

Effects of a Spinal Stabilization Table (SST) on Pressure Injury (PI) Development in the Acute Adult Spinal Cord Injury Patient

Introduction

- The care of the acute, adult Spinal Cord Injury (SCI) patient is most critical within the initial 24 hours of admission.
- Acute, adult SCI patients are at a markedly increased risk for pressure injury development related to a 6-46% higher interface pressure as compared with someone without an unstable spine or SCI. (Hobson)
- Countless studies demonstrate that prevention of pressure injuries is far less expensive than treatment.
- Costs to treat SCI patients with pressure injuries in is over \$11 Billion annually in the United States in the past few years during the time of this study.

Materials and Methods

- Retrospective study from February 2012 –January 2017.
- Data collected for the acute, adult SCI patients admitted through the Trauma Center from the UF Health/ Gainesville Department of Research Affairs .
 - Data was compiled, comparisons made concerning the incidence of skin breakdown when using the spinal stabilization table (SST) with the original cushion from the manufacturer as compared with the results when the (SST) seat cushion was replaced with a four inch high-density foam cushion. Forty SCI patients from one SICU-S, nine patients from SICU-N were enrolled in the study.
 - Pressure mapping of both the SST seat cushion and the FIHDFC was performed by an Occupational Therapy to assess interface pressures in the sacral/coccyx/buttocks areas.

Hypothesis

Use of a replacement, four inch high-density foam cushion in the spinal stabilization table seat section can markedly reduce or eliminate the incidence of pressure injury development in the sacral/ coccyx/buttocks regions for the acute SCI patient placed on the spinal stabilization table prior to surgery.

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Results

Statistical Analysis:

Four Inch High-Density Foam Cushion (FIHDFC)*
 PI Cross tabulation

| Count | | PI | | Total |
|--------|-----|----|-----|-------|
| | | No | Yes | |
| FIHDFC | No | 25 | 15 | 40 |
| | Yes | 9 | 0 | 9 |
| Total | | 34 | 15 | 49 |

Discussion and Recommendations

Prevention of skin complications (PI) continues to be the *most effective approach* in the care of the acute, adult SCI patient.

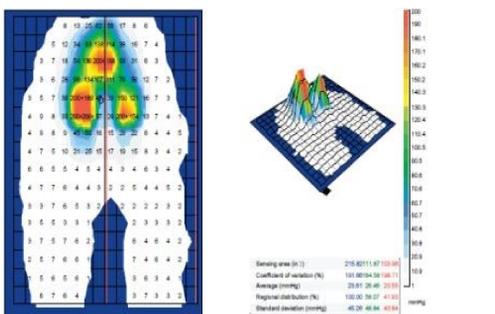
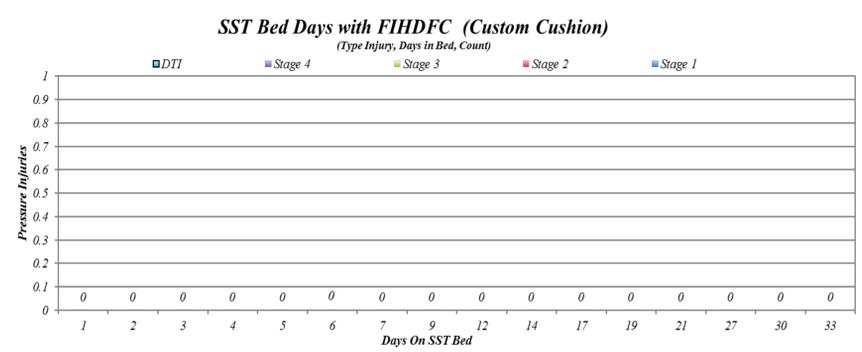
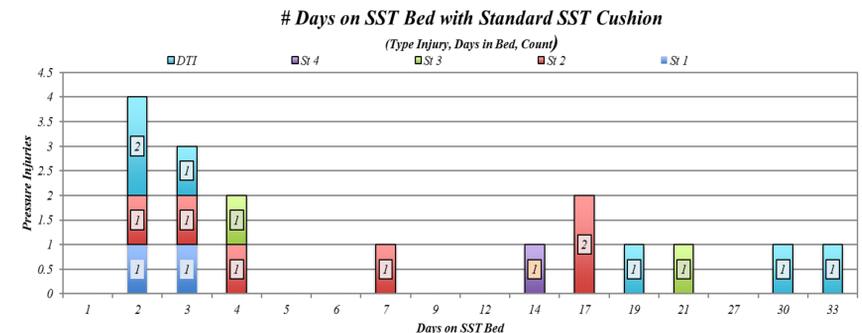
Epidemiology: For years Researchers have noted a pattern of recurring problems associated with PI development in the SCI patient to include:

- Recurrent hospital admissions, infusion port placement for IV antibiotics, repeated trips to the OR for serial debridements/ flaps/ grafts, wound vac application, dressing changes, limb amputations even including hemi-pelvectomy surgery in some extreme cases.
 - Other patients have succumbed to death from sepsis related to prolonged, seemingly intractable osteomyelitis events.
- These events take a toll on the patient, the family, nursing/hospital staff and the institution when death or litigation occurs related to PI development in the SCI patient population.

PREVENTION IS

Conclusions

“The result is **SIGNIFICANT** at $p < 0.05$ level, indicating a relationship between the cushion used and pressure injuries.”
 Dr. David Chesire, Trauma Psychology/ Statistician.



Example of interface pressure gradient over the sacral/coccyx/buttocks areas without cushion= **CONTROL GROUP**

Demonstration of Pressure mapping on SST with modified cushion = **EXPERIMENTAL GROUP**