

Hand-held device to decrease hospital acquired pressure injuries: From theory to practice

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Background & Objectives

On December 1st, 2016 the Scarborough Hospital merged with the Centenary Site of the Rouge Valley Health System to become the Scarborough and Rouge Hospital. Scarborough Rouge Hospital (SRH) is a 504-bed community hospital with three sites and department services in: medical, surgical, critical care, rehabilitation and alternative level of care (ALC) among others.

In 2010 spot Prevalence & Incidence study revealed prevalence above 25% and incidence close to 15%. Despite implementation of a variety of procedures, practices and processes, there continued to be a persistent frequency of avoidable Pressure Injury (PI) incidence.

The purpose of this research was to evaluate the feasibility of a hand-held tissue assessment device (SEM Scanner) using bioimpedance for early detection and prevention of PIs in our community hospital.

The SEM Scanner.
Bruin Biometrics (BBI)



Materials & Methods

In April 2016, RVHS began clinical evaluation of a new device (SEM Scanner) that is used for the early detection and prevention of pressure injuries. In clinical studies, the device was shown to detect underlying tissue damage due to pressure as early as 4-11 days earlier than visual detection.

Phase 1:

Conducted to establish a baseline incidence using standardized protocols and to control for the Hawthorne effect. Device was used to scan all newly admitted patients on medical/stroke unit (Med/str) for one month, and standard PI intervention protocol was used. This protocol was based on nurses' assessment only with no regards to SEM values.

Phase 2 :

Two cohorts of patients
A) immobile patients admitted to ALC unit scanned from admission for up to 14 days
B) immobile newly admitted patients to the hospital scanned starting at Emergency Department (ER) and followed for 3 days during first 7 days from admission.
In both groups interventions were implemented based on scanner reading and standard protocol.

Results

A total of 235 patients were scanned:

Phase 1: 89 patients scanned and 13.4% incidence was found.

Phase 2: 146 patients scanned and 1.3% incidence found. Data suggests that intervention according to the scanner reading decreased incidence 10 times (90% reduction).

Phase	Dept	SEM	N	# PI	Incidence
1	Med/str	No	89	12	13.4%
2	ER	Yes	166	1	0.6%
2	ALC	Yes	29	1	1.3%
2	TOTAL	Yes	195	2	1%

Conclusions

Current practice misses opportunities for early detection and early intervention that can prevent PIs since it is based on risk assessment and visual assessment of skin in areas prone to PIs.

When visually evident, significant tissue damage has already occurred and opportunity for prevention is already missed.

In our pilot study the SEM Scanner has been successfully used in practice to generate real-time insight to confirm early detection of tissue damage and to target interventions, leading to lower incidence, earlier recovery and lower costs.

As a result of current study we decided to incorporate the scanner into standard practice
1) On Admission 2) During Stay 3) Validation during Prevalence & Incidence Studies

Table 1: Hospital-Wide Pressure Ulcer Incidence

