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# Effectiveness of a pressure-redistributing cushion for low-to medium-risk patients in care homes

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# Effectiveness of a pressure-redistributing cushion for low-to medium-risk patients in care homes


## Abstract

A small, non-controlled evaluation set out to assess the effectiveness of the Airospring AS200 cushion in preventing the development of pressure ulcers in patients in nursing/care home and hospice settings. Ten patients, assessed as being at low-to-medium risk of pressure ulceration, were recruited into the evaluation; the mean age was 82.7 years. Of these, nine were living in nursing/care homes and one in a hospice. The follow-up period was 4 weeks for nursing/care home patients and 2 weeks for the hospice patient. Seven patients had a cognitive impairment. All patients were chairfast or had limited mobility. Of the 10 patients, one (from a care home) was withdrawn from the evaluation at week 2 because of a deterioration in her condition, although her skin remained intact. At the end of the follow-up period, the sacral skin was still intact in seven patients out of the nine remaining, but one patient developed persistent signs of blanching erythema. These preliminary results indicate that this pressure-redistributing cushion is largely effective in preventing pressure ulceration.


■ pressure redistribution ■ cushion ■ evaluation ■ nursing home ■ hospice


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Pressure-redistributing cushions are designed to maintain tissue integrity by reducing pressure near the bony prominences. They accommodate bony prominences and orthopaedic deformities (such as crooked and foreshortened extremities, scoliosis, and kyphosis) through immersion, enveloping irregularities at the seating interface to reduce high pressure gradients, and regulate the balance of heat and moisture. This article describes a small evaluation that narrates the risks associated with seating vulnerable people in nursing/care home or hospice settings, and demonstrates how to select an appropriate pressure-redistributing cushion. The primary outcome measure of the evaluation was to assess whether use of the cushion being trialled resulted in a change in the condition of the skin over ischial tuberosities and sacrum.

## Pressure ulceration in the nursing/care home setting

Pressure ulcer (PU) occurrence rates in nursing and residential care homes are estimated to be between 1.5% and 25% (Grey et al, 2006). Keelaghan et al (2008) found a 26.2% prevalence among nursing home residents admitted to hospital. Nevertheless, there is very little up-to-date information in the UK about the incidence of pressure injuries in nursing homes. A search identified only one relevant article, by Stevenson et al (2013), which reported a prevalence rate of 0.77 per 1000 adults cared for in a community nursing caseload including residential homes. However, one of the authors (SH) works closely with many nursing homes and, since the introduction of PU incidence reporting to Care Quality Commission, she has observed a reduction in incidence.

Bed-bound patients with PUs are 37% more likely to die prematurely than those without a pressure ulcer (Davies et al, 1991). Education on PU prevention and management is needed to address this. However, some nursing home owners have reported difficulties finding appropriate training courses for staff (Royal College of Nursing (RCN), 2012), while McKeeney (2008) found that staff had difficulty gaining permission to attend study sessions. One contributing factor is that managerial support is often reactive rather than proactive, with managers only taking action when ulceration becomes a problem (Bangova, 2013).

**Table 1. The four categories of pressure ulcers**

| | Description |
|---|---|
| **Category I** | Intact skin with non-blanching erythema (redness) of a localised area, usually over a bony prominence. Blanching may not be visible in darkly pigmented skin, but its colour may differ from the surrounding area. The area may be painful, firm, soft, warmer, or cooler than adjacent tissue. Category I ulcers can indicate that the individual is at risk |
| **Category II** | Partial-thickness loss of dermis presenting as a shallow open ulcer with a red-pink wound bed but no slough or bruising*. Can also present as an intact or open/ruptured serum-filled blister. Can be either shiny or dry. This category should not be used to describe skin tears, tape burns, perineal dermatitis, maceration or excoriation |
| **Category III** | Full-thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present, but it will not obscure the depth of tissue loss. Can include undermining and tunnelling. The depth of a category III pressure ulcer varies with anatomical location. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue, so category III ulcers can be shallow in these locations. In contrast, areas of significant adiposity can develop extremely deep category III ulcers. Bone/tendon is not visible or directly palpable |
| **Category IV** | Full-thickness tissue loss with exposed bone, tendon, or muscle. Slough or eschar may be present on some parts of the wound bed. Undermining and tunnelling is often present. The depth of a category IV PU varies with anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue, so ulcers can be shallow in these locations. Category IV ulcers can extend into muscle and/or supporting structures (e.g. fascia, tendon, or joint capsule) making osteomyelitis possible. Exposed bone/tendon is visible or directly palpable |

Source: National Pressure Ulcer Advisory Panel et al, 2014; *Bruising indicates suspected deep tissue injury

It also appears that the standard of PU management in nursing and care homes varies. An audit identified that some nursing and care homes have been successful in managing and healing PUs acquired before admission to the home (Newark and Sherwood CCG 2014; University Hospitals Coventry and Warwickshire, 2015). However, problems remain in other homes, with areas of inadequate practice including (Newark and Sherwood CCG, 2014):

- Staff not recognising when to refer residents to the tissue viability nurse (TVN) or district nurse (DN) service. Some homes do not have a TVN to refer to
- Inadequate care planning to ensure implementation of evidence-based care such as documentation of risk assessment and the acquisition of pressure-redistributing equipment
- Lack of knowledge on PU incidence within individual care homes.

Pressure ulcers are, of course, expensive to treat. Nurse and healthcare assistant time accounts for 90% of the overall costs of treating PUs, most of which (96%) are category I and II (Dealey et al, 2012). The characteristics of the various PU categories are given in *Table 1*. The occurrence of PUs also carries the risk of litigation (Gorecki et al, 2010). In nursing and care homes, this cost could be reduced by implementing PU prevention and management strategies, which includes the provision of safe and effective seating.

## Prevention

A pressure ulcer (PU) is defined as a 'localised injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear' (EPUAP, 2015). *Table 2* describes the differences between friction and shear. Pressure and shear will impede normal osmosis and diffusion, tissue perfusion and contribute to cell deformation (Moore and van Etten, 2015).

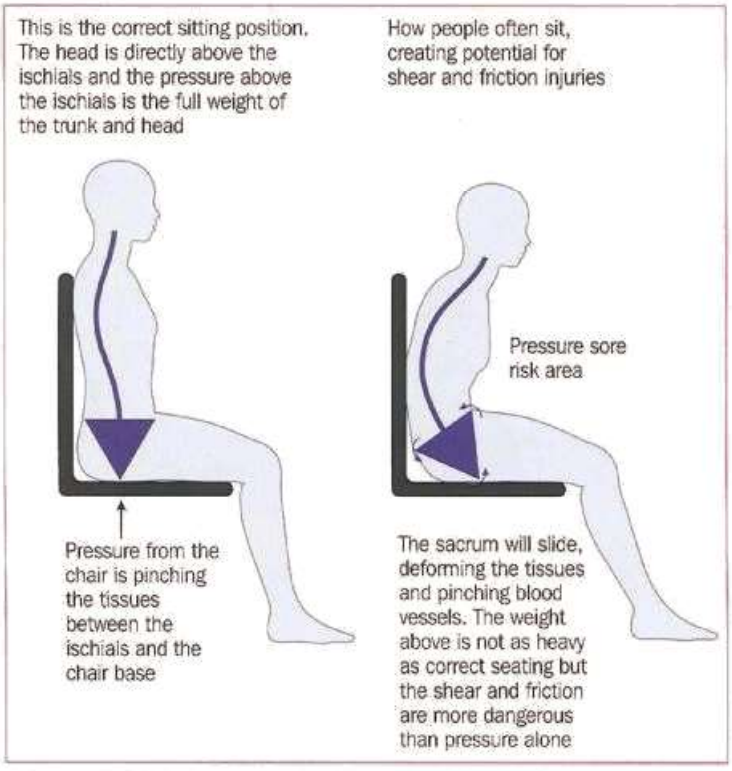
**Table 2. Definitions of shear and friction**

| | |
|---|---|
| **Shearing force** | Static friction is the resistance between a resting object and its support surface (static friction keeps the object from moving) (Payette and Portoghese, 2013). Shear occurs when skin tissue, held by sheets or clothes, stays in one place, but the bone inside the tissue slides. This pinches blood vessels, preventing the delivery of nutrients and oxygen, and can 'wear away' the tissue from inside. When this happens, the pressure injury that is occurring is amplified |
| **Friction** | Dynamic friction is the resistance between a moving object and its support surface (Payette and Portoghese, 2013). When the 'drag' of shear is too great, the tissue will also slide against the sheets or clothes, causing injury that is similar to 'carpet burns', damaging the external skin |
| **Friction and shear** | These are more dangerous than pressure alone, but do not exist unless there is unrelieved pressure |

**Table 3. Intrinsic and extrinsic causes of pressure ulceration**

| | |
|---|---|
| **Intrinsic** factors affecting development of pressure injury | Disease |
| | Medication |
| | Malnourishment |
| | Age |
| | Dehydration/fluid status |
| | Lack of mobility |
| | Incontinence |
| | Skin condition |
| | Weight |
| **Extrinsic** factors affecting development of pressure injury | External influences that cause skin distortion |
| | Pressure |
| | Shearing forces |
| | Friction |
| | Moisture |

Source: Bell (2003)




All illustrations by Peter Lamb

**Figure 1.** Illustration showing the effect of weight and gravity when sitting

As people age, they experience changes in proprioception, balance, muscle strength, and sensory function, which can reduce both their mobility and ability to navigate environmental hazards and barriers (Gavin-Dreschnack et al, 2010). In addition, many nursing and care home residents have cognitive impairment or neurological deficits (Gavin-Dreschnack et al, 2010) preventing them from moving independently or feeling the pain of pressure that stimulates movement. This places them at extremely high risk of pressure injury (Anders et al, 2010).

Older skin has less collagen than younger skin, so is more vulnerable to pressure injury. With ageing, the dermo-epidermal junction flattens, making it more fragile and more susceptible to shearing forces. This can cause stretching of the skin and damage to blood vessels (Voegeli, 2007).

Residents of nursing and care homes are therefore likely to be at risk of pressure ulceration. Similarly, patients receiving palliative care are at risk, with a reported prevalence range of 13–47% (Langemone and Brown, 2006). These terminally ill patients will have all the intrinsic risk factors and may experience skin failure at the end of life. Therefore, even vigilant care may not prevent skin breakdown.

Intrinsic and extrinsic risk factors of pressure ulceration are summarised in Table 3.

Seminal documents from National Institute for Health and Care Excellence (NICE) (2014) and Hibbs (1988) state that 95% of all PUs are avoidable and the key to prevention is maintaining healthy skin. Hibbs (1988) had no evidence to support her hypothesis, but this has become 'fact' owing to lack of uniformity in data collection across the UK. Indeed, the Department of Health (DH) has proposed that PUs can be eliminated in 95% of all NHS patients (DH, 2010).

Following publication of the *Skin Changes at Life's End* (SCALE) document (Sibbald and Krasner, 2009), White et al (2010) produced a definition of avoidable and unavoidable PUs. This can be briefly summarised as: Did the provider of care do everything possible to prevent the PU? If yes, the PU was unavoidable. If no, it was avoidable'. Therefore, when assessing a resident's PU risk status, each potential risk factor must be identified and addressed. Examples are heels that are exposed to pressure when resting on the floor, the length of time the individual sits in a chair, the resident's position when lying for long periods on a mattress and his/her general level of immobility. When all the potential extrinsic and intrinsic risk factors have been addressed, and all aspects of a prevention strategy have been implemented, any PU that subsequently develops would be considered unavoidable. It has been suggested that avoidable PUs should be classified as a 'never event'—a serious, largely preventable, patient-safety incident that should not occur when preventive measures are implemented (DH and Patient Safety, 2012).

Pressure ulcers often develop following prolonged sitting, especially when people are immobile or unable to feel discomfort due to injury or disease (Stockton et al, 2009). When an individual is seated, gravity and the weight of the body pass through the head directly down to the small bones of the ischial tuberosities and the sacrum/coccyx (*Figures 1* and *2*).

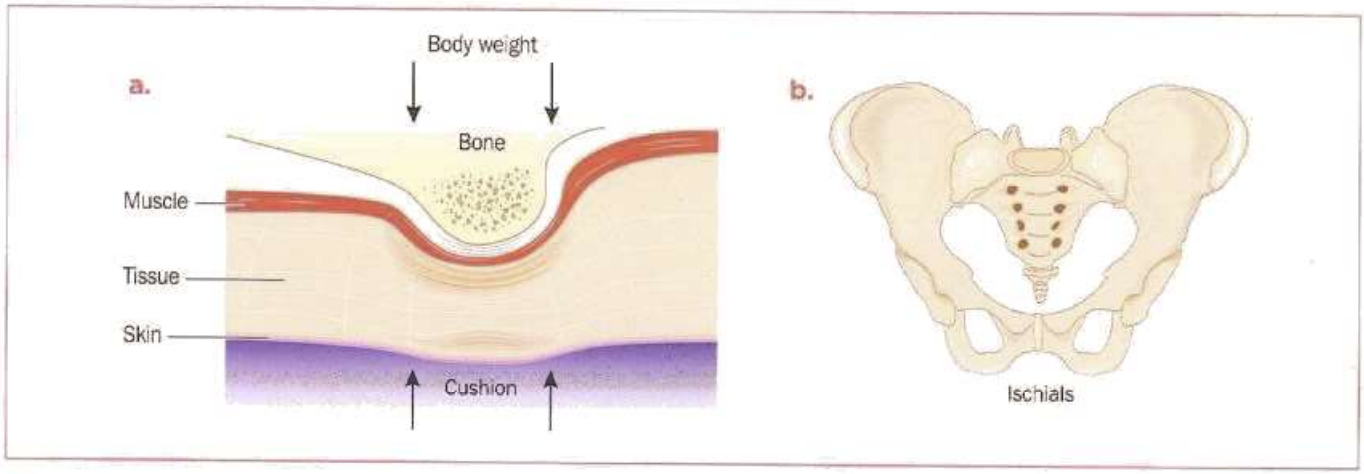



**Figure 2.** The bony prominence presses onto the surface causing a 'hot spot' of pressure. The soft surface 'immerses' the bone (a). The two lowest points of the ischial tuberosities are sharp bones that cause high pressure in small areas (b)

This load is very high compared with that experienced by an individual when supine, where the only weight pressing on the bones is the part of the body directly above them.

Pressure-redistributing cushions can be used to reduce such exposure to pressure when seated. As the ischials immerse into the cushion, it 'anchors' them and reduces the potential for shear and friction by keeping the skin in alignment with the bone. Nursing homes should use pressure-redistributing cushions as part of a multifaceted PU prevention strategy, such as the SSKIN bundle approach (NHS Midlands and East, 2013).

## The Airospring AS200 cushion

This evaluation set out to investigate the effectiveness of the Airospring AS200 (Airospring Medical) in preventing PUs in care home and hospice settings (*Figure 3*). The cushion is indicated for patients at low-to-medium risk of pressure ulceration. The technology behind Airospring cushions was the result of a 6-year project undertaken with the University of Bolton, England. The cushion, which is patented and machine washable, dissipates heat and helps keep the skin hydrated (as demonstrated when it was tested to EN31092). The cushion has two different covers: one produced by Baltex and the other by Dartex. The Baltex cover incorporates Spacer Technology knitted fabric. For the purposes of this evaluation, the Dartex cover was used to satisfy infection-control requirements, as it is waterproof and does not cause sweating.

## Method

Care home and hospice staff were invited to participate in the evaluation between November 2015 and January 2016. To be included, residents had to have a Braden score of ≥13, intact skin, and be chairfast or walk only occasionally. There were separate age requirements for residents in care homes (age >65 years) and hospices (age >18 years). Patients weighing >120kg and/or who had moisture lesions were excluded. In the former case, this was because the cushion would be unable to tolerate this load, and in the latter because the skin had already broken down and so was more susceptible to pressure injury.

All residents without a cognitive impairment gave informed written consent to participate in the evaluation. For those with a cognitive impairment, the nursing/care home staff discussed participation with the next of kin to ensure use of the cushion was in the individual's best interests. Ethics committee approval was not required as this was a non-comparative evaluation of a CE-marked product.

No change was made to the normal care of the resident other than the provision of the new cushion. In short, each resident received the same standard of care as they had before entry into the evaluation, with the only known treatment variable being the introduction of the cushion.

The follow-up period was 4 weeks for care homes and 2 weeks for hospices. Patient-demographic information, comorbidities, Braden scores, history of pressure ulceration, and previous use of a pressure-redistributing cushion were documented on entry into the evaluation. The following


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**Figure 3.** The Airospring AS200 cushion with Dartex cover

**Table 4.Baseline demographics of evaluation participants**

| Patient no. | Age (years) | Gender | Significant comorbidities | History of pressure ulceration |
|---|---|---|---|---|
| 1 | 82 | Male | Semantic dementia, arthritis | Yes |
| 2 | 84 | Female | Alzheimer's disease, asthma, bullous pemphigoid | No |
| 3 | 88 | Female | Vascular dementia, macular degeneration , hypertension, angina, chronic hyponatremia, incontinent of urine | No |
| 4 | 85 | Female | Alzheimer's disease, rheumatoid and osteoarthritis, osteoporosis of the spine, polymyalgia, incontinent of urine | No |
| 5 | 43 | Male | Left-sided weakness | No |
| 6 | 80 | Female | Dementia, H/O seizures, hallucinations | Yes |
| 7 | 92 | Female | Dementia, difficulty breathing, hypertension, depression | Yes |
| 8 | 92 | Female | Hypertension, anxiety, advanced dementia | Yes |
| 9 | 95 | Female | Incontinence | No |
| 10 | 86 | Female | Incontinence, diabetes | No |

parameters were assessed on a daily basis throughout the evaluation period:

- Condition of the resident's skin before and after he/she spent time sitting in the chair
- Length of time spent sitting on the cushion
- Repositioning regimen (this was not changed during the evaluation)
- Comfort of the cushion.

At the end of the evaluation, Braden scores were documented again, and any concurrent use of a pressure-redistribution mattress in the follow-up period was noted. Staff were asked how satisfied they were with the cushion's performance, and to rate how easy it was to clean.

None of the clinicians who assessed the patients were involved in the development of the evaluation or the data-collection form used.

## Results

The sample comprised nine residents from three care homes and one patient from a hospice. Of these, eight were women and two were men, with a mean age of 82.7 years (median: 85 years; range: 43–95 years). Seven of the 10 participants had a cognitive impairment. Four residents had a history of pressure ulceration (in each case in the sacral area), and seven had used pressure-reducing foam cushions previously. *Table 4* summarises key baseline demographic data.

The mean baseline Braden score was 16.2 (range: 13–23, median: 15), indicating that the sample was at medium risk of pressure ulceration. The baseline Braden scores for each individual participant are given in *Figure 4*. There was no change in Braden scores throughout the evaluation period.

The time during which each participant sat on the cushion during the day varied according to the individual's routine, preferences, and requirements (i.e. if there was any redness after 3 hours, the length of time on the cushion would be reduced. If no redness was observed after 3 hours, time on the cushion could be increased). The average length of time is illustrated in *Figure 5*. Of the 10 patients, six were able to reposition themselves independently, and the remainder were repositioned at least every 3 hours, depending on their level of immobility and individual needs. The two patients (nos. 9 and 10) who were sat out for over 13 hours each day had Braden scores of ≥20 and were able to reposition themselves independently.

Four patients (nos. 1, 2, 3, and 4, who were all from the same care home) used a pressure-redistributing mattress as well as the new cushion.

### Condition of the skin

One participant (patient 4, from a care home) was withdrawn from the evaluation at the end of week 2 after developing obstructive jaundice, although her skin remained intact during each day of the evaluation. Following her withdrawal from the evaluation, this patient required end of life care and spent her remaining days in bed.

At the end of the evaluation, all but one of the remaining nine patients had intact skin ($n$=8). One patient (no. 5, from a hospice setting) developed consistent signs of blanching erythema, which occurred during the last 8 days of his follow-up period. However, due to a deterioration in his clinical condition, this patient increasingly spent more time in bed and less in his chair as the evaluation proceeded (a mean of 5 hours per day spent sitting on a chair in week 1, compared with a mean of 2.8 hours per day in week 2).

Two patients had episodes of blanching erythema, but never experienced skin breakdown. On days 3–5 of the first week of

the evaluation, one patient (no. 3) developed blanching erythema during the day, but recovered with no signs of redness at bedtime. This patient had no identified changes in her health. Another patient (no. 6) developed occasional episodes of blanching erythema, but again, her skin mostly recovered by the evening, although there was some pinkness on the last evening of the evaluation. At the end of the evaluation, the clinician caring for this patient stated that she was satisfied with the cushion and that it was as effective as the previous cushion used.

These results therefore suggest that the cushion was effective in preventing pressure ulceration in patients assessed to be at low-to-medium risk of pressure ulceration.

### Other results

At the end of the evaluation, when asked about their overall opinion of the cushion, the clinicians stated that they were either very satisfied or satisfied with the effectiveness of the cushion for nine of the 10 patients. Similarly, all the clinicians stated that the cushion was either easy or very easy to clean.

Five of the 10 patients had a cognitive impairment that was severe enough to prevent them from giving an opinion on the comfort of the cushion. Of the remainder, two considered it very comfortable, two comfortable, and one uncomfortable.

## Discussion

Evidence-based clinical practice is an approach to decision-making in which the clinician uses the best evidence available, in consultation with the patient, to decide on which option suits that patient best (Gray, 1997). If that evidence is not available, the clinician may wish to address this by undertaking an evaluation. This evaluation was designed to provide preliminary evidence on the effectiveness of a pressure-redistributing cushion in elderly residents/patients who sit for long periods during the day. The results show that the cushion was largely effective in preventing PUs, but that it should be used, as indicated, on patients at low-to-medium risk.

A MEDLINE search using the search terms, 'cushion', 'pressure ulcer', and 'nursing home' identified only three evaluations on the effectiveness of cushions in preventing PUs in this setting (Geyer et al, 2001; Brienza et al, 2010; Chamanga and Butcher, 2016;). Two of these evaluations recruited patients at high risk (Geyer et al, 2001; Chamanga and Butcher, 2016) and one recruited patients at medium/low risk (Brienza et al, 2010). All found that pressure-redistributing cushions, when used as part of a multifaceted pressure-prevention strategy, prevented PU development. It is hoped the current evaluation will contribute further to this evidence base.

If the person's condition deteriorates and, particularly in the case of a high temperature, the body uses more oxygen, the skin is more likely to mark from pressure. One subject did deteriorate during the follow-up period and therefore it was important that this resident stopped using the cushion.

The important point in this evaluation is to acknowledge that not all PUs are avoidable, but where they are believed to be, all preventive measures that best suit the patient (Gray, 1997) must be implemented and evaluated (Guy et al., 2013).

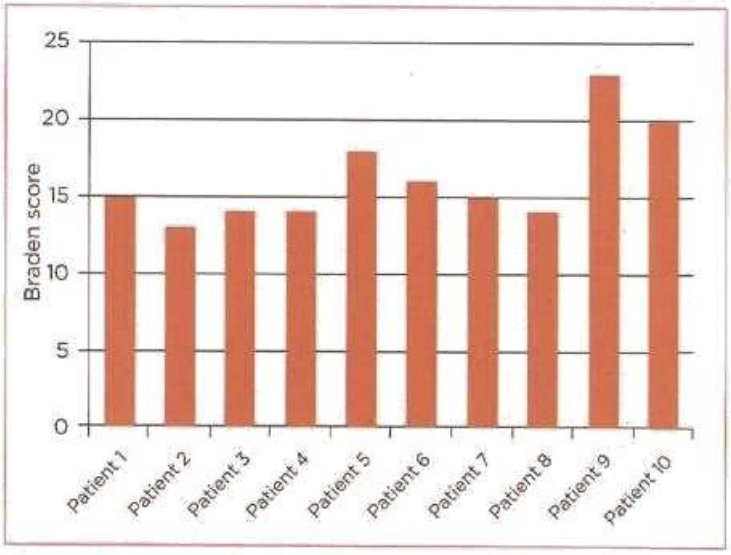


**Figure 4.** Baseline Braden scores

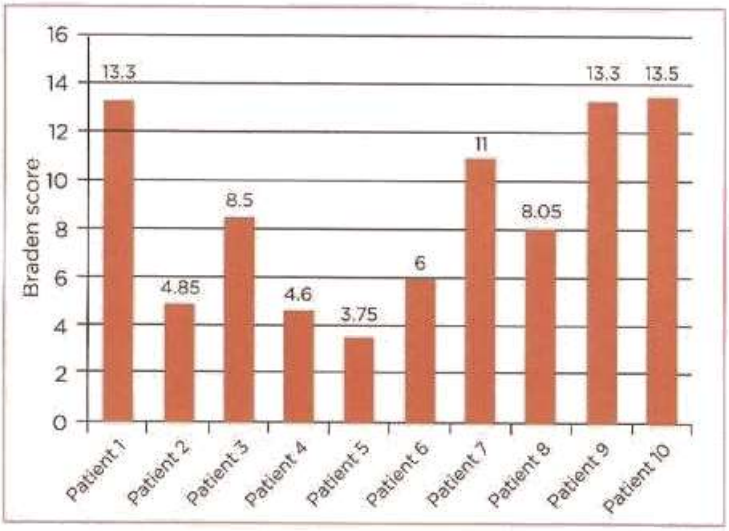


**Figure 5.** Mean number of hours each patient spent sat on a chair

If that evidence is not available, clinicians may wish to consider undertaking an evaluation.

### Strengths and limitations

This was a small sample of subjects who were at risk of pressure injury from seating. For logistical reasons, only one patient was recruited from a hospice setting. Two of the patients had Braden scores of ≥20, so were at very low risk. As this simple evaluation focused purely on seating, it did not attempt to control for conditions that may have affected the participants' risk of pressure ulceration while in bed or when their heels were in contact with the floor. It also did not assess any ergonomic effects of the cushion. Placing a cushion in a chair will change the dynamics of the seated position—for example, the heels may be positioned at a higher level than normal or the cushion could affect the shear forces to which the individual is exposed. Without this information, it is impossible to determine the

potential effects of these factors on any of the subjects included in this evaluation. Any future evaluations, therefore, should take this into account when developing the study protocol.

Finally, it is impossible to predict the long-term effects of the cushion on these residents, whose physical condition could deteriorate with time, such as a drop in their blood pressure or system shut down due to the dying process.

## Conclusion

While this was a simple, non-controlled evaluation with a small sample size, the findings provide a good example of how to select and assess a pressure-redistributing cushion for this patient group. It also underlines the need for evidence-based care, and demonstrates how this can be achieved in nursing/care home settings. **CWC**

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Anderi J, Heinemann A, Leffmann C et al (2010) Decubitus ulcers: pathophysiology and primary prevention. *Dtsch Arztebl Int* **107**(21): 371–81

Bangova A (2013) Prevention of pressure ulcers in nursing home residents. *Nurs Stand* **27**(24): 54–61

Brienza D, Kelsey S, Karg P et al (2010) A randomized clinical trial on preventing pressure ulcers with wheelchair seat cushions. *J Am Geriatr Soc* **58**(12): 2308–14. doi: 10.1111/j.1532-5415.2010.03168.x

Chamanga E, Butcher A (2016) An evaluation of a novel alternating mattress and cushion technology. *Br J Community Nurs* **21**(Suppl 3): S25–31. doi: 10.12968/bjcn.2016.21.Sup3.S25

Davies K, Strickland J, Lawrence V et al (1991) The hidden mortality from pressure sores. *J Tissue Viability* **1**(1): 18

Dealey C, Posnett J, Walker A (2012) The cost of pressure ulcers in the United Kingdom. *J Wound Care* **21**(6): 261–2

Department of Health (2010) *Essence of Care 2010: Benchmarks for prevention and management of pressure ulcers*. The Stationery Office, London

Department of Health, Patient Safety (2012) The Never Events Policy Framework: an update to the never events policy. http://bit.ly/1nRJlym (accessed 17 March 2016)

Gavin-Dreschnack D, Volicer L, Morris C (2010) Prevention of overuse of wheelchairs in nursing homes. *Annals of Long-Term Care* **18**(6)

Gefen A (2010) The biomechanics of heel ulcers. *J Tissue Viability* **19**(4): 124–31. doi: 10.1016/j.jtv.2010.06.003

Geyer MJ, Brienza DM, Karg P et al (2001) A randomized control trial to evaluate pressure-reducing seat cushions for elderly wheelchair users. *Adv Skin Wound Care* **14**(3): 120–9

Gorecki C, Lamping DL, Brown JM et al (2010) Development of a conceptual framework of health-related quality of life in pressure ulcers: A patient-focused approach. *Int J Nurs Stud* **47**(12): 1525–1534

Gray JAM (1997). *Evidence-based healthcare: how to make health policy and management decisions*. Churchill Livingstone, London

Guy H, Downie F, McIntyre L, Peters J (2013) Pressure ulcer prevention: making a difference across a health authority? *Br J Nurs* 10;22(12): S4, S6, S8

Enoch S, Grey JE, Harding KG (2006). ABC of wound healing. Non-surgical and drug treatments. *BMJ* 15;332(7546): 900–3

Hibbs P (1988) The economic benefits of a prevention plan for pressure sores. Conference presentation. The Fourth National Pressure Sore Symposium. The Guildhall, Bath

High quality care for all: NHS Next Stage Review final report. (2008). Available at: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085825 (accessed 17 March 2016)

Keelaghan E, Margolis D, Zhan M, Baumgarten, M (2008) Prevalence of pressure ulcers on hospital admission among nursing home residents transferred to the hospital. *Wound Repair Regen* **16**(3): 331–336

Langemo DK, Brown G (2006) Skin fails too: acute, chronic and end-stage skin failure. *Adv Skin Wound Care* **19**(4): 206–11

McKeeney L (2008) Improving pressure ulcer prevention in nursing care homes. *Br J Community Nurs* **13**(9): S15-6, S18, S20

Moore Z, van Etten M (2015) Ten top tips: seating and pressure ulcer prevention. *Wounds International* **6**(2): 11–16

National Institute for Health and Care Excellence (2014) NICE guidelines [CG179] Pressure ulcers: prevention and management. www.nice.org.uk/guidance/cg179 (accessed 17 March 2016)

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*. Cambridge Media, Australia. http://bit.ly/22pn8al (accessed 17 March 2016)

Newark and Sherwood Clinical Commissioning Group. Pressure ulcer compliance in care homes within Newark and Sherwood CCG. Available at www.newarkandsherwood.nhs.uk (accessed 17 March 2016)

NHS Midlands and East (2013) SSKIN: five steps to prevent and treat pressure ulcers. http://nhs.stopthepressure.co.uk (accessed 17 March 2016)

NPUAP (2001) Pressure ulcers in America: prevalence, incidence, and implications for the future. Reston, VA: National Pressure Ulcer Advisory Panel

Payette M, Portoghese C (2013) The Role of Friction and Shear Forces in Pressure Ulcer Generation. International Seating Symposium IC 53 March 8th

Royal College of Nursing (2012) Persistent challenges to providing quality care. An RCN report on the views and experiences of frontline nursing sta in care homes in England. http://bit.ly/1R1Ci0l (accessed 17 March 2016)

Samuriwo R (2010) The impact of nurses' values on the prevention of pressure ulcers. *Br J Nurs* **19**(15): S4-S14

Sibbald G, Krasner DL (2009) Skin Changes At Life's End (SCALE). SCALE Final Consensus Statement. http://bit.ly/1UDvfO3(accessed 17 March 2016)

Stevenson R, Collinson M, Henderson V, Wilson L, Dealey C et al (2013) The prevalence of pressure ulcers in community settings: an observational study. *Int J Nurs Stud* **50**(11): 1550–57

Stockton L, Gebhardt KS, Clark M (2009) Seating and pressure ulcers: clinical practice guideline. *J Tissue Viability* **18**(4): 98–108

University Hospitals Coventry and Warwickshire NHS Trust (2015) First Care Homes Accredited to React to Red Skin to prevent pressure ulcers. http://tinyurl.com/h5vjfxm

Voegeli D (2007) Factors that exacerbate skin breakdown and ulceration. In: *Skin Breakdown, the silent epidemic*. Smith and Nephew Foundation, Hull

Wall J, Colley T (2003) Preventing pressure ulcers among wheelchair users: preliminary comments on the development of a self-administered risk assessment tool. *J Tissue Viability* **13**(2): 48–56

White R, Ousey K, Bianchi J et al (2012) *Best Practice Statement. Care of the older person's skin*. 2nd edn. Wounds UK, London

## KEY POINTS

- Pressure ulcers can be avoided if all of the patient's risk factors are addressed and evidence-based prevention strategies are implemented
- This evaluation provides an example of how to assess and select a pressure-redistributing cushion for patients at low-to-medium risk of pressure ulceration
- Further evaluations are needed as the current evidence base on the variety of pressure-redistributing cushions available for this patient group is limited