AN INVESTIGATION INTO THE USE OF HYBRID MATTRESS TECHNOLOGY TO REDUCE PU INCIDENCE & COSTS

The Christie NHS
NHS Trust

Sharon Gardner, Tissue Viability Nurse. Sharon.Gardner@christie.nhs.uk
Jacqui Fletcher, Independent Consultant, Jacqui.Fletcher@live.com

Introduction

A strategic approach was required to reduce the number of pressure ulcers acquired by patients with accelerated health conditions in the care of Palatine Ward, predominantly haematology and young oncology patients.

With consideration given to a number of other factors – increasing patient loads, bed waiting times, cost pressures and a necessity to react faster to skin breakdown – it was felt that a more innovative and sustainable solution should be considered. A financial review into equipment provision was also needed to establish a more cost effective method of managing pressure redistribution equipment, with eliminating avoidable harm (pressure ulcers) as the primary driver.

Methods

A project commenced to determine whether adopting a different support surface could support PU incidence reduction whilst reducing costs.

A review examining equipment deployment alongside historical PU data showed patients could wait over 4 hours for the correct surface with patients' conditions often deteriorating rapidly to the point where they can no longer be moved before their mattress arrives.

The same review also determined that the 31 bedded ward was spending circa £11,000 p.a. on the rental of dynamic mattresses. While the Trust owned the static mattresses, when required for a patient considered to be at a higher risk of pressure damage, dynamic mattresses were rented from an external supplier. Conditions of the rental agreement required the dynamic mattresses to be decontaminated off ward after every patient use and stored on site until collection.

A powered hybrid was proposed which had been shown to reduce the time taken to ensure patients were on the correct support surface, significantly reducing PU incidence[1]. A business case demonstrated the potential financial benefits, weighing up the Risks & Benefits of continuing with the existing approach vs implementing the new powered hybrid surface (table ii). Following analysis a decision was made to implement a powered hybrid mattress on all beds in the ward.

Data taken from a mini-audit on dynamic surface deployment reinforced review findings, with the results showing it could take as long as or almost 7 hours to get patients onto the correct surface and in other cases the dynamic surface was refused by the patient for comfort reasons.

Table i

	Time taken from ordering dynamic mattress to delivery	Total time taken from ordering dynamic mattress to being put under the patient
Patient 1	2 hrs 35 min	3 hrs 20 min
Patient 2	1 hr	2 hrs
Patient 3	4 hrs 30 min	6 hrs 50 min
Patient 4	4 hrs 10 min	6 hrs 10 min
Patient 5	2 hrs 45 min	3 hrs 45 min
Patient 6	7 hrs 45 min	Patient refused as found it uncomfortable
Patient 7	3 hrs	Patient refused as found it uncomfortable

Option 1: Continue ad-hoc rental of Dynamic mattresses

Risks:
- Unable to demonstrate best value – rolling rental charges
- Risks of unscheduled delay in receiving ordered dynamic systems potentially placing patients at risk of pressure ulcer development
- Continued requirement to decontaminate dynamic mattress systems after every patient use off ward
- Continued investment of nursing resource to transfer patients from static to dynamic surfaces
- Continued negative impact on the patient experience during transfer of pressure care surfaces
- Poor visibility of Trust spend if numbers of rented mattresses increase through winter pressures or a shift in the demographic of patients
- Loss of any savings opportunity
- Potential over-prescription of 'High Risk' dynamic mattress systems harbouring associated costs
- Requirement for a storage area of dynamic systems when not in use and awaiting collection

Benefits:
- Has worked on the ward for approximately five years

Option 2: Invest in innovative Hybrid pressure care technology

Risks:
- Capital outlay

Benefits:
- Reduction / abolition of patient transfer when stepping up / down patients to a higher / lower risk category mattress – releasing back nursing time to care
- Extensive reductions in time taken to step up / down patients to a higher / lower risk category mattress
- Capital outlay (including year on year maintenance costs) would pay for itself within 15 months
- Elimination of logistical / storage issues of large dynamic systems while awaiting collection
- Systems decontaminated on the ward in line with current Infection prevention guidelines remaining at the site of asset ownership as a static mattress
- Outright asset ownership
- Better visibility of ward spend through 5 year total life cost package, provided from supplier to cover all mattress

Results

Since implementation (6 months):

- 100% reduction in PU incidence (table iii)
- Demonstrated cost savings equate to £38k over 5 years for this one ward

Table iii

PU Category	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Total
I	0	0	0	0	0	1	1
II	1	1	2	0	3	2	9
							10

PU Category	Jul 2015	Aug 2015	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Total
I	0	0	0	0	0	0	0
II	0	0	0	0	0	0	0
							0

Due to its success the project is now in final sign off phase for a whole Trust approach.

Discussion

Given the positive results of this project, powered hybrid support surfaces could potentially represent a 'best practice' solution – providing a faster, more reactive solution to skin deterioration, while surpassing 'best value' expectations from a budget perspective.

Clinical Significance

The results demonstrate a powered hybrid can be safely used with patients suffering complex clinical needs with accelerated health conditions (haematology and young oncology).

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Reference:

1. Jones L, Tite M (2013) "Do you really know how soon your patient is on an alternating mattress in a hospital setting? A study examining opportunities in safety, effectiveness and improved patient experience."