



USING TECHNOLOGY TO IMPROVE EFFICACY OF PATIENT REPOSITIONING

Jennifer Castro, MSN, RN

Lin Baumgartner, BSN, PHN, CEN, RN; Sadeeka Al-Majid, PhD, RN

MemorialCare Orange Coast Medical Center (OCMC), Fountain Valley, California

Relevance and Significance

- Hospital acquired pressure injuries (HAPIs) continue to be a challenging, frequently occurring problem. HAPIs are associated with poor patient outcome, increased length of stay, and increased hospital cost (CALNOC, 2017).
- Patient repositioning is the gold standard of care. Although nurses in the critical care unit (CCU) in our Community Magnet ®-recognized Hospital are compliant with patient repositioning standards, the incidence of HAPI in our CCU was higher than the national benchmarks.
- Occurrence of HAPIs despite diligent repositioning practices suggests that current repositioning techniques may not adequately offload pressure areas.

Purpose

The **purpose** of this performance improvement (PI) project was to pilot test the efficacy of a novice individualized patient repositioning monitoring system on frequency of repositioning, adequacy of offloading of pressure areas, and incidence of HAPIs in CCU patients.

Description of Innovation

The repositioning monitoring system (Image 1) is composed of a wireless sensor that is placed on the patient's sternum, and wirelessly hooked to a monitor at the nursing station. The system provides real time visual turn cues based on individual patient's repositioning needs.

Image 1: Patient Monitoring System



Method

- The Plan-Do-Study-Act (PDSA) Model was used as a guided (Table 1).
- The monitoring system was pilot tested in a 21-bed CCU in May of 2017, after nurses have been trained on the monitoring system and techniques for individualizing patient repositioning.
- Patients with a Braden Scale score of < 18 were deemed to be at risk for HAPI and were included in the pilot test.
- During the implementation period, CCU manager received daily reports on patient repositioning compliance for previous day's shifts.
- Super-users were assigned to reinforce immediate use of technology and communicate repositioning with patient caregivers.

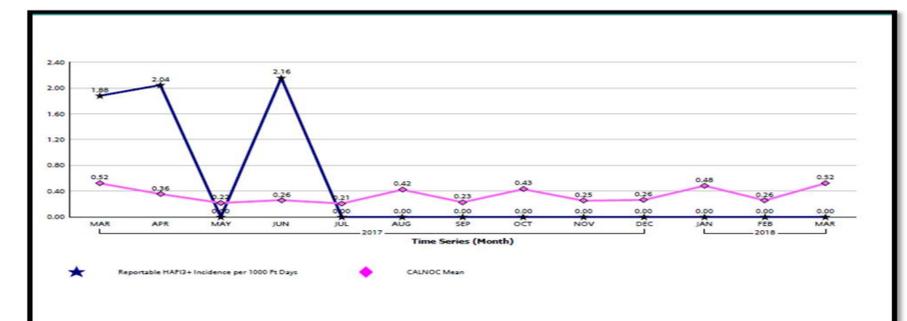
Table 1: Implementation of Patient Monitoring System Using the PDSA Model

PDSA	Implementation Actions
Plan: How can we improve performance?	Explored current trends in HAPI prevention and identified patient monitoring system technology as a potential strategy to reduced HAPIs. The question was: Can this technology improve efficacy of patient repositioning?
Do: What did we do?	Pilot tested the wireless monitoring system on CCU patients and monitored its effects on incidence of HAPI
Study: How did we study our performance?	Tracked CALNOC HAPI benchmark performance and daily monitoring system compliance based on inclusion criteria
Act: What did we do to address the missed opportunities?	Shared root cause analysis with staff. Discussed missed opportunities and agreed on next steps to ensure missed opportunity does not happen again.

Results

- Rates of HAPIs in our ICU compared to CALNOC benchmark is shown in Figure 1.
 - Prior to the pilot testing period, the rate of HAPIs in our ICU were more than double the benchmark.
 - HAPI rate decreased to below benchmark during the 30-day pilot testing period in May.
 - Following the 30-day pilot testing period, the rate of HAPIs increased to more than double the benchmark.
 - Another 60-day pilot testing period started in July, HAPI rate dropped to below benchmark

Figure 1: Incidence of HAPIs (stage 3+) in CCU, Compared to CALNOC Benchmark



Implications for Practice/Conclusion

Our nurses were compliant with repositioning standard. The repositioning system alerted nurses to patients whose repositioning did not adequately offload pressure off pressure areas, which prompted repositioning . Repositioning that ensured alleviated pressure reduced the incidence of HAPI in our CCU.