

PREVENTION OF PERIOPERATIVE HOSPITAL ACQUIRED PRESSURE INJURIES: PRONE & PARK-BENCH POSITON FOR NEUROSURGERY PROCEDURES

CANDI HAGGARD, BSN, RN, CWOCN - BUFFY KRAUSER LUPEAR, DNP, CRNA - LETHA MATHEWS, M.D. - SHEENA WEAVER, M.D.

BACKGROUND

- 2007 the Center for Medicare and Medicaid Services (CMS) announced non-reimbursement of Stage 3 & Stage 4 hospital acquired pressure injuries (HAPI).
- The pooled incidence of surgery related HAPI's is 15%
- Nationally, it is estimated 7% of surgical patients who develop a HAPI have no predisposing comorbidity
- HAPI's extend length of stay 7 to 10 days, and double mortality risk.
- The annual cost of pressure ulcers is ~ \$11 billion/year and the incremental treatment costs for Stage III and IV HAPI's are \$10,370 and \$20,070, respectively.

PROBLEM

- During monthly quality rounds, our institution identified the Neurosurgical population as having a consistently high HAPI rates (Image1).
- Our baseline monthly HAPI rate in the Neurosurgical population for FY15 was ~ 8-10%.
- No consistent method for providing feedback to providers when a patient developed HAPI postoperatively
- No consistent method for tracking neurosurgical patients who developed a HAPI postoperatively
- Variation in positioning practice for neurosurgical patients in the prone or park-bench positions

INTERVENTIONS

- A multidisciplinary Perioperative Pressure Injury task-force was created which performed root cause analysis and identify areas for improvement and pressure injury reduction (Figure1).
- The task force identified potential preventive measures, to include:
 - Introduction of five layer self adherent absorbent foam bordered dressing (5-L Dressing) for pressure injury prevention applied prior to positioning for surgery to the:
 - Chin
 - Forehead
 - Chest
 - Iliac crests
 - Other tissue coming in contact with procedure table
 - Multidisciplinary positioning workshops and competencies for all Neurosurgical OR staff, which included nursing, anesthesia, and surgeons to minimize variability in practice. (Image 2)
 - Development of a REDCap data collection tool for standardizing follow-up and documentation process.
 - Monthly task force meetings for report out and actions steps taken for HAPI prevention.

FIGURES

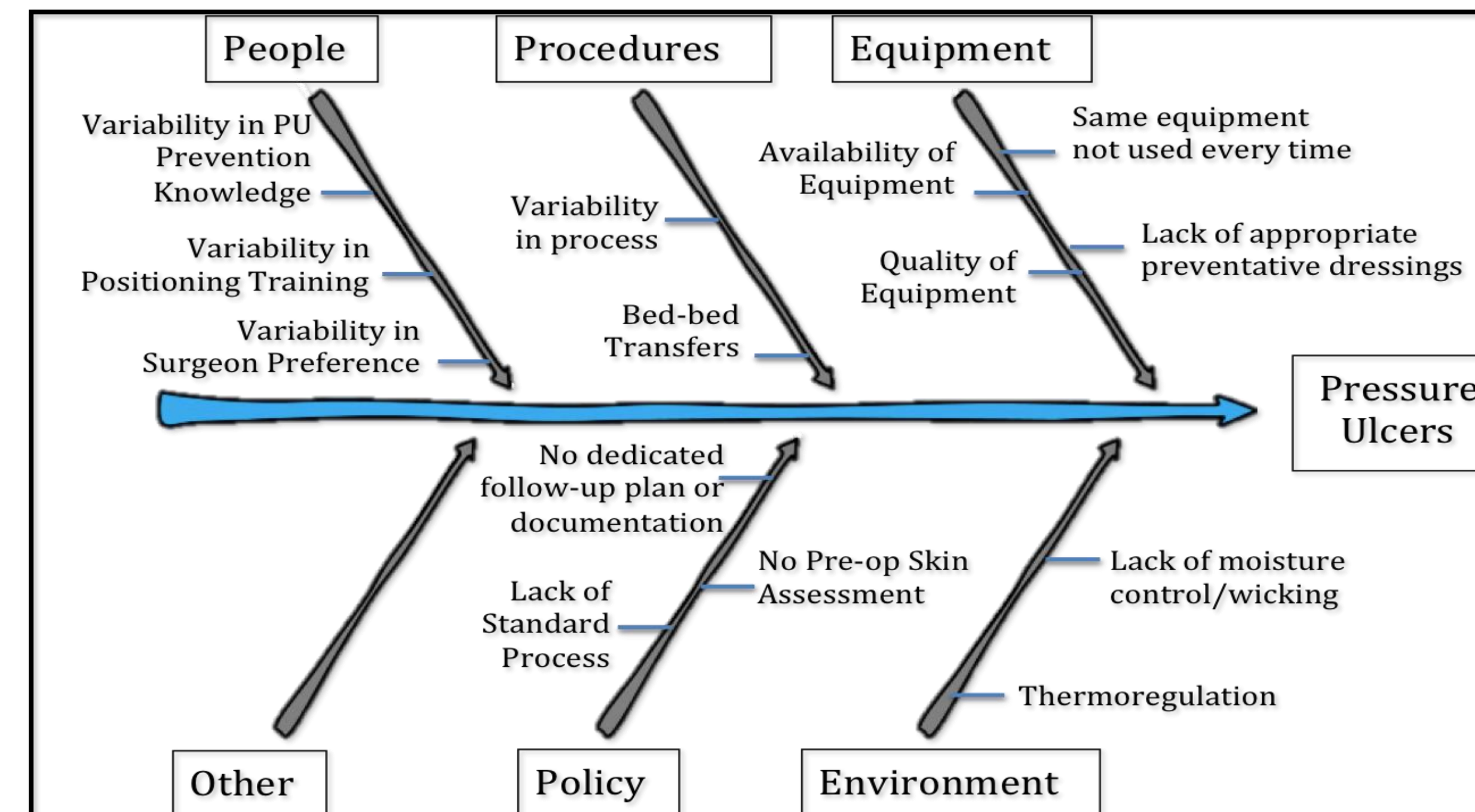


Figure 1

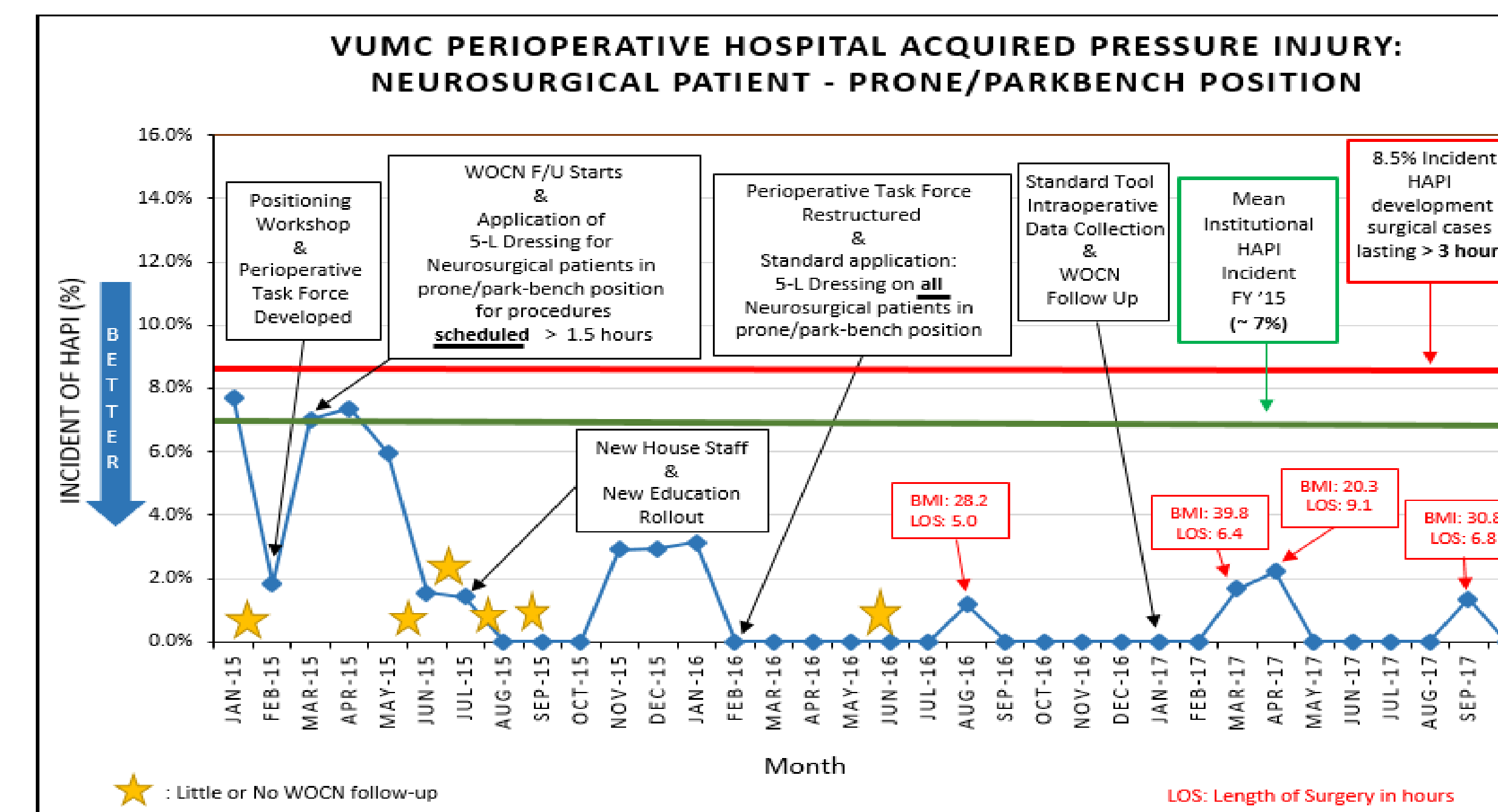


Figure 2

IMAGES



Image 1

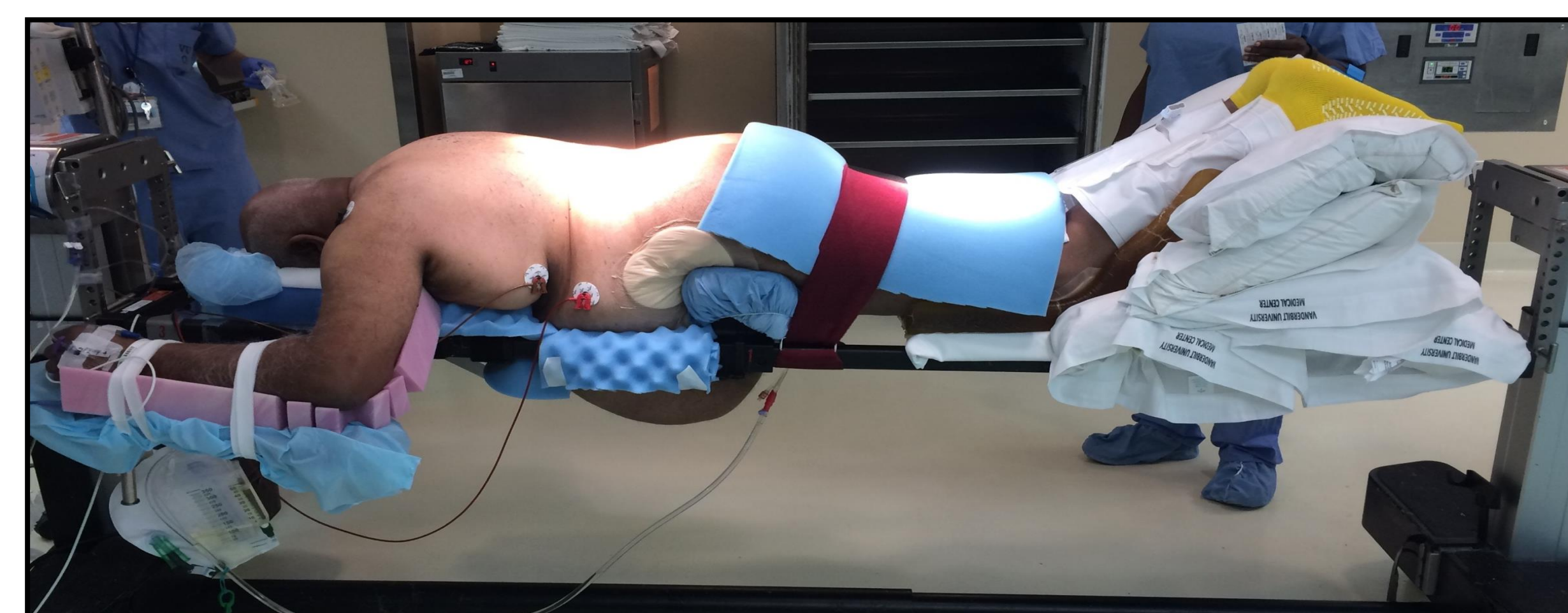


Image 2

DATA

- Patient data collected from 1/2015 - 10/31/2017
- 2,238 patients positioned prone or park-bench for a neurosurgical procedure.
- 30 patients developed a HAPI noted on post op day 1, this included Stage 1's and 2's HAPIs.
- Average length of time in prone position: 8.25 hours (range: 3.8-12.8 hours)
- Average patient BMI: 29.5 (range 19.3-44.6)

RESULTS

- January 1, 2015 thru July 30, 2015: experienced decrease of HAPI incidences from ~ 8% to < 2% following (Figure 2):
 - Application of 5-L Dressing prior to prone/park bench position for neurosurgical procedures scheduled >1.5 hours.
 - Education/Standardization of padding and positioning for prone/park-bench positions.
- November 2015 thru January 2016: experienced decrease HAPI incidence from 2-4% to 0% following (Figure 2) :
 - Standard application of 5-L Dressing for all neurosurgical patients in the prone or park bench
- February 2016 thru October 31, 2017: maintained a HAPI incidence of nearly 0% (Figure 2) .
 - Exception: 4 patients who's surgical procedure > 5 hours

CHALLENGES

- Despite standardizing positioning practice, HAPIs did occur in patients with a higher BMI and/or surgical procedures lasting > 5 hours
- Positioning devices may not provide adequate pressure reduction for a higher BMI
- >32% of adults in Middle Tennessee have a BMI >30
- Average patient BMI: 29.5 (range 19.3-44.6)
- Sustaining education & standard practice in an academic institution with rotating perioperative & house staff
- Maintaining communication system to close the loop between disciplines when a patient develops a HAPI post-operatively

CONCLUSION

- Reducing the incidence of severe HAPI is achievable by:
 - Applying 5-layer Self-adherent Foam Silicone Dressings to Pressure Points
 - Developing a Culture of Strategic Teamwork
 - Improving Awareness and Education
 - Standardizing Practice