risk for pulmonary complications following rib fracture.

Unnecessary, costly Intensive Care Unit (ICU) stay, inability to detect deterioration on the floor

- A 420-bed academic medical center in an urban area with a level II trauma center; 15 geriatric rib fractures monthly
- Increased morbidity & mortality in geriatric rib fractures
- Provider-driven level of care determination

The lack of an evidence-based protocol → disagreement amongst trauma surgery providers:

- Risk of disagreement on patient acuity, pulmonary complications → increased length of stay, elevation of acuity level, & threat for 30-day readmissions

Purpose & Goals

- Identify an upstream intervention to detect deterioration and standardize patient admission criteria by acuity →
- Decrease hazards to patient safety & increase positive outcomes
- Decrease financial burden on the institution & prevent declining performance metrics

Goal

- Implementation of an evidence-based tool to apply to 100% of geriatric rib fracture patients aged 65 and over admitted to or consulted with Trauma Surgery by standardizing admission criteria & monitoring for deterioration
- Use evidence-based tool to demonstrate nursing attention to nursing-sensitive indicators (NSI) and nursing-sensitive outcomes (NSO)

NSI= pain management, prevention of hospital acquired infection (HAI), primarily pneumonia

NSO= pain management & prevention of failure to rescue

The *Pain, Incentive Spirometry, and Cough* (PIC) score selected as evidence-based practice tool for this population

- Easy to use
- Only active rib fracture score used over length of stay

Nursing adherence will be measured over 15 weeks:

Opportunities for PIC scoring
Actual # of times patients scored

PIC Scoring

Pain	Controlled VRS 0-4	3	Incentive Spirometry	> pt goal level	4	Cough	Strong	3
	Moderate VRS 5-7	2		pt goal to 500mL alert level	3		Weak	2
	Severe VRS 8-10	1		< pt 500mL alert level	2		Absent	1
				pt unable to use IS	1			

Note. Terry et al., 2021. VRS= verbal pain rating scale.

Methods

Inclusion criteria

- Primary patient or consult with Trauma Surgery
- Rib fracture patients aged ≥ 65
- Surgical and orthopedic wards

Providers selected patients injured incentive spirometry (IS) goal as 50% of IS volume recommended by device's package insert & an alert level of 500mL

Interventions

Identified the patient's injured IS goal on admission & evaluated respiratory capacity using PIC

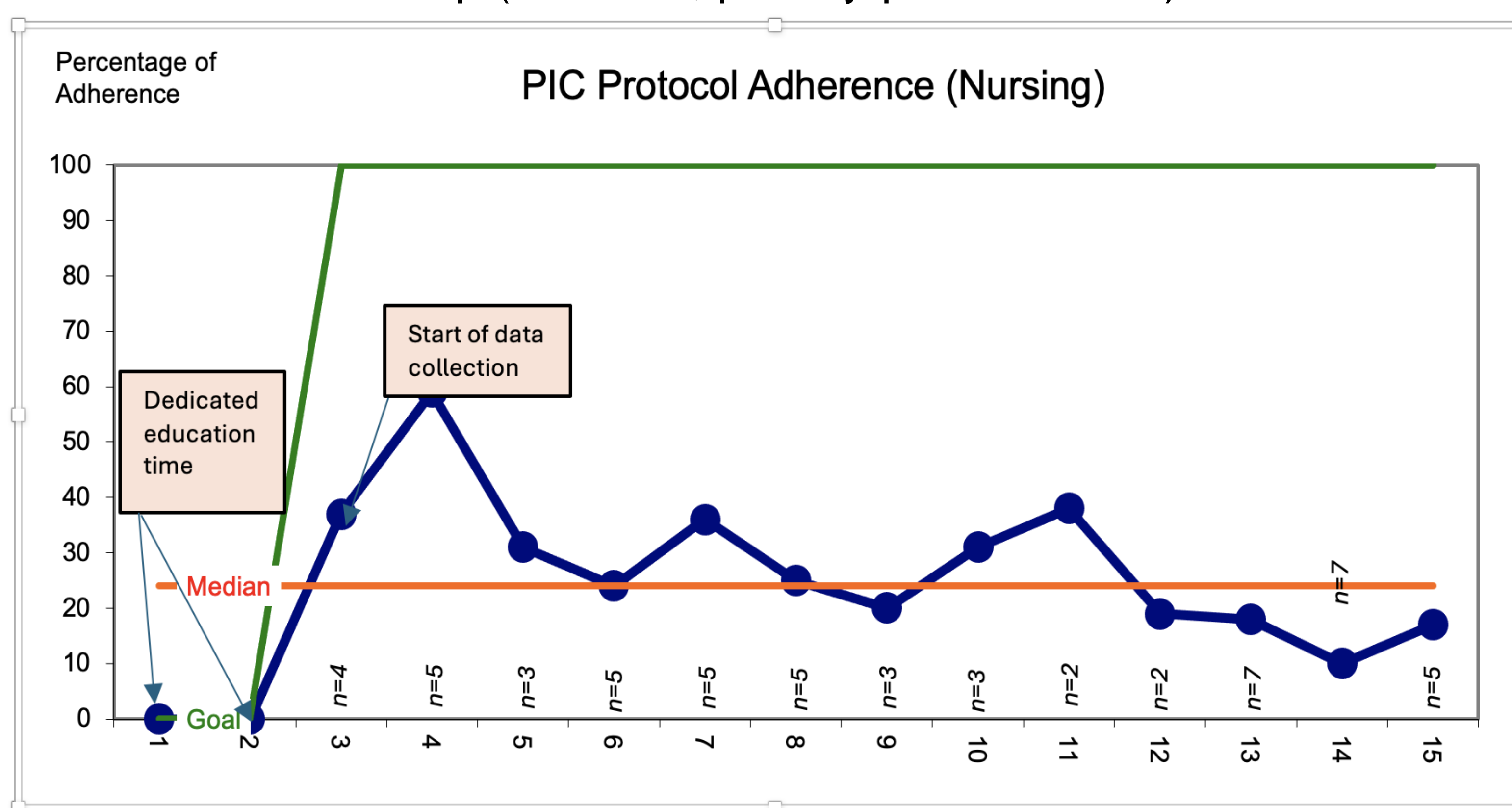
- Staff education x 2 weeks
- Order PIC scoring in nursing intervention orders (NIOs)
- Patients with an injured IS of 80% or > of their goal were assigned to the floor
- <80% prompted discussion of Intermediate Care admission

Chart review

- Determination of injured IS goal, alert level & relation to floor assignment in notes

Process Measure

- Nursing evaluated PIC score every four hours generating a score → patient's scoring under five or those with an alert level of < 500mL require provider notification
- Scores entered via a QR code accessed with a cell phone & sent to REDCap (a secure, privacy-protected site)



Note. n= number of patients that week

Results

Total criteria patients (n= 32) aged 65 and over met inclusion

Two patients transferred to the ICU:
1 was unrelated to respiratory status
1 was due to low PIC score

Successes

Selected injured IS goals set at 50% of package recommendations

Extremely accurate except 3 patients requiring a lower goal of 250mL on the IS

- NIOs communicating injured IS goal & alert level was successful
- Adherence every 4 hrs. ranged from 10-57%
- PIC scoring paired with every 4-hour vital signs = better staff buy in & served as a reminder
- Provider adherence to documenting PIC
66% IS goal, alert level present
22% related acuity to floor assignment

Discussion

Limitations

- No IS in the Emergency Department
- Without the PIC tool embedded in the electronic health record it was overlooked by staff at times
- Entering data into REDCap felt cumbersome & time-consuming

PIC scoring frequency variability related to:

- Perceived patient stability
- Lack of buy in with QR code
- Competing priorities
- Other causes

Conclusions

Outcomes

- Embedding PIC scoring into the EHR on the nursing flowsheet and as a NIO now
- Identify/monitor PIC patients in AM Trauma Meetings
- Widening PIC score assigning to other blunt chest wall injuries and those < 65 as appropriate
- Nursing on surgery & orthopedics embracing documentation of IS levels every 4 hours
- Clinical observations indicate significantly lower rapid responses in geriatric rib fractures trauma patients with opportunity to change plan of care PRN

Next Steps

- Dissemination to geriatric medicine & ICU
- Add PIC score to ICU patients plan of care prior to transfer
- Clinical Practice Guideline creation & dissemination

References & Acknowledgements



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