A 351 PATIENT EVALUATION OF THE DYNA-FORM® STATIC AIR HZ MATTRESS IN A CARDIOTHORACIC UNIT

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Introduction

Despite intensive pressure ulcer prevention strategies being in place, patients on the Cardiothoracic Ward were still developing a small but consistent number of pressure ulcers. Over the previous 12 months, 24 pressure ulcers occurred of which 9 were heel pressure ulcers (10 sacral and 5 device related). It was therefore decided to evaluate a new mattress, the Dyna-Form® Static Air HZ mattress. In addition, there was a high use of alternating pressure mattresses (APAMs) resulting in a high spend.

The Cardiothoracic Unit cares for 2 main groups of patients those having cardiac surgery e.g. coronary artery bypass surgery; heart valve surgery; aortic surgery and those having thoracic surgery e.g. lobectomy, to remove one or more lobes of a lung; pneumonectomy, to remove a lung; chest-wall deformities (pectus surgery).
Both groups of patients are generally admitted via the Cyril Edwards Ward (CE) but follow different pathways; patients undergoing cardiac surgery are warmed in theatre and then go to the cardiac intensive care unit (CITU) before returning to the ward, patients undergoing thoracic surgery are cooled in theatre and then go Cardiac High Dependency Unit (CHDU) prior to return to the ward.

Method

Mattresses across the admission ward (CE) and CHDU were all replaced with the Dyna-Form® Static Air HZ mattress; CITU retained their APAM mattresses. Patient data was collected on admission, on return from CITU and immediately prior to discharge. This included their risk status and presence / absence of pressure ulcers.
For the first 4 months forms were completed by ward / unit staff however there was a very poor compliance rate. After analysis of the first 4 months data a dedicated member of staff (HC) was allocated to follow the forms and ensure they were fully completed.

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Results

Over a 1 year period 351 patients completed the evaluation (125 female, 206 males, 20 not recorded) – see Table 1 for demographic details. No patient developed a pressure ulcer whilst on the HZ mattress.

There were 8 patients who developed 9 hospital acquired pressure ulcers however following a full root cause analysis procedure it was identified that all of the patients had been cared for on the APAM systems and had extended periods in theatre. 2 were deemed to be equipment related.

Spend on APAMs was significantly reduced with only 1 patient outside of CITU requiring an APAM (compared to 11 in the 4 months prior to the evaluation).

- ✓ 351 PATIENTS
- ✓ NO PATIENT DEVELOPED A PU WHILST ON THE STATIC AIR HZ
- ✓ SPEND ON APAMS SIGNIFICANTLY REDUCED

	All Patients Mean (Range)	Female Mean (Range)	Males Mean (Range)
Age	67.9 (21 – 98)	67.5 (21 – 89)	68 (26 – 93)
Height	164.8 cm (111 – 184)	156.5 (131 – 170)	170.4 (111 – 184)
Weight	81.7 kg (42 – 170)	72.9 (42 – 126.1)	86.9 (48.3 – 170)
Waterlow on Admission	8.9 (1 – 20)	8.8 (4 – 20)	8.9 (1 – 20)
Days on HZ	8.6 (1 – 34)	8. 9 (1 -34)	8.4 (1 – 34)
Days in ITU	1.9 (1 – 7)		

Table 1. Demographic Data

ITU Patients

143 patients were cared for in ITU for a part of their stay, overall they spent on average longer on the HZ mattress (11.8 days) than patients who did not require an ICU stay (8.6 days) despite their increased risk (average Waterlow 18.3 compared to non ITU patients average 8.9) and increased length of stay. None of these patients developed a pressure ulcer whilst on the HZ – see Table 2.

	All Patients Mean (Range)
Age	71.2 (30 – 89)
Weight	83.24 (46.5 – 170)
Waterlow post ITU	18.3 (12 – 25)
Number of days on HZ	11.8 (1 – 34)

Table 2. ITU Patients Demographic Data

Discussion

Use of the Dyna-Form® Static Air HZ alongside education on the appropriate use of the equipment has been beneficial for the patients and staff of the Cardiothoracic Unit. Despite the reduction in use of APAMs, the overall number of pressure ulcers has reduced across the area suggesting that a good quality standard mattress with a specific heel zone plays a role in prevention of their occurrence.

Collecting the data over the time period proved challenging but the allocation of a specific member of staff to follow up the forms made a significant improvement in the data quantity and quality.

Conclusion

Patients have been safely nursed on the new hybrid mattresses for as long as 34 days. Over this evaluation, patients were on the hybrid for 3007 days with no pressure damage occurring. Use of the hybrid mattresses has resulted in reduction in the number of patients developing pressure damage and cost savings (based on: not developing PU, not using additional APAMs and there was no additional heel protection used).
The hybrid mattress has proven to be effective in this group of patients.