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Introduction

The Prevention and Management of Pressure Damage remains high priority on the Health Care Agenda. The development of pressure damage has considerable implications for patients in terms of unnecessary physical and psychological suffering and for the NHS in terms of increased costs. There has been particularly over the past decade, a vast increase in the selection of pressure relieving equipment available. It has been suggested that the NHS spends an estimated £45 million per year on equipment directly related to the Prevention and Management of Pressure Damage (Forrest 2000). Despite this, there is a lack of information available to inform and guide purchasers on this often high tech equipment. The drive towards evidence based practice and appropriate use of medical devices has also significantly increased the responsibility of practitioners to ensure that equipment in use is efficient, effective, safe and used for the purpose it was intended. It was due to these reasons an audit tool was developed to evaluate outcomes of pressure relieving medical devices in use within Walsall Primary Care NHS Trust. (Fig1.)

This poster presentation will illustrate outcomes of one audit assessing the clinical effectiveness of the Transair 2002 alternating pressure replacement mattress.

WALSALL PRIMARY CARE NHS TRUST
PRESSURE RELIEVING MEDICAL DEVICE EVALUATION

1. Equipment Type _____
2. Manufacturer _____
3. Patient ID _____
4. Nursing Team _____
5. Patient Age _____
6. Gender _____
7. Approx. Weight _____
8. Approx. Height _____
9. Age of Equipment _____
10. Diagnosis _____
11. Duration of equipment use _____
12. Equipment in use prior (if any) _____
13. Walsall Risk Score at commencement of equipment use _____
14. Condition of skin at commencement of equipment use (indicating site and grade of any pressure damage) _____
15. Current Walsall Risk Score (including where any changes of condition has occurred) _____
16. Current Condition of skin (indicating site and grade of any pressure damage) _____
17. Are there any signs of bottoming out? _____
18. How many hours per day is the patient out of bed? _____
19. List any other nursing equipment on loan _____
20. Is there any evidence of strikethrough? _____
21. Does the patient find the mattress?
A. Very comfortable
B. Comfortable
C. Fairly comfortable
D. Uncomfortable
E. Any comments
24. How easy was the mattress to install? (ask nurse)
A. Very easy
B. Straight forward
C. Quite difficult
D. Very difficult
E. Any comments
22. How easy is it for the patient to get in and out of bed?
A. Much easier than the previous mattress
B. The same as the previous mattress
C. More difficult than the ordinary mattress
D. Any comments
25. Ease of decontamination
A. Very easy
B. Straight forward
C. Quite difficult
D. Very difficult
E. Any comments
23. If motorised, how noisy is the motor?
A. Very noisy
B. Noisy
C. Slightly noisy
D. Quiet
E. Any comments
26. Ease of storage
A. Very easy
B. Difficult
C. Any comments

(Fig1.)

Methodology

A total of twenty Transair 2002 mattresses have been purchased by Walsall Primary Care NHS Trust over the past 2 years. All have been continually in use since purchase. For the purpose of this audit 10 patients were randomly selected who were being nursed on the Transair 2002. All patients had been using the equipment for a minimum of 4 weeks. Patients' risk level was assessed using the Walsall Community Pressure Sore Risk Score Calculator (Chaloner, Franks 2000). The pressure sore grading system used to describe any pressure damage present was the International Association for Enterostomal Therapy Scale (IAET 1988). This is illustrated in Table 1.

IAET SCALE (1988)

Grade 1	Erythema not resolving within 30 minutes of pressure relief. Epidermis remains intact.
Grade 2	Partial thickness loss of skin layers involving epidermis and possibly penetrating into, but not through, dermis.
Grade 3	Full thickness tissue loss extending through the dermis to involve subcutaneous tissue. Presents as shallow crater unless covered by eschar.
Grade 4	Deep tissue destruction extending through subcutaneous tissue to fascia and may involve muscle layers, joint and/or bone. Presents as a deep crater.

Table 1.

Results

Clinical Outcomes: Nine out of the ten patients using the Transair 2002 mattress had all been assessed by the District Nurse as being high risk of pressure sore development. The remaining one patient had been assessed as medium risk using the chosen risk score calculator. The assessing District Nurse using the tool in conjunction with professional judgement felt this patient was a high risk of pressure sore formation. This patient had previously undergone extensive plastic surgery to pressure damage to her buttocks, she remained immobile, although her diet was good and she was continent. This patient had developed recurrent Grade 1 redness when being nursed on anything other than an alternating pressure relieving replacement mattress. Her pressure areas had remained intact during her 6 months' use of the Transair 2002.

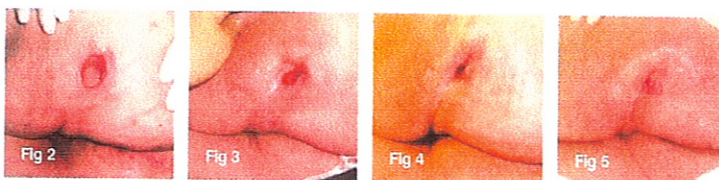
The remaining nine patients were all presenting with pressure damage at commencement of equipment use ranging from Grade 2 to Grade 4.

There were 17 pressure sores present at commencement of equipment use, of these 17 sores, 11 had healed, and the remaining 6 sores were showing signs of improvement at the time of audit.

When assessing mattress function there were no signs of bottoming out of the mattress for any of the 10 patients. Patients' weight ranged from 9 stone to 14 stone. Equipment had been on loan ranging from 4 weeks to 2 years with a mean time of 4 months' loan.

Of the patients who spent time out of bed an appropriate high risk cushion had been provided. A summary of clinical outcomes is illustrated in Table 2.

Patient 2 is a 72 year old female who suffered from severe Rheumatoid Arthritis. Although, scoring high risk of pressure sore development and being nursed on an alternating replacement mattress, she rapidly developed a Grade 4 sore to her buttock measuring 6.5 cm x 5.5 cm with 3cm depth. She was transferred to a Transair 2002 mattress, appropriate topical treatment was commenced and a full reassessment of her general condition was made. There was a significant improvement in the condition of her sore after 6 weeks of treatment with the wound decreasing to 2.5 cm x 2.5 cm with a 2 cm depth (Fig 2.). Figures 2 – 5 illustrates the healing process of patient 2.



User Satisfaction Outcomes: When auditing user satisfaction 70% of patients found the mattress very comfortable and 30% thought it was comfortable.

Assessing ease of transfer out of bed 70% found transfer easier or as easy as the previous or standard mattress. The remaining 30% of patients were not able to sit out of bed.

Patient/carer opinions on the level of noise from the motor 70% thought the motor was quiet and 30% thought it was slightly noisy.

The visiting District Nurses thought ease of installation was straightforward (training had been provided and instructions were available with each mattress).

Decontamination and storage of the Transair 2002 was no more difficult than any other alternating system. A summary of user satisfaction is illustrated in Table 2.

SUMMARY OF CLINICAL OUTCOMES

Sex	Age	Weight (Stones)	Duration of equipment loan	Risk at commencement of Audit	Risk at Audit	Skin condition at commencement of equipment use	Skin condition at Audit	Signs of bottoming out
M	67	11	3 months	23	11	1 Grade 2 sore 1 Grade 4 sore (9 cm cavity)	Healed Healed	No
F	72	8	6 weeks	17	12	1 Grade 4 sore 6.5cm x 5.5cm Depth 3cm	1 Grade 2 sore 0.5cm x 0.5cm	No
M	62	15	4 months	16	16	1 Grade 3 sore 4cm x 6cm 1 Grade 2 sore	1 Grade 2 sore 1cm x 1cm Healed	No
F	61	10	6 months	16	12	1 Grade 3 sore 3.4cm x 1.4cm	Healed	No
F	65	8	2 years	20	16	2 Grade 2 sores 1 Grade 3 sore	Healed Healed	No
M	56	12	4 months	16	16	2 Grade 3 sores	Healed	No
F	80	9	4 months	21	23	1 Grade 3 sore 2.8 cm x 2 cm 3 cm deep	1 Grade 3 sore 1.5cm x 1.5 cm 1 cm deep	No
F	59	11	6 weeks	19	19	1 Grade 4 sore 2 Grade 3 sores	1 Grade 4 sore 2 Grade 3 sores	No
F	65	9	6 months	12	12	Intact	Intact	No
M	69	9	2 episodes 2 weeks Hospital admission 2 weeks	25	25	1 Grade 2 sore 1cm x 1cm 1 Grade 2 sore 3cm x 3cm	Healed Healed	No

Table 2

SUMMARY OF USER SATISFACTION	
Comfort	7 of 10 patients found mattress very comfortable 3 of 10 patients found mattress comfortable
Transfer	5 of 10 patients found transfer out of bed as easy as previous/standard mattress 2 of 10 patients found transfer out of bed easier than previous mattress 3 of 10 patients did not move out of bed
Motor Noise	7 of 10 patients thought the motor was quiet 3 of 10 patients thought the motor was slightly noisy
Installation	All mattresses had been installed correctly. District Nurses had found installation straightforward.
Decontamination	Equipment Co-ordinator found ease of decontamination straightforward and the mattress easy to store.

Table 3

Conclusion

Clinical Audit has been defined as "Systematically looking at procedures used for diagnosis, care and treatment, examining how associated resources are used and investigating the effect care has on the outcome and quality of life for the patient".

(DOH 1994)

Auditing clinical outcomes of pressure relieving medical devices have assisted Walsall Primary Care NHS Trust in

- Determining practitioner knowledge and skills in patient assessment, selection and installation of appropriate pressure relieving equipment.
- Assessing clinical effectiveness of equipment.
- Providing valuable information on user satisfaction.

From the outcomes of this small audit it appears the Transair 2002 is suitable for community use in high to very high risk patients for prevention of pressure damage and treatment of up to high grade pressure damage.

References

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