



# Pressure Ulcer Outcomes With and Without Use of Pressure Mapping



Ana Allegretti<sup>1</sup>, PhD; David Brienza<sup>1</sup>, PhD; Margo Holm<sup>2</sup> PhD, OTR/L

Department of Rehabilitation Science and Technology<sup>1</sup> and Department of Occupational Therapy<sup>2</sup>, School of Health and Rehabilitation Sciences, University of Pittsburgh

## Background

A variety of risk assessment scales have been developed with the objective of identifying or predicting individuals who are at risk for developing pressure ulcers (PU). Ideally, PU risk should be assessed using a combination of a risk assessment scale and professional clinical judgment (Ferguson-Pell, 1990). Pressure at the buttock-seat interface is quantitative measure that can be used for identifying individuals at risk for developing PU (Roessler,1997; Sprigle,2000). However, balancing pressure information with a patient's complex needs for positioning and functioning is often difficult. This study compared PU outcomes for seating and wheeled mobility evaluation cases in which the cushion selected did and did not have the lowest measured pressure.

The study is a secondary analysis of data from the experimental group of a randomized clinical trial using seat cushions (RCT-SC) to prevent pressure ulcers with seat cushions. It explores the impact tradeoffs among these competing clinical goals on pressure ulcer incidence.

## Methods

This study is a retrospective analysis of the clinical decisions made by research team members and the use of a pressure mapping system when prescribing one of three types of pressure reducing seat cushions (PRCs):

- viscous fluid and foam,
- segmented air bladder,
- foam and gel

## Results

Participants had a mean age of 86.10 ( $\pm$  7.5) years and had lived in a nursing home for a mean of 2.26 ( $\pm$  2.2) years.

Demographic Variables	Frequency n=84	Percentage (%)
<b>Gender</b>		
Female	66	79 %
Male	18	21%
<b>Race</b>		
Caucasian	77	92%
African American	7	8%
<b>Deformity</b>		
Pelvic	63	75%
Spine	63	75%
<b>Incontinence</b>		
Urine	76	90%
Feces	64	76%
<b>PU History</b>	22	26%

## Results (cont.)

Cases were grouped into *clinical reasoning* and *clinical reasoning + pressure mapping* groups according to whether or not the cushion selected matched the cushion with the lowest pressure mapping measurement. Results are shown for each group for clinical decision (posture support, comfort, participant's opinion), pressure ulcer incidence, and peak pressure index.

	Clinical Reasoning	Clinical Reasoning + Pressure Mapping
<b>Clinical Decision</b>	60%	40%
<b>Pressure Ulcer Incidence</b>	21%	9%
<b>Peak Pressure Index (PPI)</b>	97.33 ( $\pm$ 38.6) mmHg	75.33 ( $\pm$ 21.01) mmHg

## Conclusions

- The group that developed pressure ulcers had higher values of PPI.
- Our findings suggest that clinicians should incorporate the use of pressure mapping into their clinical practice to guide them in the process of wheelchair cushion selection for people at high risk of developing pressure ulcers.

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## Contact Information

Ana Allegretti, PhD  
ala15@pitt.edu