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Abstract

Pressure damage has high cost implications to the patient and care providers. The choice of appropriate equipment to help in the prevention of tissue damage is hampered by extensive choice and little guidance on the most effective product to use. The static-led approach was introduced into Carmarthenshire NHS Trust 3 years ago. This approach simplified the choice of equipment, improving the appropriate usage and reducing expenditure. This article aims to evaluate the approach 3 years after its introduction to determine if the benefits to the patient and the organization still apply.

Key words: Pressure ulcers ■ Equipment and supplies

Selecting equipment for pressure damage prevention is complex and challenging. Despite recent recommendations from the National Institute for Clinical Excellence (NICE) relating to pressure-relieving equipment (NICE, 2003) there still appears to be little evidence to support individual pieces of equipment.

Three years ago in an acute general hospital in the author's trust, effective coordination and management of pressure-damage prevention was not evident. This resulted in pressure-reducing equipment being procured at ward level with decisions being based on financial and individual preferences. The equipment was not standardized and remained at ward level with no rationale for its use, often being stored in bathrooms or under patients who were mobile and independent. Servicing of the equipment was reactionary and often led to equipment failure in periods of high demand. As a result, escalating rental costs of over £200 000 per year and a prevalence rate of 30% became a driving force to coordinate and rationalize the management of pressure-reducing equipment. In response to this, a project team of clinical, managerial, procurement and finance representatives was set up to establish the resource requirements of the hospital by evaluating the equipment need in clinical practice. A prerequisite was to establish a programme of care within the constraints of current expenditure. The group decided to adopt a static-led approach (Thomas and James, 2002).

The static-led approach

The fundamental principle of a static-led approach is to provide an environment in which pressure ulcers do not develop or

existing pressure ulcers improve. However, ensuring that the patient is being nursed on an appropriate mattress for his/her need was not always being achieved. It has been suggested that the problem of pressure ulcer development could potentially be resolved through the provision of appropriate pressure-reducing equipment to those individuals at risk (Maylor, 2001).

In order to improve appropriate use of equipment, the static-led approach ensured simplicity in equipment choice. All patients would be nursed on a standardized pressure redistributing foam mattress (MSS Softform) except those that were assessed through the combined use of a risk-assessment tool and clinical judgment to be at very high risk of developing pressure damage. These patients would be nursed on a dynamic mattress system suitable for their level of need (Cairwave, Pegasus Ltd, Hants). It was recognized that suitable pressure-reducing surfaces (if required) should be used when the patient is seated, and an important part of the approach was ensuring that appropriate cushions were allocated to patients at any level of risk of developing pressure damage (Collins, 2004).

It is accepted by the author that there appears to be a lot of negativity when writing about risk-assessment tools. However, some positive attributes are that by standardizing the assessment process of patients and prompting nurses by highlighting the risk factors they can create a framework on which appropriate care is provided. It has been said that the

Table 1. Benefits of a static-led approach

- Effective equipment selection from a two-system approach increased appropriate usage by simplifying mattress choice
- A high level of protection was given to all patients admitted to hospital because all beds had a redistribution foam mattress which offers a high level of protection against pressure damage
- Significant reduction in the number of dynamic mattresses as a result of utilizing the foam mattress for all patients apart from those assessed to be at very high risk of pressure damage
- Reduced costs as a result of the reduction in the number of dynamic mattress systems
- Positive staff satisfaction survey (Thomas and James, 2002)
- Equipment available at point of need. This means that the gap between identified need and the appropriate therapy for the patient is reduced, and also a reduction in the time wasted by staff in hiring or phoning other clinical areas for equipment allows more time to concentrate on patient care
- Reduced prevalence rate as a result of more patients being nursed on the appropriate mattress for their level of need

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Figure 1. Pressure Sore Prediction Score (PSPS) assessment tool; PREM = pressure-reducing foam mattress (Source: Lothian, 1989).

introduction of risk-assessment tools in conjunction with the establishment of education programmes and protocols may reduce the incidence of pressure ulcers (McGough, 1999) and it is generally accepted that they will help to identify the next care intervention (Collier, 2001). The use of scales alone to assess patient risk cannot be supported on the basis of current

evidence, and while a risk-assessment tool can be an important part in an overall pressure ulcer prevention strategy, it should be an aid to clinical judgment and not a substitute for it (Scott, 2000).

As part of a 7-year managed programme in the author's trust, all foam mattresses were replaced, gel cushions were procured and dynamic mattresses were leased, in which a servicing and repair contract was also included. The benefits of the static-led approach are listed in *Table 1*.

The dynamic systems are on a 7-year leasing contract and all static systems were purchased with a rolling replacement programme set up. To fully implement, manage and develop the programme a tissue viability nurse (TVN) was appointed. Mattresses were located in a centralized store and allocated to wards as per individual patient need. A support worker was appointed to facilitate the process. This resulted in a more manageable and cost-effective system.

In line with NICE (2001) guidelines, initial risk assessment was within 6 hours of admission, and a core care plan was introduced to facilitate ongoing assessment of patient risk status, promote the appropriate allocation of systems and provide an audit trail. This 7-year programme of care, inclusive of the appointment of the TVN and support worker, was achieved within current expenditure and included significant cost savings.

Three years later

The initial benefits of the managed system were evident; however, could these benefits be maintained 3 years after the introduction of the static-led approach? The amalgamation with a neighbouring hospital had seen an increase of beds to nearly 700, and it was decided to standardize the approach across the trust. All dynamic mattresses, apart from those that offered a very high level of support, were removed from the second hospital and a variety of foam mattresses were replaced with MSS Softform. Cushions were replaced and documentation was standardized.

Training and education is ongoing throughout the whole trust in all the clinical and operational aspects of pressure damage prevention.

Documentation

Assessment of the patient's risk status using clinical judgment and a formal tool (*Figure 1*) were seen as playing a key role in the success of the static-led approach. Patients at risk are assessed daily and 'stepped up or down' from the dynamic mattresses depending on their clinical condition (in accordance with local policy). Initially, there was no place in the nursing documentation to record the patient's risk score and compliance identified on audit was poor, with less than 40% of patients having an up-to-date assessment. The introduction of a standardized care plan in line with the NICE (2003) guidelines allows for the risk assessment to be accessible to all members of the interdisciplinary team (see *Figure 1*). It has also increased the number of patients having an up-to-date assessment to 85%.

Mattress selection

Initially there was a concern that the static mattresses would be compromised by the need for frequent movement between wards and the equipment library. However, the MSS Softform mattresses

Name of Patient			
Problem/need:			
PSPS	<6	<input type="checkbox"/>	
PSPS	6-9	<input type="checkbox"/>	
PSPS	10-11	<input type="checkbox"/>	
PSPS	12-16	<input type="checkbox"/>	
Objective:			
Preventive <input type="checkbox"/>		Treatment <input type="checkbox"/>	
To reduce/relieve pressure		To relieve pressure	
To maintain skin integrity		To promote healing	
To monitor effects of prevention measure		To monitor effects of treatment and nursing intervention	
Plan of care			
Has the plan of care been discussed and agreed with patient or relative? Yes <input type="checkbox"/> No <input type="checkbox"/>			
If no, specify reason:			
Prevention <input type="checkbox"/>		Healing <input type="checkbox"/>	
PSPS 6			
Re-assess as condition changes			
PSPS 6-9			
1)	Pressure-reducing foam mattress	Type:	
2)	Pressure reducing cushion	Frequency:	Minimum 2 hourly
3)	Regular repositioning		
4)	Encourage independent movement by the client		
PSPS 10-11			
1)	Pressure-reducing foam mattress	Type:	
2)	Pressure reducing/relieving cushion	Frequency:	Minimum 2 hourly
3)	Regular repositioning		
4)	Encourage independent movement by the client		
PSPS 12-16			
1)	Cairwave		
2)	Pressure reducing/relieving cushion		
	Daycare <input type="checkbox"/> Pro-Active <input type="checkbox"/> Floteck Solution <input type="checkbox"/>		
3)	If pressure ulcer present initiate wound assessment form		
Signature: _____		Date: _____	
Please see overleaf			
PSPS ABOVE 6: Daily assessment			
PSPS BELOW 6: Weekly assessment or as condition changes			
Date	PSPS	Comment	Signature

have been audited annually and, in agreement with Gray et al (1998), have continued to perform well. There has been no evidence of loss of function of the foam. Replacement covers and inserts have been unremarkable and within anticipated budget allowances of £1000 per annum. The dynamic mattresses that are on a lease agreement have ensured a constant supply of appropriate equipment for those patients at very high risk of pressure damage. An agreed rental pool of five mattresses allows immediate access if all leased systems are in use, without the delivery time and costs normally incurred. Original budget of £10 000 per annum was allocated in the programme for anticipated rental costs. However, over the last year the actual rental spend was less than £1500 for the two hospital sites combined.

Centralized equipment library

An equipment library was opened in the second hospital and a support worker employed to facilitate this and provide support in the delivery and installation of the equipment. Owing to the success in reducing the amount of equipment, it was decided to extend both libraries to include infusion devices. Since opening, the libraries have been met with a positive response from nursing, portering and medical electronics staff. The equipment has been well utilized and kept stored in a clean condition and is readily available at the point of need. Equipment needing routine servicing can be sought using an electronic tracking system, which has proved to be very effective in saving both time and resources. Equipment is selected from a request form (Figure 2), which initiates the first stage of the tracking, and decontamination forms returned with the equipment end the process.

The libraries have facilitated a reduction in the amount of infusion devices needed, which has resulted in further cost savings for the trust.

Appropriate usage

In the 1997 White Paper *The New NHS: Modern, Dependable*, the Government introduced change that would place great emphasis on improving quality of care, treatment and services to the public (Department of Health (DoH), 1997). A new framework of governance was introduced to ensure that clinical management and educational practice is based on scientific evidence (DoH, 1998). This change is implemented at a macro level by the formation of NICE to produce guidelines and assess new technology. More locally, the Health Commission (formally the Commission for Health Improvement) has been created, to monitor the quality of services in both primary and secondary care. At the micro level, clinical governance has made each local chief executive accountable not only for financial management, but also for the quality of the services they provide. Clinical governance incorporates a number of processes, one of which being clinical risk management.

Ensuring that the patient is nursed on the appropriate mattress helps to meet and improve the patient experience through safe and high quality care. Initially when the static-led approach was introduced in the author's trust a reduction in inappropriate usage of equipment was noted. This has been monitored through audit over the last 3 years. Recent results indicated that the reduction has maintained inappropriate use at 1.6%. This has been mirrored in the second hospital, where

inappropriate use has been reduced from 26% down to 4.6% in the last year since the introduction of the static-led approach.

This year the management of pressure-reducing equipment was cited as an example of good practice in the Welsh Risk Management Standards annual review, an internal document which was part of the trust report.

Prevalence and incidence

Incidence and prevalence surveys reported in the literature suggest that at any one time between 10% and 15% of the general hospital population is likely to be at risk of pressure ulcers (Gebhardt, 2003). Large variations in prevalence and incidence have been reported across healthcare settings. Incidence is usually defined as the number of persons developing a pressure ulcer after admission divided by all new admissions during the study period (Bergstrom et al, 1994), whereas prevalence is defined as a cross-sectional count of the number of cases at a specific point in time (Philips, 1997).

Figure 2. Equipment request form; PPH = Prince Phillip Hospital; WWGH = West Wales General Hospital.

Ward	Patient's ID No.	
Date	Signature (staff requesting equipment)	
Time		
Item requested		
Infusion device (Please tick appropriate box)		
PPH		
Graseby 500 volumetric pump (wards 5 and 6 only)		
Baxter 6201/6200 volumetric pump (wards 1, 2, 3, 4, 7 and 8 only)		
Alaris (IVAC) P2000 syringe pump		
Graseby MS 16a syringe driver		
WWGH		
Alaris (IVAC) P2000 syringe pump		
Critikon syringe pump		
Graseby 3100 syringe pump		
Graseby 500 volumetric pump		
Graseby MS 26 or 16a syringe driver		
Inventory number of infusion device (Porter to enter when issuing pump)		
Mattress		
PPH		
Patient's PSPS score		
If PSPS 12 16 use	Nimbus III/Cairwave	
WWGH		
If PSPS 12 16 use	Pegasus Cairwave	
Inventory number of mattress (Porter to enter when issuing mattress)		

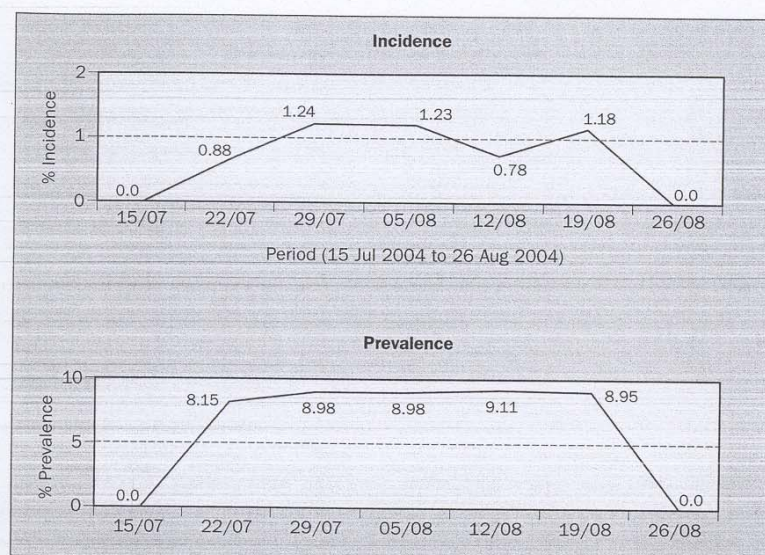


Figure 3. Examples of data generated from the electronic database.

In this trust, point-prevalence data were traditionally collected twice a year; however, this was not entirely satisfactory as the 'day or month when a survey is carried out can markedly affect the results' (Bridel, 1995).

It was decided that an electronic database dedicated to record the weekly incidence and prevalence of pressure ulcers throughout the trust would be used. This database was named SPIDER (Systematic Prevalence and Incidence Date with Enhanced Recording) and was provided by Pegasus as part of the lease contract. While it is difficult to compare prevalence and incidence data with other hospitals owing to variations in study populations and data-collection methods, the regular collection of data has internal benefits. Instant access to prevalence and incidence figures for any period (Figure 3) and in any specific area of the trust, directorates or wards allows monitoring and comparisons to be made of this trust's performance. Identification of information such as grade, location and origin of ulcers for each clinical area allows specific problems to be highlighted and can be used to determine educational requirements. Figure 4 details the anatomical location of pressure ulcers since patient admission to hospital. Timely intervention can be implemented from the identification of early signs of pressure damage.

Conclusion

The static-led approach was introduced 3 years ago to improve patient care, decrease costs and provide a simple but effective pressure damage prevention programme. It is felt that this objective has been achieved during this time. The system has been regularly monitored since its introduction and more recently extended to other areas of the trust. Increase in appropriate equipment usage and assessment of patients' risk status as well as a reduction in incidence figures ensures improved clinical effectiveness. At the same time reduced costs allow for a controlled financial budget which has positive organizational benefits.

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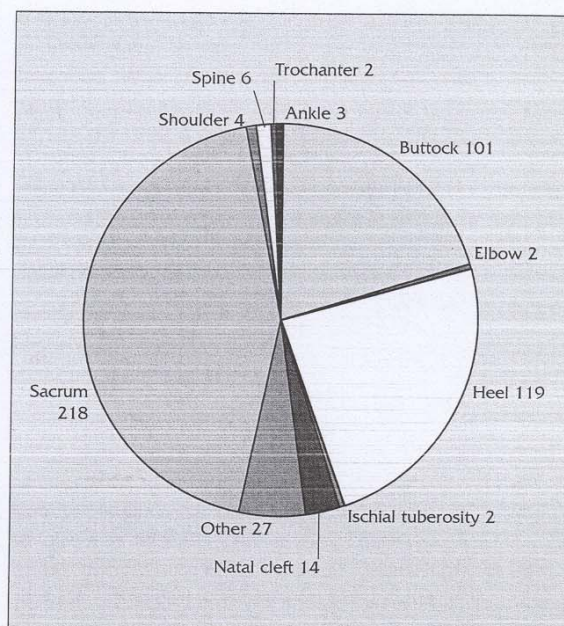


Figure 4. Anatomical location of pressure ulcers developing since admission to Carmarthenshire NHS Trust (between 01/01/2003 and 01/01/2004).

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KEY POINTS

- The static-led approach simplifies the use of pressure-damage prevention equipment and has clinical and cost benefits.
- Benefits can result from the introduction and management of an equipment library.
- Emphasis should be placed on the importance of using clinical judgment supported by a formal assessment tool.
- After the introduction of the static-led approach, pressure ulcer prevalence rate reduced from 30% to 9% and significant savings were achieved in rental costs.