

***Does a Surgical Post-Acute unit (SPA) Help Elders with Rib Fractures? Definitely Maybe!***

Nassau University Medical Center

Jody DiGiacomo, Shridevi Singh, Sara Cardozo-Stolberg, Noam Gerber & Swapna Munnangi

**Purpose:** A Performance Improvement initiative previously identified risk factors which were associated with unplanned admission to the Surgical Intensive Care Unit (SICU) and resulted in the creation of a Surgical Post Acute treatment unit (SPA), to which patients who have a compromised "ability to forage" are admitted from the SICU rather than be admitted to a standard Medical/Surgical Floor. The SPA focuses on addressing and optimizing patient cognition, nutrition, respiration, and mobilization. We use the concept of "ability to forage" to encompass the ability of a patient to perform the minimum activities necessary to be successful in the standard floor setting. We have previously shown a Surgical Post Acute treatment unit (SPA) which focuses on the unique needs of this at-risk population is associated with decreased complications as compared to a standard medical/surgical floor settings when isolated hip fractures are present.

**Resources:** The SPA is a 6-bed floor equivalent non-monitored unit staffed by 1 Registered Nurse and 2 Patient Care Assistants.

**Description:** The SPA is a semi-closed unit for surgical and trauma patients once they no longer warrant an SICU setting, with specific admission criteria that are centered around the patient's ability to participate with the activities associated with cognition, nutrition, respiration, and mobilization if they have additional bedside support than is traditionally available on a standard medical/surgical floor setting. This 6-bed unit is staffed by one Registered Nurse and 2 Patient Care Assistants and supported by Nutrition, Physical and Occupational Therapy, Physical Medicine & Rehabilitation, Respiratory Therapy, and Social Work. Cognition is addressed with environmental modifications, nutrition is addressed by tracking all oral intake and assistance as needed for all meals, respiration is addressed by out of bed, ambulation, incentive spirometry, and Respiratory Therapy, and mobilization is addressed through daily physical therapy supplemented by the SPA staff and Occupational Therapy when warranted.

**Effectiveness:** After obtaining IRB-approval, a retrospective review was performed on the specific subgroup of patients aged 65 and above with isolated rib fractures, comparing 121 patients over 26 months before the SPA was opened to 62 patients subsequent treated over 26 months in the SPA. The Pre-SPA and SPA populations were comparable with regards to demographics, mechanism of injury, GCS, and RTS, although the SPA group had a higher ISS (11.2 vs 9.5;  $p=0.023$ ). Seventeen NTDB-reportable complications occurred in 8 Pre-SPA patients, including 3 cases of pneumonia, 3 unplanned returns to SICU, 3 urinary tract infections, and 2 unplanned intubations. A single complication occurred in 1 SPA patient, an unplanned intubation. (6.6% vs 1.6%,  $p=0.28$ ) While 5 Pre-SPA patients died, none of the SPA patients expired. (4.1% vs 0.0%;  $p=0.17$ )

**Lessons Learned:** A specialized environment with modifications to address specific areas of special need of cognition, nutrition, respiration, and mobilization was initially viewed as a daunting undertaking, which was going to require large investments in personnel and money. Using existing space, minimal physical changes were needed, and the personnel savings was framed in relation to the ICU setting, where these patients must be maintained, and the floor setting, where their complications result in increased complications and associated costs, and contribute negatively to such performance indicators as unplanned return to ICU, unplanned intubation, and pneumonia. What was required was an individual to champion the process and obtain initial buy in from Trauma and Nursing, and an Administration willing to try something different.

**Conclusions:** Despite similar periods of review, the number of SPA patients with isolated rib fractures was half the number encountered Pre-SPA, for reasons we cannot discern. We believe the reduction in complications and mortality among geriatric patients with isolated rib fractures due to the SPA are real and did not reach statistical significance due to the limited number of patients in the review, especially the SPA group. We believe the incidence of such complications as pneumonia and urinary tract infection of zero among the SPA group over 26 months demonstrates the value and impact of the SPA on this at-risk population.

**Benefit to Others:** Twenty-two percent of the US population is expected to be aged 65 years and older by 2020. As a result, trauma is increasing in this age group in both absolute numbers and in proportion of trauma patients presenting to trauma centers. Geriatric trauma patients have worse outcomes due to comorbid conditions, medications, and frailty, which requires more resource-intensive care. The nurse-to-patient ration on a standard medical/surgical floor can easily become 1-to-10, forcing the nurse to prioritize essential duties and responsibilities at the expense of bedside attention to the individual patients and surveillance of the patients in the nurse's charge: Out of sight, out of mind. Often the only alternative is to retain these at-increased-risk patients in the SICU until discharge, at a 1-to-2 nurse-patient ratio. The SPA allows these patients to be clustered in a more efficient manner that not only focuses on their specific needs and improves outcomes, but does so while alleviating the number of nurses required.

**Implementation by Others:** Attending to the geriatric patients' issues of cognition, nutrition, respiration, and mobilization requires buy in from the entire health care team, including Administration, to develop a multi-disciplinary environment which empowers everyone to attend to the increased needs of these patients at the bedside. Engaging with the patient in such a manner, in combination with small adjustments and modifications to the patient care environment, provides the necessary support to optimize each patient's cognition, nutrition, respiration, and mobilization, to reduce complications and optimize outcomes.