

Preventing pressure injuries in vulnerable nursing home residents using a dynamic overlay: A pilot study

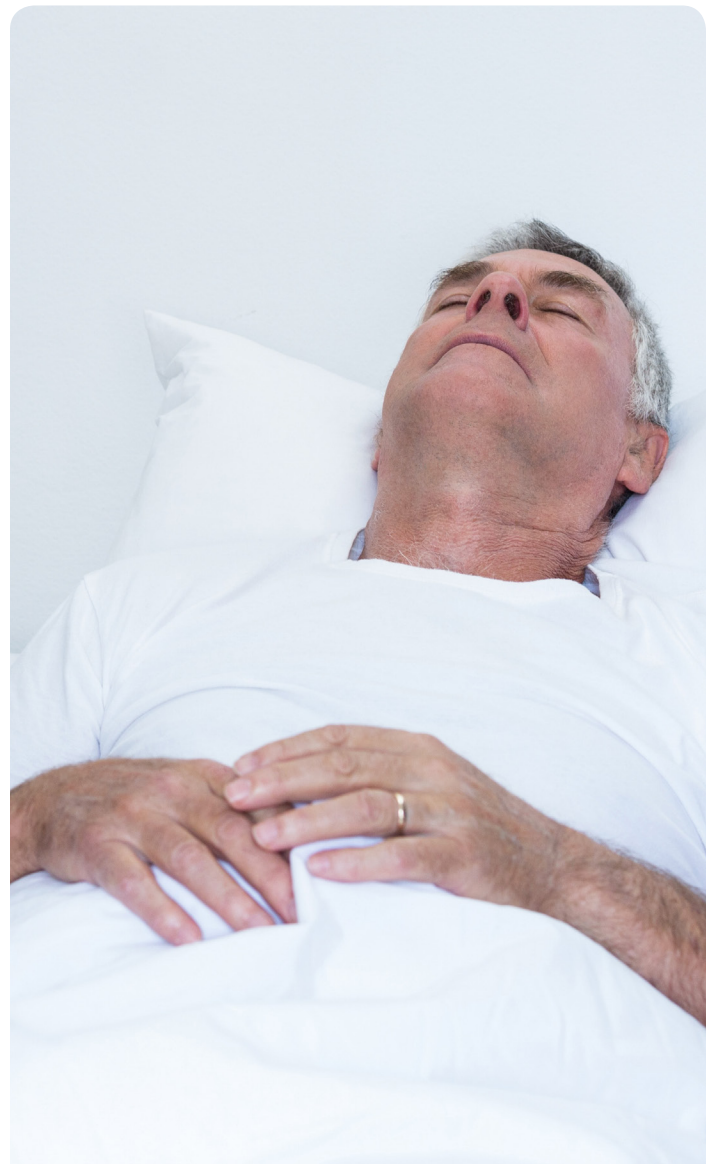
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BACKGROUND:

Pressure injuries (PIs) typically result from prolonged periods of uninterrupted pressure on the skin, soft tissue, muscle, or bone. PIs are associated with pain, decreased quality of life, increased mortality, longer hospital stays and significant healthcare expenses. Individuals in nursing homes have a wide range of impairments or medical conditions that increase their risk of developing PIs. The PI incidence rates vary from 2.2% to 23.9% in skilled nursing facilities and nursing homes. Patients from a nursing home are more than five times more likely to have a pressure ulcer on admission to the hospital than other patients.

OBJECTIVE:

To evaluate the effectiveness of an alternating pressure (AP) overlay when placed over static foam mattress to prevent pressure injuries in nursing home residents assessed to be at high risk for developing PIs.



METHODS:

A 400-bed nursing facility in New York city evaluated a low profile dynamic (AP) overlay to prevent pressure injuries in residents assessed to be at high-risk for development of pressure injuries. Seven female residents were enrolled in the study. The risk assessment was based on resident's diagnosis, ADL status, incontinence, mobility, cognition and history of previous pressure injuries. The high-risk residents are typically placed on expensive specialty mattress for preventing pressure injuries. In this evaluation, the residents were placed on an AP overlay positioned on top of a standard foam mattress.

RESULTS:

Seven female residents (Age range: 52 - 97 yrs; BMI range: 15.5 - 39, duration on overlay: 73 days to 124 days) participated in the evaluation. Most residents were incontinent, needed total assistance for ADLs, had dementia, and severe limitations of body movements. Nursing home residents assessed to be at high risk for PI typically have an incidence rate of 11% or higher. None of the residents in the study developed a PI while using the AP overlay. A study

participants developed a sacral PI two weeks after

"None of the residents [assessed to be high risk] in the study, developed a PI while using the AP overlay."

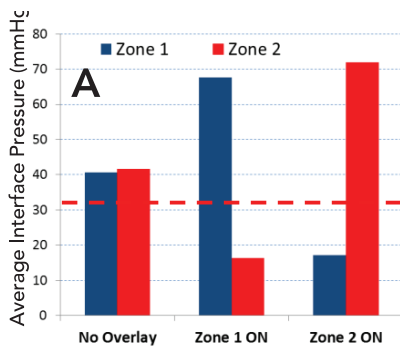


Fig A: Average interface pressure (IP) under the sacrum during the deflated cycles of the overlay were significantly less than the continuous IP observed for the mattress alone (no overlay). Red dotted line indicates IP of 32 mmHg. Zone 1 ON - Zone 1 of overlay is inflated; Zone 2 ON - Zone 2 of overlay is inflated.

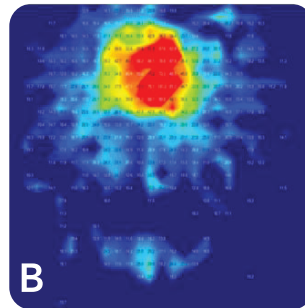


Fig B: IP mapping of pelvic area for mattress alone.

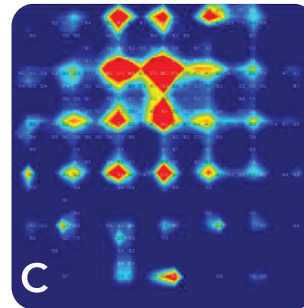


Fig C: IP mapping of pelvic area with the overlay placed on top of mattress - zone 1 is inflated.

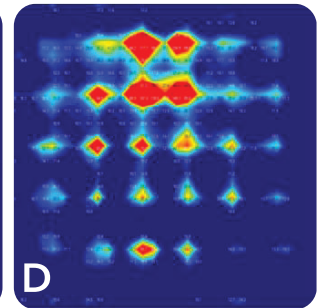


Fig D: IP mapping of pelvic area with the overlay placed on top of mattress - zone 2 is inflated. Red color indicates IP of 50 mmHg or higher. Blue color in Fig B-D indicates areas with IP less than 20mm Hg.

CONCLUSION:

The evaluation indicated that the dynamic overlay may be a suitable alternate to using expensive specialty mattress for preventing PI in vulnerable nursing home residents. Periodic off-loading is important to reduce the risk for developing pressure ulcers in post-acute settings.

REFERENCES:

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