“Turning” to Technology: Reducing Hospital Acquired Pressure Injuries in Critical Care with Visual Turn Cuing

Mary Grajales Cuesy, PhD, RN, ACNS-BC, Quindina Derisma, BSN, RN, CWOCN and Rachel Hannon, MSN, APRN, ACCNS-AG Mayo Clinic Jacksonville, FL

ABSTRACT
This study demonstrated that wearable patient sensors improve adherence to turning through technology, and thus reduced HAPI rates. Evidence estimates national compliance at 52%. Pre-data not available.

INCLUSION CRITERIA
Expected ICU stay ≥48h, and one of the following:
- Pressure Injury POA
- Mechanical ventilation >24 hours and receiving vasopressors, sedation or paralyzed
- BMI <18 or >35
- Braden Scale Score <13
- Rectal Tube
- IAD
- Lower extremity edema
Need based on nursing judgment

RESULTS
Total of 105 patients were monitored for 31.341 hours. Mean turning adherence was 77% for the 3.5-month period. Of the >11000 monitoring hours, patients spent 29% on the left side, 20% on the right side and 42% supine. Sacrococcygeal HAPI rate decreased from 4.11% pre-study to 1.34%, relative reduction of 67%. Half the patients with HAPIs were not monitored despite meeting risk criteria. Most survey respondents (n=95) felt training (69.7%) and support (68.5%) were adequate, however 67% believed patients were “too sick to turn”. Previous studies in critical care had shown significant reduction in HAPI using turn cueing technology; recommended in the pressure injury clinical practice guideline1.

OBJECTIVES
- Outcome Measures and Targets
  65% improved turning compliance for patients receiving LEAF Sensor and turning protocol during the trial period.
  70% reduction in the total number of ICU acquired sacral pressure injuries in patients receiving the LEAF Sensor and turning protocol during the trial period.
  80% of patients receiving LEAF Sensor and turning protocol will remain free of VAEs and nosocomial pneumonias due to increased manual postural changes.
  15% reduction in VCNQ consults not triggered by a Braden score during the trial period.

RESULTS: PRESSURE INJURIES
HAPI incidence
- 4.11%
- 1.34%
- 67% reduction in HAPI incidence rate
-otto 2018

RESULTS: RETURN ON INVESTMENT
Cost to treat per HAPI $43,180
- Total HAPI costs avoided $561,340
- Cost of monitoring system $25,200
- ROI $536,140

RESULTS: VAE
- 92% Patients with increased turning adherence remained free of VAE

RESULTS: PROTOCOL ADHERENCE
- Adherence with the repositioning protocol was measured with the PM system and compared to a blinded baseline obtained from a large previous ICU study.
- Staff attitudes were measured with a post-survey of the units’ Registered Nurses.

RESULTS: WOUND CONSULTS
- The number of wound consults also decreased, reflecting improved communication within the care team.

REFERENCE

DISCUSSION
- Overly aggressive turn/tilt angles on intubation
- Pilows are cheap and not ideal for turning
- Turn alerts initially not visible enough: labeled LEAF: Patient Monitoring Software on every computer
- Out of 7 Pilot HAPI, 3 were not monitored with sensor and remaining 4 had significant gaps in turning compliance
- Difficult message that a fundamental skill is inadequate
- Requiring renaming what a “20” turn looks like
- Share daily reports with staff from the start

CONCLUSIONS
- Pilot goals achieved in turn adherence, HAPI incidence reduction and VAE
- Increased wound consultations reflected the prioritization of pressure injury prevention
- Led to evaluation of early mobility practice standards
- EFC Frontline integration and enterprise-wide adoption next
- Experience used in Magnet® re-designation SOE

REFERENCES