

Root Cause Analysis for Pressure Ulcers in the JHH CVSICU

Kelsey Porter, BS, MSN Candidate
Nancy Sujeta, RN, CWOCN
Carla Aquino, MSN, RN
Johns Hopkins University
School of Nursing



I Background

As of 2008 insurance payers, as reported by the Centers for Medicare & Medicaid Services (CMS), do not reimburse for hospital acquired pressure ulcers (HAPUs). HAPU care costs an average of \$48,180, including admission costs and care for stage III and stage IV pressure ulcers.

The prevalence of ulcers in ICU settings is 14% to 42% compared to acute care settings at 12% to 19.7%¹ Cardiovascular surgery patients are at increased risk due to the complexities of their disease, co-morbidities, and hemodynamic instability.

At the Johns Hopkins Hospital CVSICU pressure ulcer incidence has continued to fluctuate. A redesign of the JHH Root Cause Analysis (RCA) was completed to initiate more thorough auditing with a form constructed specifically for CVSICU patients.

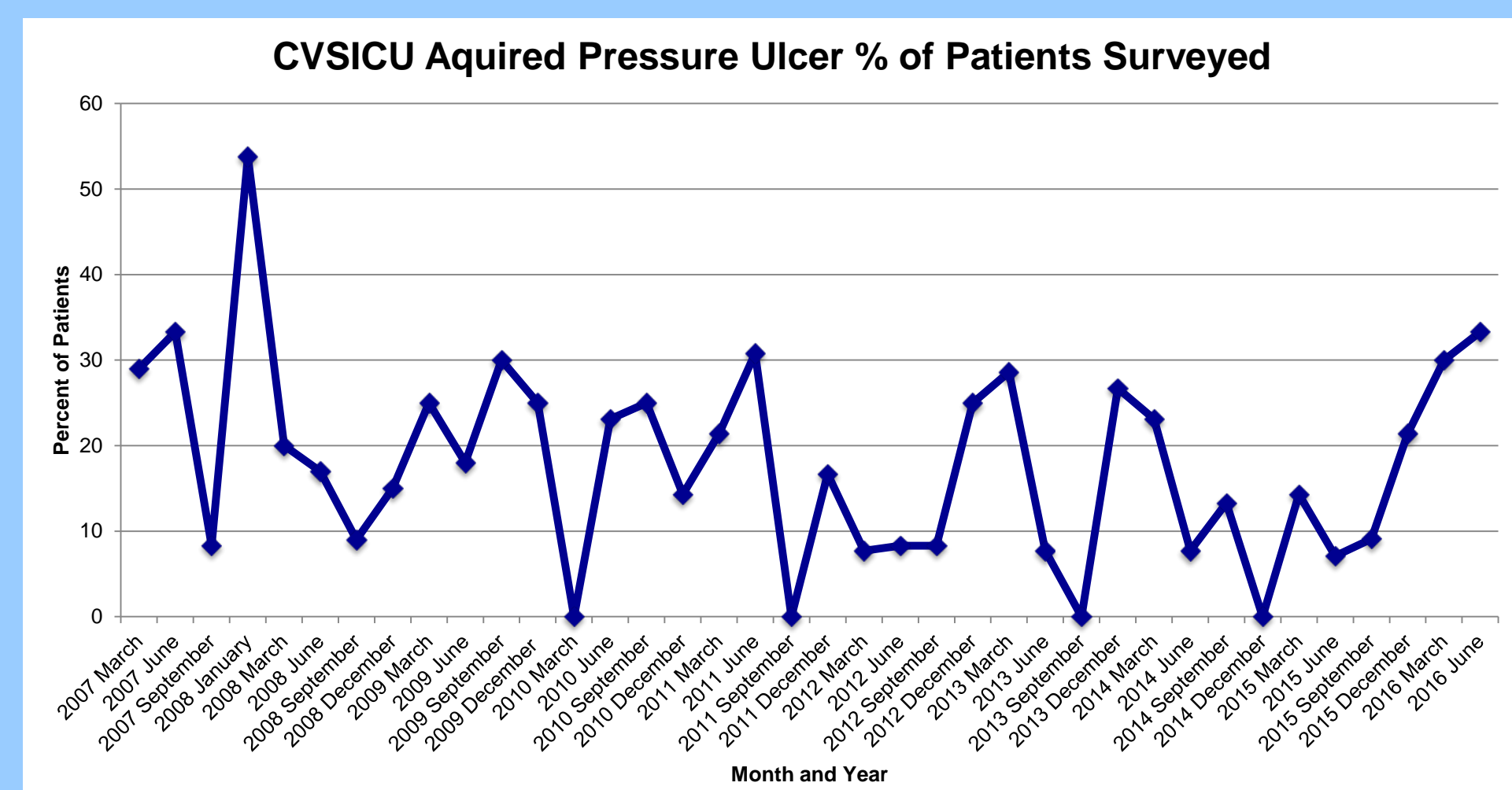


Figure 1 JHH CVSICU Hospital Acquired Pressure Ulcer % of Patients Surveyed from March 2007 to June 2016. Data was collected during wound care rounds by nurses and provided by Carla Aquino.

2 Methods

A literature review was conducted using articles from colleagues as well as PubMed and CINAHL. 20 studies were analyzed to develop an understanding of pressure ulcer prevention interventions, risk factors, analysis and root cause analysis development.

Keywords: pressure ulcer, hospital acquired, cardiovascular surgery, ICU

An electronic audit form, shown in Figure 2, was developed by analysis of risk factors and patient population as well as shadowing on the CVSICU.

Wound care rounds were conducted weekly by a nurse on the CVSICU with team meetings held quarterly.

An update of the JHH Pressure Ulcer RCA was made using the input of CVSICU nurses, the wound care team, and analysis of pressure ulcer causes in CVSICUs.

3 Results

Most common predictors for pressure ulcers:

- Hospitalization prior to surgery
- Length of surgery
- Intervention implementation
 - Specialty Bed, Mepilex, Turning Wedge, Z-flow, Prevalon Boot, Chair Cushion
- Hemodynamic instability
- Co-morbidities
 - Hypertension
 - Diabetes Mellitus
 - Incontinence

Most common human factors burdening pressure ulcer prevention:

- Time
- Degree of turning associated with hemodynamic instability
- Education

Barriers to tracking incidence:

- Time
- Turn-over

Figure 2 CVSICU audit form, sheet one, for individual patient data input. Data inserted is pulled to sheet two, a table which lists data for analysis.

Figure 3 JHH CVSICU RCA, redeveloped for individual patient data input. Data inserted into the audit sheet shown in Figure 2 is pulled into the RCA. Each filed RCA is an account of an individual patient's hospitalization with a pressure ulcer occurrence.

4 Conclusions

• HAPUs occur with significantly greater incidence in CVSICUs than typical acute care settings.

• The CVSICU population of hemodynamically unstable patients with multiple co-morbidities have high risk factors for pressure ulcers.

• Staffing, time, turn-over, and education are all major human factors contributing to a lack of vigilant pressure ulcer prevention interventions and monitoring.

• The JHH CVSICU has made significant improvements to decrease the incidence of pressure ulcers by developing a wound care team dedicated to rounding and prevention.

The new pay-for-performance environment of healthcare makes it crucial for nurse leaders to evaluate and implement quality interventions to minimize complications and maximize finances.³ New policies can incentivize hospitals to implement standardized HAPU protocols to receive reimbursement for care.

5 Future Directions

The new vigor of the wound care team on the CVSICU will allow for significant data collection and thus substantial evidence for the funds to implement interventions. It is necessary to develop randomized controlled trials with significant power analysis populations to support the use of interventions.

In order to implement best practice interventions for pressure ulcer prevention expert referrals to interventions will be needed.

Education on the barriers to care can be applied from the development of incremental turning and risk factor identification policies.

6 References

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