

Nexus

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The patient was placed on an APAM, which caused her some distress and there was no improvement in the ulcer after several weeks. Thus this led to the decision to nurse the patient on a Carital Optima mattress. The patient's facial features visibly relaxed when she was placed on the mattress, which her care team interpreted as an expression of comfort.

She remained on the Optima mattress for four months, with two-hourly repositioning being maintained each day. On turning, her dependent bony prominences were observed to be free of marking, including blanching erythema, in spite of her having rested on her trochanter for the previous two hours. This feature was maintained for the entire time she used the Optima mattress.

The sacral pressure ulcer slowly improved, becoming smaller, with 90% of the wound bed comprising granulation tissue and the remaining tissue being covered with a thin sloughy film. The surrounding skin became a healthy pink, which blanched on finger pressure.

During the evaluation, no new tissue damage occurred and she had an improved quality of sleep as well as a reduction in the need for morphine. Care staff also stated a preference for the Optima mattress system over their current APAM stock.

Case report two

The patient was a 79-year-old woman who lives alone. She had suffered from osteoporosis and rickets for many years, which had been treated with daily calcium drinks. A scan indicated that her bone density had deteriorated and this had caused her problems with pain and posture. The patient assessment revealed a grade 4 pressure ulcer (EPUAP, 1998) and Waterlow score was 16 (high risk).

The patient was a former smoker and a bilateral amputee (right above knee and left below knee) due to unhealing leg ulcers of unknown aetiology. This caused her problems in maintaining posture, especially when

'walking' over the top of her mattress into and out of her wheelchair. She weighed 31 kg and was self-caring at home, with the assistance of one carer for personal care and a district nurse for wound care. She had a chronic grade 4 pressure ulcer (EPUAP, 1998) to her left ischial tuberosity, which has been present for more than four years. She was spending up to 14 hours in her wheelchair each day.

The patient's main problems on assessment included discomfort and pain, disturbed nights, problems with transfer from her wheelchair and maintaining independence, problems in maintaining posture, low body weight, and a chronic unhealing wound. The team felt it was important that the pain and discomfort were relieved, as this has been shown to have a significant impact on quality of life and wound healing (Vileikyte, 2007). The patient also had many allergies, including those to wound products and black dye from some mattress covers, therefore, the colour of any mattress cover and the selection of dressings had to be carefully considered.

The skin over the patient's buttocks was periodically breaking down, forming blisters and grade 2 damage. This healed over time independently of the dressing choice or mattress selection, but required the attention of a dermatologist. The patient was also prescribed analgesia, including morphine sulphate and co-proxamol, plus she also drank a large sherry at night.

In an attempt to take pressure off her buttocks and sacral ulcer, an increase in bed rest was discussed with her. However, this has been tried in the past and she had been hospitalised on several occasions in order to try and improve her overall tissue viability. As a result, she would not consider this as an option as it was very important to her that she remained independent at home. The wound was assessed and an appropriate dressing used to debride and encourage granulation. The patient's wheelchair cushion and mattress were also assessed, which included pressure mapping.

The patient was using a static replacement foam mattress that she found uncomfortable, with high interface pressure mapping results over the bony prominences causing her to have a disturbed sleep pattern. She stated that she had not had a full night's sleep in many years and that pain and/or discomfort usually woke her up every hour.

As well as being uncomfortable, the static replacement foam mattress was unsuitable from a pressure-relieving perspective. About four different mattresses were, therefore, trialled to try and find a solution. However, none were found to be ideal, especially an APAM, which she found uncomfortable, transferred her down the bed at night and was impossible for her to transfer onto as it had poor surface support for her uneven stumps. Other mattress types trapped her skin between their cells.

The qualities of the Optima mattress were discussed with the patient, who agreed to try one over a six-week period. On being introduced to the mattress, she was immediately able to self-transfer onto the 'firmed' mattress un-assisted and could 'walk' across the surface with ease. Her pain score reduced to 3 according to The Universal Pain Assessment Tool (0 = no pain; 10 = worst pain possible) and all night-time analgesia was discontinued.

The patient stated that: 'It's the first time in years that I can honestly say that I've had a comfortable night's sleep.' She also felt comfortable and supported on the Optima mattress and her transfers were easily managed by using the 'firm' button. In fact, she was able to transfer alone if she took it slowly and carefully but preferred to have a carer present.

After six weeks of using the Optima mattress, the patient's wound has begun to improve, granulation had appeared and the wound had reduced in size and depth. This was in spite of the patient still sitting in her wheelchair for 14 hours per day.

Transwave

A more accurate evaluation of the wound will be made after three months. In the meantime, rather than wait for the primary care trust to fund an Optima mattress, she has elected to purchase one from her own resources — meaning she will not have to revert to using any other type of mattress once the evaluation period is over.

Case report three

The patient was 56-years-old and had been paraplegic for about 46 years following an accident. For most of the time he stayed at home with an electric bed and an APAM, which was supplied by his local Community Loan Centre.

For many years he has had recurring pressure ulcers (grades 1–4) (EPUAP, 1998) and had become an expert patient with regards ulcer formation, different mattress types and the value of electric-profiling beds.

From time to time he had been admitted to a specialist spinal injuries unit for reassessment or surgical intervention, either to his soft tissues or bones. In June 2008 he was admitted for reconstructive surgery on two pressure ulcers after unsuccessful reconstructive surgery at another hospital.

While he was undergoing pre-operative evaluation, he was offered the use of an Optima mattress and although he found it comfortable over his remaining sensate areas, he asked to be placed on an APAM after 48 hours as he had become concerned that the Optima mattress had 'bottomed out'. However, during transfer to the APAM, the staff noted that no new skin damage or markings had occurred.

After a discussion about the functional differences between the Optima mattress and an APAM, the patient accepted that the principles of continuous low pressure could be beneficial and agreed to go back on the Optima mattress to complete a three-week period of total post-operative bed rest.

Reconstructive surgery was performed and over the next three

weeks the patient remained on the Optima mattress, receiving regular repositioning, skin inspection and nursing care. Photographs of pressure areas were taken each week to assess the healing process.

Throughout this time no new skin breaks occurred and all the patient's bony prominences remained intact and free from blanching and non-blanching erythema. The consultant surgeon, ward staff and tissue viability nurse all expressed confidence in the Optima mattress and had no concerns about him continuing to be supported by it.

The patient appreciated the added comfort the Optima mattress provides — he was especially impressed by the non-appearance of 'pink marking' over his bony points. His principle concern is that when he is transferred home he will have to return to his Community Home Loans APAM and wants the primary care trust to purchase an Optima mattress for him.

Conclusion

In the absence of a randomised clinical evaluation, the purpose of this article is to report on at least three patient outcomes from three different care environments which borrowed a Carital Optima mattress from Nexus for their own evaluation purposes.

Over the years many different types of static and dynamic mattresses have been produced and careful selection is required by clinicians in order to avoid inappropriate use and possible harm to patients.

When evaluating the efficacy of new mattresses, interface measurements using pressure mapping is a common approach (Fletcher, 2006) and the technology used for the Optima mattress is recognised as being scientifically valid (Agam and Gefen, 2007).

Equipment selection should also be based on a holistic assessment of individual patient need (NICE, 2005), in order to identify the suitability of the

Key Points

- ▶▶ The Carital Optima mattress is a unique, electrically-powered reactive speciality surface suitable for reducing pressure ulcer risk status, and, for promoting pressure ulcer healing.
- ▶▶ More than 800,000 patients worldwide have used the Carital Optima mattress over the past 12 years.
- ▶▶ The mattress adjusts to individual patient surface characteristics to increase contact area and thus reduce interface pressure.
- ▶▶ It not induce motion sickness in patients, nor transfers patient down the bed.
- ▶▶ Quality of comfort and improvements in sleep pattern have been reported following use of the Carital Optima mattress, resulting in reduced pain scores and analgesia dosage — particularly useful for MS and MND patients.

equipment for the patient and the care setting as well as providing patient choice.

Dynamic mattresses have been available for many years, with APAMs being the dominant type used in the UK. However, APAMs have certain drawbacks, such as pump noise, motion sickness, exacerbation of pain in existing wounds, sleep disturbance and patient migration down the bed.

Throughout the time the authors were studying the three patients featured in this article, the lack of pump noise was noted by staff and those patients able to comment.

Urgo

This is important as noise from machinery, especially at night, can be a contributory factor to sleep disturbance for the patient and any others in the vicinity. The lack of sleep and its impact on wound healing has been noted by Cole-King and Harding (2001) who identified the positive effect on wound healing of good sleep patterns and delays in healing due to lack of sleep.

In case two, the patient had a grade 4 pressure ulcer that showed no sign of healing, however, in spite of spending most of the day in a wheelchair, her ulcer began to granulate. This could have been due to the benefits of having a full night's sleep through using the Optima mattress.

None of the patients featured in this article experienced migration down the bed. This benefits both patient and staff from a moving and handling and a health and safety perspective. Again, this was of immense benefit in case two as the patient was able to get out of bed unaided from a safe position.

Through reviewing the available, published literature on the Optima mattress, verifying the validity of pressure-mapping undertaken on behalf of the manufacturer and specifically reporting on three patients in three different healthcare environments, it would seem that the Carital Optima mattress offers a unique type of support surface for pressure ulcer prevention, pain relief, comfort and sleep promotion. Added benefits include a reduction in the amount of medication needed, ease of get in and out of bed and elimination of motion sickness and migration down the bed.

These evaluations have shown the Carital Optima mattress to be a promising alternative to APAM mattresses. In conjunction with other published evidence, this article forms an evidence base that healthcare professionals can use to make an informed choice about patient care. **WUK**

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