iQ® MEDICAL

SUMMARY OF CLINICAL EVIDENCE

IQ Medical

Summary of Clinical Evidence

Introduction

This booklet aims to describe and give a synopsis of the evidence to support the portfolio of Pressure Care Equipment supplied by iQ Medical.

In 2017, following a business restructure, IQ Medical became the new name of Shelden Healthcare. It should also be noted that with this change the original products described in the evidence have gone through upgrades, improvements and generation changes made following customer feedback and to remain compliant with Infection Prevention guidelines. The therapy settings and cells remain unchanged which allows for the evidence on all products to be cross referenced to the new generation, improved, brands.

The evidence is based on clinical in market evaluations and multi-site data collection (Data on File).

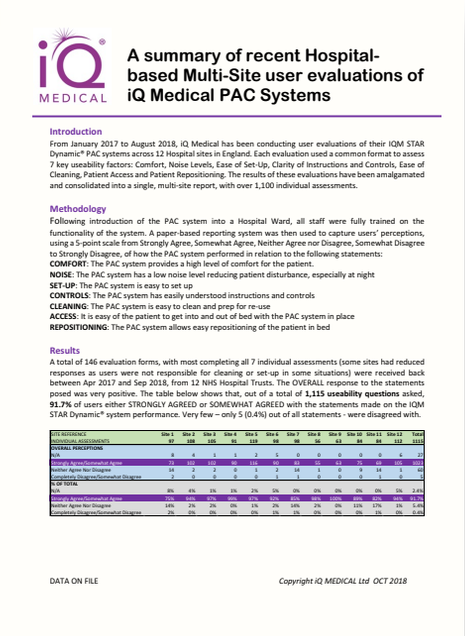
Healthcare Professionals responsible for reviewing Pressure Care Equipment, should feel confident, and have the ability to interpret any data, understand the strengths and weaknesses of published papers which should include the quality of the journal or conference where delivered, and if any peer review has been undertaken. This should be translated effectively to give the ability to understand the quality of the work and products, and the relevance to clinical environments.

IQ Medical pride themselves on the level of independent evidence available and its relevance to a number of care settings to include Acute and Community Trusts plus the Private sector (Care Homes). It acknowledges that a full plan of care must be implemented and that the appropriate support surface is only one element. To ensure individuals remain safe, have a positive healthcare experience, and care is based on prevention rather than treatment, is of great importance to the team at iQ Medical. The full product range meets all necessary quality and regulatory standards for the appropriate type of medical device.

Full copies of all the evidence is available on request. Either electronically, paper version or on the IQ Medical website.

Contents – The Evidence

A summary of recent Hospital-based Multi-Site evaluations of iQ Medical PAC Systems



iQ MEDICAL

A summary of recent Hospital-based Multi-Site user evaluations of iQ Medical PAC Systems

Introduction

From January 2017 to August 2018, iQ Medical has been conducting user evaluations of their IQM STAR Dynamic® PAC systems across 12 Hospital sites in England. Each evaluation used a common format to assess 7 key useability factors: Comfort, Noise Levels, Ease of Set-Up, Clarity of Instructions and Controls, Ease of Cleaning, Patient Access and Patient Repositioning. The results of these evaluations have been amalgamated and consolidated into a single, multi-site report, with over 1,100 individual assessments.

Methodology

Following introduction of the PAC system into a Hospital Ward, all staff were fully trained on the functionality of the system. A paper-based reporting system was then used to capture users' perceptions, using a 5-point scale from Strongly Agree, Somewhat Agree, Neither Agree nor Disagree, Somewhat Disagree to Strongly Disagree, of how the PAC system performed in relation to the following statements:

COMFORT: The PAC system provides a high level of comfort for the patient.
NOISE: The PAC system has a low noise level reducing patient disturbance, especially at night
SET-UP: The PAC system is easy to set up
CONTROLS: The PAC system has easily understood instructions and controls
CLEANING: The PAC system is easy to clean and prep for re-use
ACCESS: It is easy of the patient to get into and out of bed with the PAC system in place
REPOSITIONING: The PAC system allows easy repositioning of the patient in bed

Results

A total of 146 evaluation forms, with most completing all 7 individual assessments (some sites had reduced responses as users were not responsible for cleaning or set-up in some situations) were received back between Apr 2017 and Sep 2018, from 12 NHS Hospital Trusts. The OVERALL response to the statements posed was very positive. The table below shows that, out of a total of **1,115 useability questions** asked, **91.7%** of users either STRONGLY AGREED or SOMEWHAT AGREED with the statements made on the IQM STAR Dynamic® system performance. Very few – only 5 (0.4%) out of all statements - were disagreed with.

SITE REFERENCE	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Total
INDIVIDUAL ASSESSMENTS	97	108	105	91	119	98	98	56	63	84	84	112	1115
OVERALL PERCEPTIONS													
N/A	8	4	1	1	2	5	0	0	0	0	0	4	27
Strongly Agree/Somewhat Agree	73	102	102	90	116	90	83	55	63	75	69	105	1023
Neither Agree Nor Disagree	14	2	2	0	1	2	14	1	0	9	14	3	62
Completely Disagree/Somewhat Disagree	2	0	0	0	0	1	1	0	0	0	1	0	5
% OF TOTAL													
N/A	8%	4%	1%	1%	2%	5%	0%	0%	0%	0%	0%	5%	2.4%
Strongly Agree/Somewhat Agree	75%	94%	97%	99%	97%	92%	85%	98%	100%	89%	82%	94%	91.7%
Neither Agree Nor Disagree	14%	2%	2%	0%	1%	2%	14%	2%	0%	11%	17%	3%	5.6%
Completely Disagree/Somewhat Disagree	2%	0%	0%	0%	0%	1%	1%	0%	0%	0%	1%	0%	0.4%

DATA ON FILE

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Introduction

This paper is based on a multi-centre clinical in market user evaluation of IQ Medical/Shelden Healthcare Dynamic PAC Systems completed over 20 months during 2017-2018. Data collection was taken from across 12 Hospital sites throughout the United Kingdom.

A total number of 146 user and patient assessments were made using a standard evaluation form completed on each site. There were 7 key useability parameters captured within the data collection tool:

- Patient Comfort – The PAC system provides a high level of comfort for the patient.
- Pump noise levels – The PAC system has a low noise level reducing patient disturbance, especially at night.
- Ease of set up of the mattress and pump – How easy is the PAC system to set up.
- Clarity of instructions and the pump controls – The PAC system has easily understood instructions and controls.
- Ease of Cleaning – The PAC system is easy to clean and prepare for the next patient.
- Patient Access and Patient Repositioning – The PAC system allows easy access and repositioning of the patient in bed.

Collation of all the evaluations to produce this single report equates to 1115 individual assessments.

Method

All appropriate patient and organisation consent was obtained and Clinical Governance procedures followed. The Tissue Viability Nurse gave approval and supported the evaluation.

All hospital-based ward staff were fully trained on the functionality of the system. Continuous support throughout the evaluation was given by an IQ Medical/Shelden Healthcare Account Manager.

A paper based reporting system was introduced to capture the users perceptions. This was a subjective tool using a 5-point scale:

- Strongly Agree
- Somewhat Agree
- Neither Agree nor Disagree
- Somewhat Disagree
- Strongly Disagree

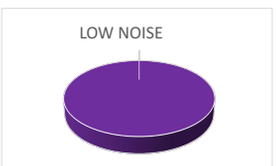
Results

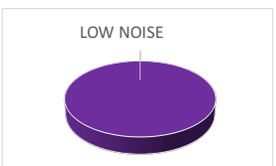
A total of 146 evaluation forms were completed and 1,115 useability evaluations. In the case of an incomplete form this was due to the users not having responsibility for set-up or cleaning of the product.

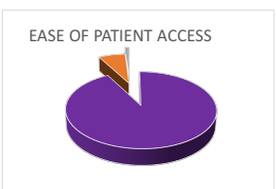
A very positive, 91.7% of users, either strongly agreed or somewhat agreed on the IQ Medical Dynamic PAC System performance.

- 94% Agreed that a high level of comfort was provided.
- 99% Agreed that there was low noise and less sleep disturbance.
- 92% Agreed that patient access in and out of the bed was easy.
- 93% Agreed that patients could be easily repositioned.

Overall, a very low percentage of 0.4% in all statements completed by the users disagreed.





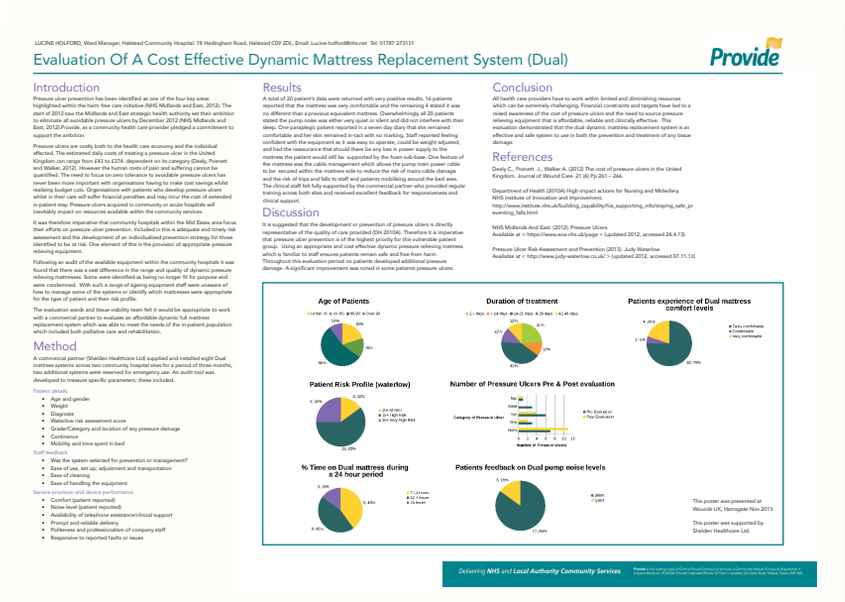


Conclusion

The findings of this multi-site user evaluation confirms that staff were more than satisfied with the product and that positive patient outcomes were achieved.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ Medical

Evaluation Of a Cost Effective Dynamic Mattress Replacement System (Dual)



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Evaluation Of A Cost Effective Dynamic Mattress Replacement System (Dual)

Provide

Introduction

Pressure ulcer prevention has been identified as one of the four key areas highlighted within the harm free care initiative (NHS Midlands and East, 2012). The start of 2012 saw the Midlands and East strategic health authority set their ambition to eliminate all avoidable pressure ulcers by December 2012 (NHS Midlands and East, 2012).Provide, as a community health care provider pledged a commitment to support the ambition.

Pressure ulcers are costly both to the health care economy and the individual affected. The estimated daily costs of treating a pressure ulcer in the United Kingdom can range from £43 to £374, dependent on its category (Dealy, Posnett and Walker, 2012). However the human costs of pain and suffering cannot be quantified. The need to focus on zero tolerance to avoidable pressure ulcers has never been more important with organisations having to make cost savings whilst realising budget cuts. Organisations with patients who develop pressure ulcers whilst in their care will suffer financial penalties and may incur the cost of extended in-patient stay. Pressure ulcers acquired in community or acute hospitals will inevitably impact on resources available within the community services.

It was therefore imperative that community hospitals within the Mid Essex area focus their efforts on pressure ulcer prevention. Included in this is adequate and timely risk assessment and the development of an individualised prevention strategy for those identified to be at risk. One element of this is the provision of appropriate pressure relieving equipment.

Following an audit of the available equipment within the community hospitals it was found that there was a vast difference in the range and quality of dynamic pressure relieving mattresses. Some were identified as being no longer fit for purpose and were condemned. With such a range of ageing equipment staff were unaware of how to manage some of the systems or identify which mattresses were appropriate for the type of patient and their risk profile.

The evaluation wards and tissue viability team felt it would be appropriate to work with a commercial partner to evaluate an affordable dynamic full mattress replacement system which was able to meet the needs of the in-patient population which included both palliative care and rehabilitation.

Method

A commercial partner (Shelden Healthcare Ltd) supplied and installed eight Dual mattress systems across two community hospital sites for a period of three months, two additional systems were reserved for emergency use. An audit tool was developed to measure specific parameters; these included:

Patient details

- Age and gender
- Weight
- Diagnosis
- Waterflow risk assessment score
- Grade/Category and location of any pressure damage
- Continence
- Mobility and time spent in bed

Staff feedback

- Was the system selected for prevention or management?
- Ease of use, set up, adjustment and transportation
- Ease of cleaning
- Ease of handling the equipment

Service provision and device performance

- Comfort (patient reported)
- Noise level (patient reported)
- Availability of telephone assistance/clinical support
- Prompt and reliable delivery
- Politeness and professionalism of company staff
- Responsive to reported faults or issues

Results

A total of 20 patient's data were returned with very positive results. 16 patients reported that the mattress was very comfortable and the remaining 4 stated it was no different than a previous equivalent mattress. Overwhelmingly all 20 patients stated the pump noise was either very quiet or silent and did not interfere with their sleep. One paraplegic patient reported in a seven day diary that she remained comfortable and her skin remained in-tact with no marking. Staff reported feeling confident with the equipment as it was easy to operate, could be weight adjusted, and had the reassurance that should there be any loss in power supply to the mattress the patient would still be supported by the foam sub-base. One feature of the mattress was the cable management which allows the pump main power cable to be secured within the mattress side to reduce the risk of mains cable damage and the risk of trips and falls to staff and patients mobilising around the bed area. The clinical staff felt fully supported by the commercial partner who provided regular training across both sites and received excellent feedback for responsiveness and clinical support.

Discussion

It is suggested that the development or prevention of pressure ulcers is directly representative of the quality of care provided (DH 2010A). Therefore it is imperative that pressure ulcer prevention is of the highest priority for this vulnerable patient group. Using an appropriate and cost effective dynamic pressure relieving mattress which is familiar to staff ensures patients remain safe and free from harm. Throughout this evaluation period no patients developed additional pressure damage. A significant improvement was noted in some patients pressure ulcers.

Conclusion

All health care providers have to work within limited and diminishing resources which can be extremely challenging. Financial constraints and targets have led to a raised awareness of the cost of pressure ulcers and the need to source pressure relieving equipment that is affordable, reliable and clinically effective. This evaluation demonstrated that the dual dynamic mattress replacement system is an effective and safe system to use in both the prevention and treatment of any tissue damage.

References

Dealy C., Posnett J., Walker A. (2012) The cost of pressure ulcers in the United Kingdom. Journal of Wound Care. 21 (6) Pp 261 – 266.

Department of Health (2010A) High impact actions for Nursing and Midwifery. NHS institute of innovation and improvement. http://www.institute.nhs.uk/building_capability/hia_supporting_info/staying_safe_preventing_falls.html

NHS Midlands And East. (2012). Pressure Ulcers. Available at < https://www.ese.nhs.uk/page > [updated 2012, accessed 24.4.13]

Pressure Ulcer Risk Assessment and Prevention (2013). Judy Waterlow Available at < http://www.judy-waterlow.co.uk/ > [updated 2012, accessed 07.11.13]

This poster was presented at Wounds UK, Harrogate Nov 2013

This poster was supported by Shelden Healthcare Ltd.

Delivering NHS and Local Authority Community Services

Introduction

The introduction to this paper discusses the NHS Harm Free Care initiative across NHS Midlands and East and the authors organisational commitment to eliminate all avoidable Pressure Ulcers.

- Cost analysis of pressure ulcers during 2012 estimated the daily cost of a Pressure Ulcer, dependent on its category to vary between £43 to £374, and in addition to these costs, the impact on limited resources to manage these avoidable wounds. In some areas financial penalties were introduced, particularly where extended hospital stays were required due to the severity of the pressure ulcer.

The Community hospitals across Mid Essex developed a pressure ulcer prevention strategy to include:

- Adequate and timely risk assessment
- Development of an individualised prevention strategy for at risk patients
- Review of pressure relieving equipment

On completion of an audit, Mid Essex community hospitals recognised the need for support from industry to review its pressure relieving equipment, replace and standardise. The aim being to eliminate the wrong equipment being used and ensure the right mattress for the appropriate patient and their risk profile.

Method

Following consent, the company agreed to supply and install eight IQ Medical/ Shelden Healthcare Dynamic PAC systems, across 2 sites for a three month period. Two additional systems were left on site for emergency admissions or where a patient's condition suddenly deteriorated requiring pressure relief.

Mid Essex Tissue Viability Service designed an audit tool to measure specific parameters:

- Patient details
- Staff feedback
- Service Provision and device performance

Results

Twenty patient evaluation data collection forms were completed.

- Mattress comfort was reported by 16 patient's as very comfortable and the remaining four felt no difference in the previous system used.
- All stated the pump as being very quiet or silent and therefore did not interfere with sleep.
- Individual comments by patients included comfort, no marking or redness to the skin.
- Staff confidence improved as easy to operate, weight adjustable and if any loss to the power supply their patient was still supported by the foam sub base.
- Cable management was seen as a positive to prevent trips, falls and damage to the cable if run over by a bedframe.
- Staff commented on the excellent company support, level of on-going training given, responsiveness and clinical support.
- No patients developed additional Pressure damage and in some patients an improvement was seen to their existing Pressure Ulcers.

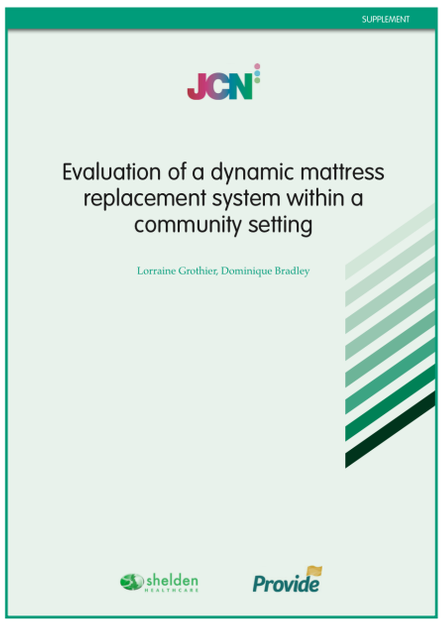
Discussion/Conclusion

The Department of Health suggest a link between Pressure Ulcer development and the quality of care given. Staff knowledge of the risks and early intervention utilising equipment in the prevention, rather than treatment, will contribute to ensuring patients remain safe, free from harm and staff have confidence in the delivery of care administered.

Diminishing and limited resources remain a challenge to clinical staff. Target driven care impacts on this, hence the need for on-site evaluations to confirm products that are affordable, reliable and clinically effective. This was demonstrated on the IQ Medical Dynamic PAC system during this small clinical evaluation.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ Medical

Evaluation of a dynamic mattress replacement system within a community setting



Introduction

This independent paper evaluated one hundred patients using the IQ Medical/Shelden Healthcare Star/Dual Professional system across a community setting in the prevention and treatment of Pressure Ulcers of all Categories.

During the evaluation period a significant reduction in the number of pressure ulcers was reported. Following a one year follow-up study there was no reported incidence of acquired and avoidable category 3 and 4 pressure damage.

The authors contextualise the paper making reference to the burden of care, annual costs, percentage of patients that develop pressure ulcers, and the NHS Strategic Health Authorities initiative to eliminate 100% of category 2,3 and 4 pressure ulcers. The "Stop the pressure" campaign and introduction of the SSKIN (Surface, Skin inspection, Keeping your patients moving, Incontinence/Moisture and Nutrition) care bundle were all part of the strategy.

To support the local strategy for pressure reduction, the Consultant Nurse agreed to conduct an audit across three community hospital wards with an aim of identifying the dynamic pressure relieving equipment in use. The community hospitals have a total of 70 inpatient beds, with a focus on rehabilitation, stroke and end-of-life-care. In parallel to this a pilot clinical evaluation of the Star/Dual Professional system was conducted on twenty patients. Overwhelming positive feedback on the product and service provided, led to the inclusion of an additional 80 patients, increasing the dataset to 100 participants.

Between September 2013 and March 2014, 717 patients were admitted to the wards with 14% recruited into the evaluation.

Table 2: *Participant's age, weight and Waterlow scores on admission (n excludes any missing values)*

	Age			Waterlow Score			Weight (kg)		
	Mean	(SD)	n	Mean	(SD)	n	Mean	(SD)	n
Females	83	(12)	58	18	(4)	57	63.87	(17)	57
Males	81	(9)	40	18	(4)	38	79.41	(31)	34
Total	82	(11)	98	18	(4)	95	69.62	(24)	91

Method

The Consultant Nurse for tissue viability initially sought agreement from the organisation to conduct a clinical evaluation to include 20 patients. The Star/Dual Professional system was provided by IQ Medical as a replacement to existing products and to standardise a dynamic pressure-relieving mattress system used across ward areas.

The data collection tool to capture relevant study parameters from multiple clinical perspectives was developed by the Consultant Nurse, Ward Managers and Tissue Viability Team.

Information gathered included:

- Generic patient data to include the risk assessment score.
- Reassessments to capture any significant changes in the patient's general health.
- Patient and staff members experience of using the mattress to include comfort, ease of getting on and off the mattress and ease of cleaning.
- Duration that the mattress was in use.
- Evaluation of the service received from IQ Medical.

The pilot study confirmed no changes were needed to the evaluation tool. This was then used on the following 80 patients.

Patients had a comprehensive assessment and where suitable, were recruited into the evaluation where Part one of the data collection tool was completed. Part two was carried out on the day the patient discontinued using the mattress and the reason for this.

Results

In summary:

- Data analysis was based only on those cases where all analysed values were present.
- Total duration of time patients spent on the mattress was calculated by multiplying the mean number of hours a day the patient was recorded to have spent in bed on admission to discharge, by their length of stay. This ranged from 26 hours to 1,560 hours (mean=293 hours, SD=286).
- The one-tailed Wilcoxon signed-rank test was used to determine if there was statistical significance in the reduction in pressure ulcers. A strong P value of 0.01 demonstrated robustness and repeatability of the evaluation. There was a partial correlation between the total duration of hours on the mattress and the reduction in pressure ulcers.
- Tissue damage improved in all except three patients but these were associated with end of life.
- 96% of patients rated the mattress as "comfortable".
- 90% of patients reported the pump as being quiet or silent.
- 99% of staff reported the mattress and pump as being easy or straight forward to clean.
- Responses regarding customer service received by IQ Medical were positive (over 98%).

Discussion/Conclusion

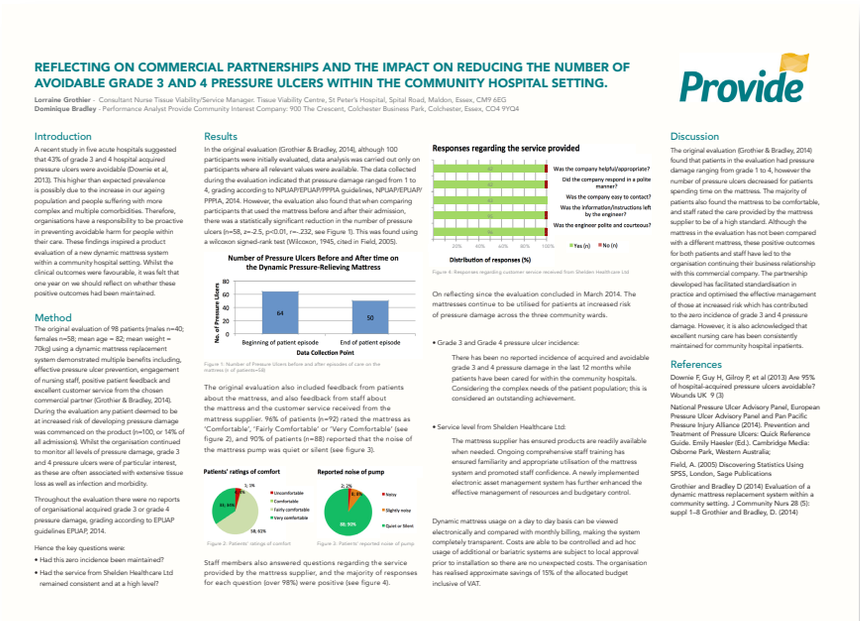
It is acknowledged that there was a statistically significant reduction in pressure ulcers when comparing patients before and after their episode on the mattress.

Patient and staff feedback gave a very positive assessment of the mattress system and service provided by IQ Medical. Additional identified benefits reported on the cost of the product, design of the cable management system and the high level of training and support offered.

The author makes comment that the evaluation supported staff to generate local and relevant data, which positively informed organisational decision-making.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ

Reflecting on commercial partnerships and the impact on reducing the number of avoidable Grade 3 and 4 Pressure Ulcers within the Community Hospital setting.



REFLECTING ON COMMERCIAL PARTNERSHIPS AND THE IMPACT ON REDUCING THE NUMBER OF AVOIDABLE GRADE 3 AND 4 PRESSURE ULCERS WITHIN THE COMMUNITY HOSPITAL SETTING.

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Provide

Introduction

A recent study in five acute hospitals suggested that 43% of grade 3 and 4 hospital acquired pressure ulcers were avoidable (Downie et al, 2013). This higher than expected prevalence is possibly due to the increase in our ageing population and people suffering with more complex and multiple comorbidities. Therefore, organisations have a responsibility to be proactive in preventing avoidable harm for people within their care. These findings inspired a product evaluation of a new dynamic mattress system within a community hospital setting. Whilst the clinical outcomes were favourable, it was felt that one year on we should reflect on whether these positive outcomes had been maintained.

Method

The original evaluation of 98 patients (males n=40; females n=58; mean age = 82; mean weight = 70kg) using a dynamic mattress replacement system demonstrated multiple benefits including, effective pressure ulcer prevention, engagement of nursing staff, positive patient feedback and excellent customer service from the chosen commercial partner (Grothier & Bradley, 2014). During the evaluation any patient deemed to be at increased risk of developing pressure damage was commenced on the product (n=100, or 14% of all admissions). Whilst the organisation continued to monitor all levels of pressure damage, grade 3 and 4 pressure ulcers were of particular interest, as these are often associated with extensive tissue loss as well as infection and morbidity.

Throughout the evaluation there were no reports of organisational acquired grade 3 or grade 4 pressure damage, grading according to EPUAP guidelines EPUAP, 2014.

Hence the key questions were:

- Had this zero incidence been maintained?
- Had the service from Shelden Healthcare Ltd remained consistent and at a high level?

Results

In the original evaluation (Grothier & Bradley, 2014), although 100 participants were initially evaluated, data analysis was carried out only on participants where all relevant values were available. The data collected during the evaluation indicated that pressure damage ranged from 1 to 4, grading according to NPUAP/EPUAP/PPPA guidelines, NPUAP/EPUAP/PPPA, 2014. However, the evaluation also found that when comparing participants that used the mattress before and after their admission, there was a statistically significant reduction in the number of pressure ulcers (n=58, z=-2.5, p<0.01, r=-.232, see Figure 1). This was found using a wilcoxon signed-rank test (Wilcoxon, 1945, cited in Field, 2005).

Number of Pressure Ulcers Before and After time on the Dynamic Pressure-Relieving Mattress

No. of Pressure Ulcers: 80, 60, 40, 20, 0
64
50
Beginning of patient episode
End of patient episode
Data Collection Point

Figure 1: Number of Pressure Ulcers before and after episodes of care on the mattress (n of patients=58)

The original evaluation also included feedback from patients about the mattress, and also feedback from staff about the mattress and the customer service received from the mattress supplier. 96% of patients (n=92) rated the mattress as 'Comfortable', 'Fairly Comfortable' or 'Very Comfortable' (see figure 2), and 90% of patients (n=88) reported that the noise of the mattress pump was quiet or silent (see figure 3).

Patients' ratings of comfort
Uncomfortable
Comfortable
Fairly comfortable
Very comfortable
1.1%
2.1%
46.9%
50.0%

Figure 2: Patients' ratings of comfort

Reported noise of pump
Noisy
Slightly noisy
Quiet or Silent
2.2%
8.9%
88.9%

Figure 3: Patients' reported noise of pump

Staff members also answered questions regarding the service provided by the mattress supplier, and the majority of responses for each question (over 98%) were positive (see figure 4).

Responses regarding the service provided
Was the company helpful/appropriate?
Did the company respond in a polite manner?
Was the company easy to contact?
Was the information/instructions left by the engineer?
Was the engineer polite and courteous?
20%
40%
60%
80%
100%
Yes (n)
No (n)
Distribution of responses (%)

Figure 4: Responses regarding customer service received from Shelden Healthcare Ltd

On reflecting since the evaluation concluded in March 2014. The mattresses continue to be utilised for patients at increased risk of pressure damage across the three community wards.

- Grade 3 and Grade 4 pressure ulcer incidence:

  There has been no reported incidence of acquired and avoidable grade 3 and 4 pressure damage in the last 12 months while patients have been cared for within the community hospitals. Considering the complex needs of the patient population; this is considered an outstanding achievement.

- Service level from Shelden Healthcare Ltd:

  The mattress supplier has ensured products are readily available when needed. Ongoing comprehensive staff training has ensured familiarity and appropriate utilisation of the mattress system and promoted staff confidence. A newly implemented electronic asset management system has further enhanced the effective management of resources and budgetary control.

Dynamic mattress usage on a day to day basis can be viewed electronically and compared with monthly billing, making the system completely transparent. Costs are able to be controlled and ad hoc usage of additional or bariatric systems are subject to local approval prior to installation so there are no unexpected costs. The organisation has realised approximate savings of 15% of the allocated budget inclusive of VAT.

Discussion

The original evaluation (Grothier & Bradley, 2014) found that patients in the evaluation had pressure damage ranging from grade 1 to 4, however the number of pressure ulcers decreased for patients spending time on the mattress. The majority of patients also found the mattress to be comfortable, and staff rated the care provided by the mattress supplier to be of a high standard. Although the mattress in the evaluation has not been compared with a different mattress, these positive outcomes for both patients and staff have led to the organisation continuing their business relationship with this commercial company. The partnership developed has facilitated standardisation in practice and optimised the effective management of those at increased risk which has contributed to the zero incidence of grade 3 and 4 pressure damage. However, it is also acknowledged that excellent nursing care has been consistently maintained for community hospital inpatients.

References

Downie F, Guy H, Gilroy P, et al (2013) Are 95% of hospital-acquired pressure ulcers avoidable? Wounds UK 9 (3)

National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance (2014). Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia;

Field, A. (2005) Discovering Statistics Using SPSS, London, Sage Publications

Grothier and Bradley D (2014) Evaluation of a dynamic mattress replacement system within a community setting. J Community Nurs 28 (5): suppl 1-8 Grothier and Bradley, D. (2014)

Introduction

This paper provides a one year review of the 100 patient evaluation of the IQ Medical/ Shelden Healthcare Star/Dual Professional system – "An Evaluation of a dynamic mattress replacement system within a community setting" (Grothier and Bradley) and a brief financial overview.

The introduction is based on an overview stating a hospital based study stating 43% of all category 3 and 4 pressure ulcers acquired within the hospital were avoidable. Influencing factors may be the ageing population and individuals suffering with more complex and often multiple comorbidities.

Following the initial 100 patient evaluation the authors felt it prudent to review and reflect on whether the positive outcomes achieved had been maintained.

Method

A review of the original documentation, evaluation parameters and findings were reviewed by the authors and staff across the organisation. It was important that the decision makers remained confident and posed two key questions:

- Had zero incidence of avoidable pressure ulcers been maintained?
- Had the service from the supplying company remained consistent and at a high level?

Results

Over the previous 12 months there had been no reported incidence of avoidable, acquired grade 3 and 4 pressure ulcers to patients whilst in the care of the community hospitals. The authors state that despite the complex needs of the patient population, this is considered an outstanding achievement.

IQ Medical ensured that the mattress systems were readily available as and when needed. Comprehensive staff training continued promoting staff confidence, familiarity and appropriate mattress system utilisation. An electronic asset management system was implemented which had a direct impact on the effective management of resources and budgetary control. The system is viewed and compared with monthly billing. Costs were controlled for ad hoc usage of specialist systems (e.g. bariatric), which were locally approved to prevent unexpected costs. The organisation claims that they have realised approximate savings of 15% of the budget allocation.

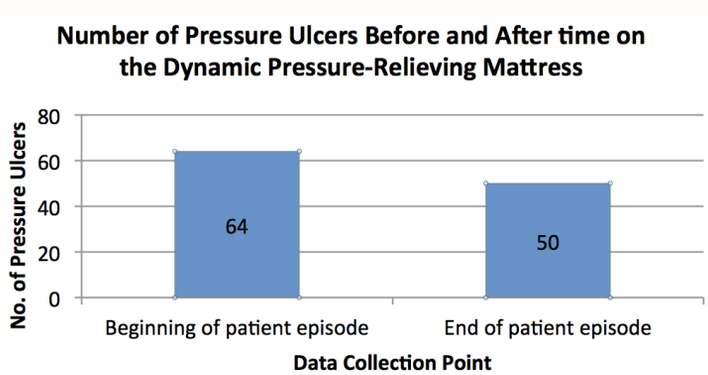


Figure 1: Number of Pressure Ulcers before and after episodes of care on the mattress (n of patients=58)

Discussion/Conclusion

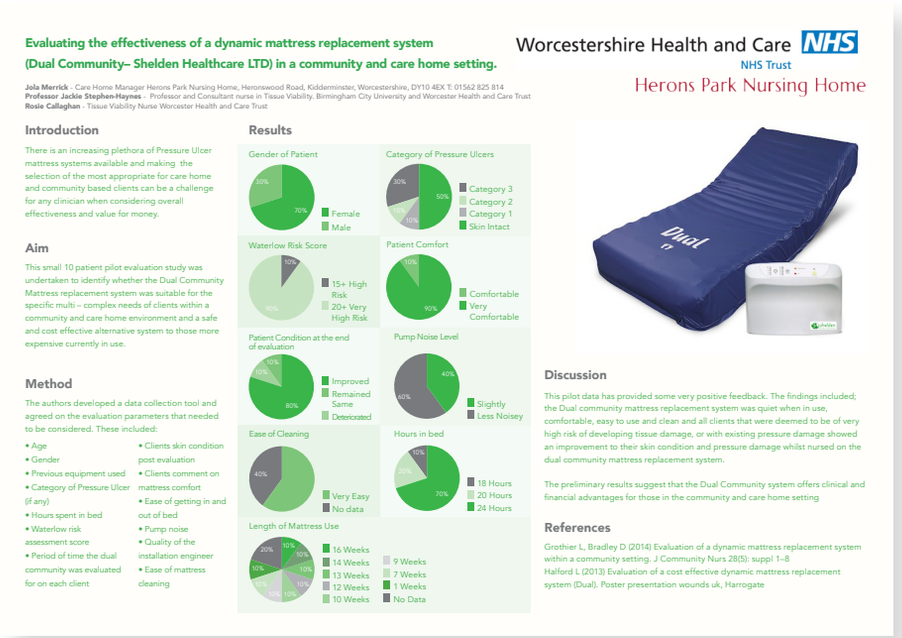
The positive patient and organisation outcomes have continued over the previous 12 month period. This had led to a strong, ongoing business relationship with the IQ Medical.

Pressure ulcer targets have been achieved and standardisation in practice maintained.

The authors also kindly acknowledge the maintenance of excellent nursing care delivered to community hospital inpatients.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ Medical

Evaluating the effectiveness of a dynamic mattress replacement system (Dual Community) in a community and care home setting



Evaluating the effectiveness of a dynamic mattress replacement system (Dual Community– Shelden Healthcare LTD) in a community and care home setting.

Worcestershire Health and Care NHS
NHS Trust
Herons Park Nursing Home

Jola Merrick - Care Home Manager Herons Park Nursing Home, Heronswood Road, Kidderminster, Worcestershire, DY10 4EX T: 01562 825 814
Professor Jackie Stephen-Haynes - Professor and Consultant nurse in Tissue Viability. Birmingham City University and Worcester Health and Care Trust
Rosie Callaghan - Tissue Viability Nurse Worcester Health and Care Trust

Introduction

There is an increasing plethora of Pressure Ulcer mattress systems available and making the selection of the most appropriate for care home and community based clients can be a challenge for any clinician when considering overall effectiveness and value for money.

Aim

This small 10 patient pilot evaluation study was undertaken to identify whether the Dual Community Mattress replacement system was suitable for the specific multi – complex needs of clients within a community and care home environment and a safe and cost effective alternative system to those more expensive currently in use.

Method

The authors developed a data collection tool and agreed on the evaluation parameters that needed to be considered. These included:

- Age
- Gender
- Previous equipment used
- Category of Pressure Ulcer (if any)
- Hours spent in bed
- Waterlow risk assessment score
- Period of time the dual community was evaluated for on each client
- Clients skin condition post evaluation
- Clients comment on mattress comfort
- Ease of getting in and out of bed
- Pump noise
- Quality of the installation engineer
- Ease of mattress cleaning

Results

Gender of Patient: 30% Female, 70% Male
Category of Pressure Ulcers: 30% Category 3, 50% Category 2, 10% Category 1, 10% Skin Intact
Waterlow Risk Score: 10% 15+ High Risk, 90% 20+ Very High Risk
Patient Comfort: 10% Comfortable, 90% Very Comfortable
Patient Condition at the end of evaluation: 10% Improved, 10% Remained Same, 80% Deteriorated
Pump Noise Level: 40% Slightly, 60% Less Noisey
Ease of Cleaning: 40% Very Easy, No data
Hours in bed: 10% 18 Hours, 20% 20 Hours, 70% 24 Hours
Length of Mattress Use: 16 Weeks, 14 Weeks, 13 Weeks, 12 Weeks, 10 Weeks, 9 Weeks, 7 Weeks, 1 Weeks, No Data

Discussion

This pilot data has provided some very positive feedback. The findings included; the Dual community mattress replacement system was quiet when in use, comfortable, easy to use and clean and all clients that were deemed to be of very high risk of developing tissue damage, or with existing pressure damage showed an improvement to their skin condition and pressure damage whilst nursed on the dual community mattress replacement system.

The preliminary results suggest that the Dual Community system offers clinical and financial advantages for those in the community and care home setting

References

Grothier L, Bradley D (2014) Evaluation of a dynamic mattress replacement system within a community setting. J Community Nurs 28(5): suppl 1–8
Halford L (2013) Evaluation of a cost effective dynamic mattress replacement system (Dual). Poster presentation wounds uk, Harrogate

Introduction

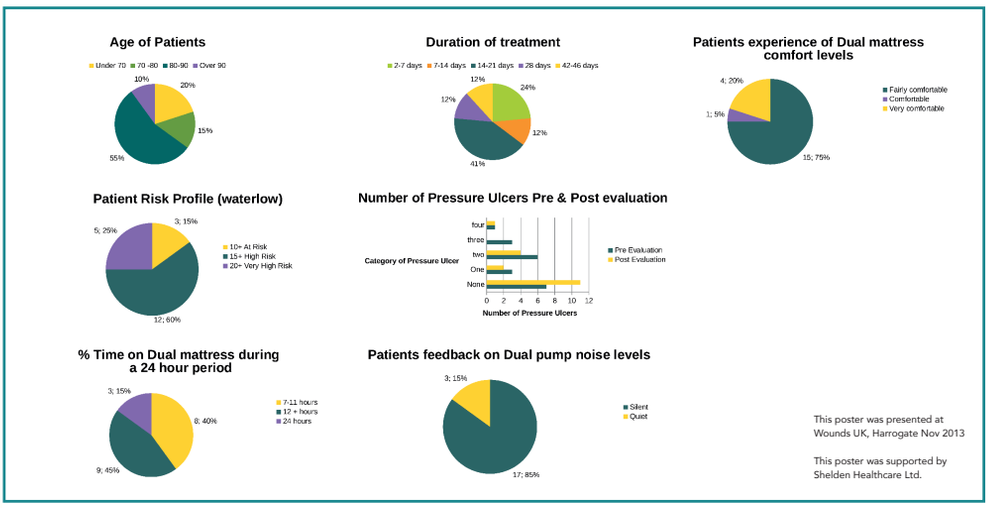
This paper acknowledges the wide range of pressure ulcer prevention systems available. Due to the patient needs and environment, making the most appropriate selection can be a challenge for the clinician when considering clinical effectiveness and value for money.

This paper shares the findings of a small 10 patient pilot study to determine if the IQ Medical/ Shelden Healthcare Comet/Dual Community Dynamic mattress system met the needs of this complex patient group and would provide an effective, cost effective alternative to the current products in use.

Method

The authors developed the data collection tool and agreed the evaluation parameters. These included:

- Age and gender.
- Previous equipment used.
- Category of pressure ulcer if present.
- Hours spent in bed.
- Waterlow risk assessment score.
- Period of time the mattress system was evaluated for on each participant.
- Patient comment on mattress comfort.
- Ease of getting in and out of bed.
- Mattress pump noise.
- Quality of the installation engineer.
- Ease of mattress system cleaning.
- Skin condition post evaluation.



Results

On analysis of the data all parameters evaluated positively with a high percentage score.

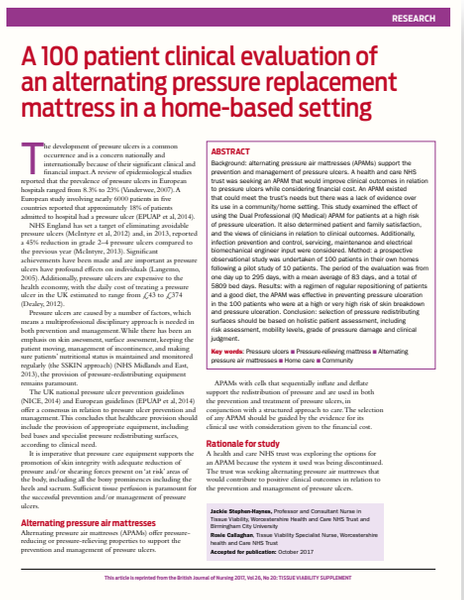
Discussion/Conclusion

The authors were happy that this pilot study provided useful feedback for the Dual community mattress replacement system. It was quiet when in use, comfortable, easy to use and clean. All patients deemed to be of high risk of developing tissue damage or had a pressure ulcer showed an improvement during the evaluation process.

These preliminary results give reassurance that the IQ Medical/Shelden Healthcare Comet/ Dual Community Dynamic system offers clinical and financial advantages for those in a community and care home setting.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ Medical

A 100 patient clinical evaluation of an alternating pressure replacement mattress in a home-based setting



RESEARCH

A 100 patient clinical evaluation of an alternating pressure replacement mattress in a home-based setting

The development of pressure ulcers is a common occurrence and is a concern nationally and internationally because of their significant clinical and financial impact. A review of epidemiological studies reported that the prevalence of pressure ulcers in European hospitals ranged from 8.3% to 23% (Vanderwee, 2007). A European study involving nearly 6000 patients in five countries reported that approximately 18% of patients admitted to hospital had a pressure ulcer (EPUAP et al, 2014).

NHS England has set a target of eliminating avoidable pressure ulcers (McIntyre et al, 2012) and, in 2013, reported a 45% reduction in grade 2–4 pressure ulcers compared to the previous year (McIntyre, 2013). Significant achievements have been made and are important as pressure ulcers have profound effects on individuals (Langemo, 2005). Additionally, pressure ulcers are expensive to the health economy, with the daily cost of treating a pressure ulcer in the UK estimated to range from £43 to £374 (Dealey, 2012).

Pressure ulcers are caused by a number of factors, which means a multiprofessional disciplinary approach is needed in both prevention and management. While there has been an emphasis on skin assessment, surface assessment, keeping the patient moving, management of incontinence, and making sure patients' nutritional status is maintained and monitored regularly (the SSKIN approach) (NHS Midlands and East, 2013), the provision of pressure-redistributing equipment remains paramount.

The UK national pressure ulcer prevention guidelines (NICE, 2014) and European guidelines (EPUAP et al, 2014) offer a consensus in relation to pressure ulcer prevention and management. This concludes that healthcare provision should include the provision of appropriate equipment, including bed bases and specialist pressure redistributing surfaces, according to clinical need.

It is imperative that pressure care equipment supports the promotion of skin integrity with adequate reduction of pressure and/or shearing forces present on 'at risk' areas of the body, including all the bony prominences including the heels and sacrum. Sufficient tissue perfusion is paramount for the successful prevention and/or management of pressure ulcers.

Alternating pressure air mattresses

Alternating pressure air mattresses (APAMs) offer pressure-reducing or pressure-relieving properties to support the prevention and management of pressure ulcers.

ABSTRACT

Background: alternating pressure air mattresses (APAMs) support the prevention and management of pressure ulcers. A health and care NHS trust was seeking an APAM that would improve clinical outcomes in relation to pressure ulcers while considering financial cost. An APAM existed that could meet the trust's needs but there was a lack of evidence over its use in a community/home setting. This study examined the effect of using the Dual Professional (IQ Medical) APAM for patients at a high risk of pressure ulceration. It also determined patient and family satisfaction, and the views of clinicians in relation to clinical outcomes. Additionally, infection prevention and control, servicing, maintenance and electrical biomechanical engineer input were considered. Method: a prospective observational study was undertaken of 100 patients in their own homes following a pilot study of 10 patients. The period of the evaluation was from one day up to 295 days, with a mean average of 83 days, and a total of 5809 bed days. Results: with a regimen of regular repositioning of patients and a good diet, the APAM was effective in preventing pressure ulceration in the 100 patients who were at a high or very high risk of skin breakdown and pressure ulceration. Conclusion: selection of pressure redistributing surfaces should be based on holistic patient assessment, including risk assessment, mobility levels, grade of pressure damage and clinical judgment.

Key words: Pressure ulcers ■ Pressure-relieving mattress ■ Alternating pressure air mattresses ■ Home care ■ Community

APAMs with cells that sequentially inflate and deflate support the redistribution of pressure and are used in both the prevention and treatment of pressure ulcers, in conjunction with a structured approach to care. The selection of any APAM should be guided by the evidence for its clinical use with consideration given to the financial cost.

Rationale for study

A health and care NHS trust was exploring the options for an APAM because the system it used was being discontinued. The trust was seeking alternating pressure air mattresses that would contribute to positive clinical outcomes in relation to the prevention and management of pressure ulcers.

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Rosie Callaghan, Tissue Viability Specialist Nurse, Worcestershire health and Care NHS Trust

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Introduction

This is an independently written paper published in a peer reviewed journal.

It is known that alternating pressure mattresses deliver the therapy needed to contribute to the prevention and management of pressure ulcers and support the initiative to eliminate all avoidable pressure ulcers.

This evaluation was undertaken to provide the evidence for the use of the IQ Medical/ Shelden Healthcare Star/Dual Professional Dynamic system in the community/home setting. Participants recruited were those patients identified to be at a high risk of pressure ulceration or had developed a pressure ulcer of up to a category 4. Patient, families and views of the clinicians were captured. Consideration of financial cost was reviewed for cost effectiveness.

Evaluation input was also gained from additional healthcare workers to include infection prevention and control, servicing, maintenance and the bio-mechanical engineer.

Method

The evaluation process was based on a prospective observational study of 100 patients nursed in their own homes. To test the data collection tool an initial 10 patient pilot study was completed and minor amendments made to gain clarity of a question posed.

Trust consent was gained to undertake the evaluation and the data collection tool developed by the Consultant Nurse for Tissue Viability, with input from the healthcare professionals as stated above. Primary and secondary aims defined for ease of data capture.

Clear participant inclusion criteria was defined and recruitment based on also using the equipment selection algorithm to ensure appropriate inclusion.

The Tissue Viability Nurse within the Trust had responsibility for data collection throughout the evaluation period.

The period of the evaluation had a mean average of 83 days, with a total of 5809 (829 weeks) bed days.

Results

The overall data analysis demonstrates positive outcomes for the patient, clinician and organisation. Patient comfort was a key factor, effective prevention and management of pressure ulcers was achieved. Staff found the mattress system, easy to use, set up and commented on the reduced pump noise levels when compared to other systems previously used.

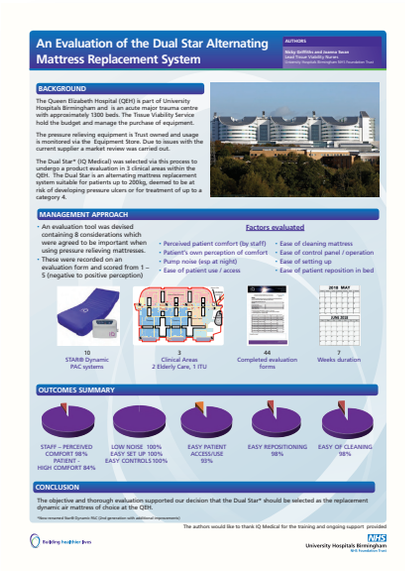
Discussion/Conclusion

When selecting any pressure relieving surface consideration must always be given to the holistic patient assessment. This should include ongoing risk assessments, level of mobility, grade of pressure damage and the clinicians experience and judgement.

The 100 patient evaluation demonstrated the clinical effectiveness in the prevention and management of patients and the tolerance of the Star/Dual Professional Dynamic system over a 12 month period. The savings made due to having a 2 year service interval rather than a typical 1 year, were an additional benefit. The Trust continue to use the products successfully.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ Medical

An Evaluation of the Dual Star Alternating Mattress Replacement System



Introduction

This evaluation of the IQ Medical/Shelden Healthcare Star/Dual Star Dynamic system took place in a large Trust, a major trauma centre with approximately 1300 in-patient beds. Issues with the current supplier led to a review and this subsequent evaluation of the Star/Dual Star Dynamic system.

The clinical evaluation was undertaken across 3 clinical areas within the Trust: 2 elderly care wards and the Intensive Care Unit. Participant recruitment was based on the patient being up to 200kg in weight (the mattress system limit) and following assessment, those deemed to be at risk of pressure damage or for the treatment of up to a category 4.

Method

The evaluation form was developed with eight parameters agreed to be important when using a pressure relieving mattress. The evaluation took place over a 7 week period.

The parameters were recorded and scored on the evaluation form using a 1-5 scale (negative to positive perception).

Parameters evaluated:

- Perceived patient comfort (by staff).
- Patient's own perception of comfort.
- Pump noise (particularly at night).
- Ease of patient use/ access in and out of bed.
- Ease of cleaning the system.
- Ease of control panel/operation.
- Ease of setting the mattress system up.
- Ease of repositioning the patient whilst in bed.

Results

Following the evaluation, 44 forms had been fully completed. On analysis of the results based on the scoring system used, these were extremely positive.

- Perceived comfort – staff 98% and patients rating high comfort 84%.
- Low pump noise – 100%.
- Easy to set the system up – 100%.
- Easy to use the control panel – 100%.
- Easy patient access/use- 93%.
- Easy patient repositioning- 98%.
- Ease of cleaning- 98%.

Discussion/Conclusion

During the evaluation process the mattress replacement system performed to an above acceptable standard. Based on this independent clinical evaluation the Trust supported the decision to replace the incumbent system with the IQ Medical Star/Dual Star Dynamic system.

Michelle Deeth, RN, Tissue Viability Specialist & Clinical Manager, IQ Medical

References

Griffiths, N. and Swan, J. (2019) An Evaluation of the Dual Star Alternating Mattress Replacement System. Poster presented at TVS Annual Conference in 2019.

Grothier, L. and Bradley, D. (2014). Evaluation of a dynamic mattress replacement System within a community setting. Essex: Journal of Community Nursing Supplement

Grothier, L. and Bradley, D. (2015). Reflecting on commercial partnerships and the Impact on reducing the number of avoidable Grade 3 and 4 Pressure Ulcers within the Community Hospital setting. Poster presented at EPUAP Conference in 2015.

Holford, L. (2013). Evaluation Of A Cost Effective Dynamic Mattress Replacement System (Dual). Poster presented at Wounds UK Conference in 2013.

IQ Medical Data on File (2019). A summary of recent Hospital-based Multi-Site User evaluations of iQ Medical PAC Systems.

Merrick, J., Stephen-Haynes, J. and Callaghan, R. (2014). Evaluating the effectiveness of a dynamic mattress Replacement system (Dual Community – Shelden Healthcare LTD) in a community and care home Setting.

Stephen-Haynes, J. and Callaghan, R. (2017). A 100 patient clinical evaluation of an alternating Pressure replacement mattress in a home-based Setting. Worcester: British Journal of Nursing Tissue Viability Supplement. Vol 26, No 20.

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