



Evaluation of a range of hospital replacement mattresses

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Mattress Evaluation

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Introduction

- A common strategy in avoidance of pressure sores is the use of pressure redistributing mattresses. These are believed to prevent both initial development of pressure sores and the deterioration of established sores. This corresponds with the need for a standard, high quality foam mattress for use throughout community and hospital Trusts.
- The Altnagelvin Area HSS Trust is the largest acute hospital in the Western Board area with 500 beds. The Trust was scheduled for large-scale mattress replacement in early 1998.



Method

- A product evaluation process was instigated to examine quality of product, after-sales service, life expectancy, warranty, customer feedback and price.
- Mattresses were loaded using a specially manufactured wooden hemispherical indenter of diameter 20cm. Fitted with a short stump and pipe that was constrained to move vertically in a guide-channel. The pipe and hemisphere carried three 10kg weightlifters' weights. Pressure sensors were taped to the apex of the hemisphere prior to loading. The interface pressures were recorded immediately after loading, 24 hours later and after 24 hours recovery. Attention was paid to the absolute peak pressures and the percentage change relative to the initial readings.
- Having achieved a high ranking in the indenter testing, selected mattresses were placed in the clinical setting for a two-week period to gather users' opinions about practical use.

Results

The 13 tests demonstrated variable pressure relieving properties. Peak readings were taken to indicate the level of pressure sore care. A process of exclusion was adopted in order to find a subset suitable for clinical evaluation.

Rejected Indentor testing

- Clinisert;
- Vaperm: - Withdrawn at the request of the supplier;
- Serendipity Talley;
- Pegasus Key 2 Care;
- Softform;
- Vapourlux;
- Omnifoam;
- Thermo Contour.

Shortlisted for Clinical Evaluation

- Pentaflex;
- Transfoam;
- Prima STM6.

Clinical Evaluation

- Three mattresses were shortlisted for clinical evaluation following the Indentor Test, and were introduced into a Medical Ward. Each was received favourably by both nursing staff and patients.
- The transfoam mattress cover tended to wrinkle and remain in a wrinkled state resulting in some discomfort to patients.
- The Pentaflex 12 - produced less of a tendency for patients to slip down the bed. This aspect was regarded very favourably by patients and staff, as there would be less need for staff to readjust immobile patients.

Conclusion

- In terms of patient and staff feedback all three of the shortlisted mattresses were identified as being similar in terms of comfort and ease of handling. With regard to Supplier Warranty, the Pentaflex mattress had a 4-year full warranty. When life expectancy and ultimately a basic calculation of life cost per year was performed, one mattress emerged as the most cost efficient.
- The final decision was made to purchase Pentaflex from Huntleigh Healthcare.