

Real Time Positioning Using Innovative Technology

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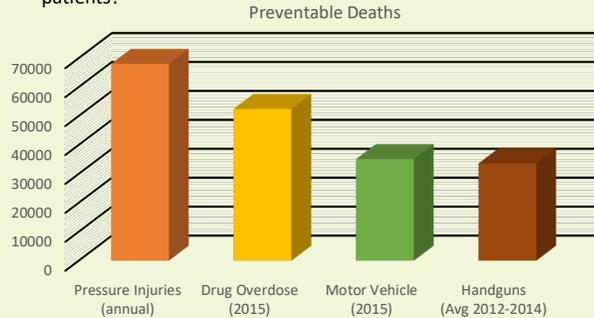
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Abstract

- Pressure injuries (PIs) are painful, costly, deadly, but often preventable.
- New technology which alerts patients and clinicians to excessive time on at-risk pressure areas was evaluated.
- 34% of existing wounds improved in the experimental group and no new PIs developed.

Research Questions

1. What is the impact of the technology on the incidence of pressure injuries for adult patients with a Braden score of 18 or less?
2. What is the impact of the technology on pre-existing pressure injuries?
3. What are the perceptions of the technology by nursing staff and patients?



Significance

Problem: 2.5 million Americans are affected by pressure injuries annually, leading to 60,000 deaths and 68,000 amputations. The 2014 International Guidelines for Prevention and Treatment of Pressure Ulcers recommend frequent repositioning to relieve pressure over bony prominences.

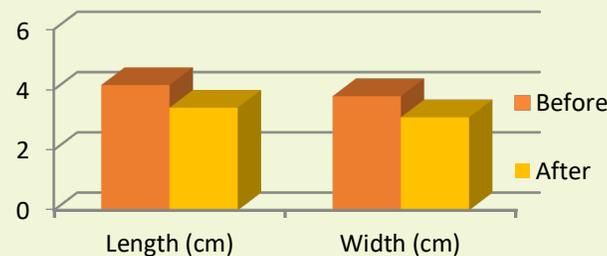
Solution: Technology that monitors time on bony prominences was developed to alert the patient and clinician when tissue interface pressure rises greater than capillary closing pressure for an excessive period, thus creating a risk of injury.

Methods

- Research Design: Randomized Control Trial
- Setting : Med-Surg Nursing Unit, Presence (now Amita Health) Saint Francis Hospital, Evanston, Illinois.
- 96 patients were randomized to either control (n=48) or experimental (n =48) groups.
- All usual skin care protocols were implemented by the clinical staff based on the patient's condition for both groups.
- Wireless sensors embedded in foam dressings were placed on the sacrum and heels of the experimental group for at least 24 hours.
- Computer tablets at the bedside and nurses station displayed 'time on pressure' findings for each monitored body site alerting patients and staff when prolonged pressure was occurring.
- Nursing staff and patient perceptions were obtained using a survey tool.



Decrease in wound size with new technology



Mean length, width of pre-existing pressure injuries before and after using device

Results

- 34% of existing wounds improved in the experimental group.
- Of 31 pre-existing PIs in the experimental patients, six had a 50 % decrease in wound size, with four showing improvement in physical characteristics related to peri-wound and wound bed appearances; one wound 's tissue integrity improved.
- For experimental patients , decreases in size of pre-existing PIs (n = 10) were significant (p < 0.05) using the paired t test, and in controls no observable healing occurred for pre-existing PIs (n = 15).
- No new hospital- acquired pressure injuries (PIs) were found in either experimental (n = 48) or control (n = 48) patients.
- **Staff Surveys:** (n= 16): 94% of nursing staff perceived the new technology as beneficial to patients.
- **Patient Surveys:** (n=23): 92% found it helpful to them, 90% found the device comfortable and the dressing stayed in place. 78% stated they believed it was helpful to the nursing staff.

Clinical Implications

The technology created a new bedside assessment parameter which enabled patients and clinicians to provide effective offloading and timely individualized repositioning.

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Acknowledgments

The authors thank Lydia Dacenko-Grawe, MSN, RN, CVRN and Joseph Drennan, MBA for their support and expertise.

This study was funded by:

- Jean Psotka Memorial Fund for Nursing Education and Research
- Irene Mandock Fund for Nursing Education
- PressureAlert System, Consulting, Equipment and Software: Digital Health Solutions (now Walgreen Health Solutions)

