The Impact of Synthetic Silk-like Fabric on Pressure Ulcers

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Introduction
Despite a plethora of evidence pertaining to pressure ulcers, little attention has been paid to the role that textiles play in the formation and prevention of pressure ulcers (PrUs). Factors such as moisture, friction, and shear can be mitigated by a product most intimate to the patient—linen!

A new, synthetic, silk-like fabric was developed for the purpose of providing bedding and patient gowns that manage moisture, friction and shear when used between the patient and the healthcare support surface. It was hypothesized that this fabric would impact the development of pressure ulcers.

Methods
A retrospective, before-and-after comparative study was conducted at a 175-bed hospital in the Southeastern region of the U.S., from December 2010 to May 2011. In March 2011, the entire hospital was converted from conventional cotton-blend linens, underpads, and patient gowns to the silk-like bed linens, underpads, and patient gowns.

Investigational Review Board (IRB) approval for the study was obtained from the 17-member Healthcare System IRB. Available research and statistical calculations suggested the estimated appropriate sample size at 80% power was 174 subjects per group, or a total of 348 subjects per group. The study units, Telemetry/Urology and ICU were chosen for the estimation of appropriate sample size at 80% power was 174 subjects per group, or a total of 348 subjects per group. The study units, Telemetry/Urology and ICU were chosen for the estimation of appropriate sample size at 80% power was 174 subjects per group, or a total of 348 subjects per group.

Exclusion Criteria:
- Patients assigned to specialty beds that required trademarked coverings (or no bed coverings) by bed manufacturers.
- Patients whose stay overlapped the conversion dates.

Inclusion Criteria:
- All patients with length-of-stay (LOS) ≥ 48 hours admitted or transferred to the study units.
- Patients on highly specialized beds that required trademarked coverings (or no bed coverings) by bed manufacturers.

Results
The synthetic silk-like fabrics helped control the microclimate—moisture, friction, and shear—between a patient’s skin and support surfaces, thereby reducing the potential for pressure ulcers. This new therapeutic technology has the potential to contribute to better healthcare outcomes and lower overall system costs.

In this study involving 1,427 patients, the incidence of patients with facility-acquired pressure ulcers at all stages was 10.3% for the control group compared to 2.5% for the intervention group.

Limitations:
- Existing pressure ulcers at admittance could have been an indicator of further ulcer development.
- Patients assigned to specialty beds that required trademarked covering or no covering, rather than standard cotton-blend bed linens.

Nursing Implications:
Prospective, controlled clinical studies are needed to further define the impact of a synthetic silk-like technology on patients at risk for the development of pressure ulcers and skin breakdown.

References
