

CLINICAL EVALUATION OF A NON-POWERED HYBRID SUPPORT SURFACE

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Introduction

In the clinical setting patients are identified as being at risk of pressure ulcer development through nursing assessment, consisting of visual inspection of the skin and use of a risk assessment scale. The core elements which are then initiated, as appropriate, for effective pressure ulcer prevention are: assessment of the patient's skin, provision of an effective pressure redistributing surface (mattress) in a timely manner, appropriate changing of the patient's position, avoiding moisture from incontinence and ensuring the patient receives appropriate nutrition. Evidence shows that when using this bundle of care, known as the SSKIN (Gibbons et al., 2006) pressure ulcer incidence can be reduced significantly (Tayyib et al., 2015).

One of the challenges within the clinical setting is the delay in provision of a rental pressure redistribution support surface, from the time of identification of need to the support surface being in situ under the patient. Furthermore, rental of products is expensive and increasingly Tissue Viability Nurses are being asked to explore alternate methods for the provision of effective pressure redistribution for patients.

Hybrid support systems have a higher specification than basic foam mattresses currently in use within many of the clinical settings in Ireland. This study set out to assess the effectiveness of the Dyna-Form® Static Air HZ mattress (Direct Healthcare Services), a non-powered hybrid system, within an acute care setting in Ireland.

This evaluation set out to determine if the use of the hybrid mattress was a safe and effective means of providing surface pressure redistribution for patients which was also cost effective and time saving.

Method:

A 6 week clinical evaluation of the hybrid mattress Dyna-Form® Static Air HZ was conducted, employing a prospective, non-comparative, research design. The evaluation was undertaken in an acute hospital setting in an urban location in Ireland.

The specific aims of this evaluation were to:

- Record the incidence of hospital acquired pressure ulcer damage over the trial period
- Record the incident of requirement for patients on the hybrid mattress to move to a higher grade pressure mattress (rental)
- Analyse the time taken to install a rental mattress under a patient and time taken to remove it
- Determine if the use of the hybrid mattress Dyna-Form® Static Air HZ is a safe and effective means of providing surface pressure redistribution for patients which is also cost effective and time saving

One clinical ward within the hospital was selected and all the beds within the ward were fitted with the non-powered hybrid surface mattress. The total population of the ward were invited to participate. Data was collected using a bespoke data collection tool, focussing on the following:

- Patient demographics, age, gender, Norton score, mobility status, presence of a pressure ulcer on admission
- Incidence of pressure ulcers developed during the evaluation period
- Requirement for using a rental pressure redistributing product
- Requirement for use of additional pressure redistributing equipment
- Patient feedback
- Nursing staff feedback

Results:

The mean time to installation of a rental pressure redistribution device under the patient was 32.5 minutes (SD: 11.53 minutes; min 22 minutes; max 48 minutes). The mean time for removal of the mattress was 35.4 minutes (SD: 7.40; min 30 minutes; max 48 minutes). In total, this equates to 67.9 minutes on average for installation and removal time of the mattress. No additional rental product was required throughout the study, however 56 of the included participants would have usually been prescribed a rental product. This accounts for a saving of 63.37 hours, or 9 days of staff effort.

Over the trial period the results demonstrated the following:

- 2.5% PU incidence
- 63.37 hours of time released back to patient care
- The potential to achieve cost savings as no additional pressure redistributing equipment was used for any participant during the evaluation period



Discussion & Conclusion

Using the estimated staff savings time in this study, the mattress has the potential to achieve significant cost savings for acute hospital services. This trial demonstrates that, by employing available innovation that effectively facilitates earlier pressure care intervention with a higher grade support surface, it may be possible to meet the challenge of simultaneously improving clinical outcomes and operational effectiveness.

Based on the findings, and the feedback from participants and nursing staff, it is reasonable to conclude that use of the hybrid mattress was a safe and effective means of providing surface pressure redistribution for patients, which was also cost effective and time saving.



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