Clinical evaluation: use of the ActivHeal Foam Adhesive dressing on chronic wounds in the acute setting

KEY WORDS
- Chronic wounds
- Exudate management
- Foam dressings
- Patient comfort

Chronic wounds are a substantial, growing problem due to an increasingly ageing population with various comorbidities. In 2008, Posnett and Franks calculated that 200,000 people in the UK had a chronic wound, with an estimated treatment cost of between £2.3–3.1 billion per year. Chronic wounds are particularly common in people aged over 65 and the number of over 65s in the UK has been predicted to increase from 9.5 million to 13 million between 2005–2025; with the population ever-increasing in age, the costs associated with the management and treatment of wounds will continue to rise (Posnett and Franks, 2008). Changing population demographics are resulting in increased prevalence and incidence of multisystem chronic diseases,meaning that health services are challenged to provide increasingly complex interventions with limited resources (Atkin et al, 2015).

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Chronic wounds are those that have remained unhealed for more than 6 weeks and are classified according to their underlying pathology; for example, pressure ulcer, venous leg ulcers, diabetic foot ulcers and burns (Bianchi et al, 2011). An example of a category III pressure ulcer wound is provided in *Figure 1*.

Wound healing is a physiological process, dependent on an individual's overall health and wellbeing. Thorough holistic assessment and management of the wound is the key to effective care. The priority should be to optimise the patient's potential for healing through, for example, correcting identified nutritional deficiencies, maintaining good hygiene and encouraging mobilisation (Benbow, 2011). In the current financial climate, tissue viability nurses must demonstrate that they are using resources effectively, whilst continuing to provide quality care and evidence that product selection is based on the needs of the patient rather than the preference of the clinician (Department of Health [DH], 2010). By selecting dressings that are appropriate for the type and condition of the wound, clinicians are able to improve patient outcomes and the patient experience, ensure safety and provide effective interventions, while also keeping in line with recommendations to keep quality at the heart of every clinical contact. Improving quality and healthcare outcomes remains the primary purpose of all NHS-funded care (DH, 2013).

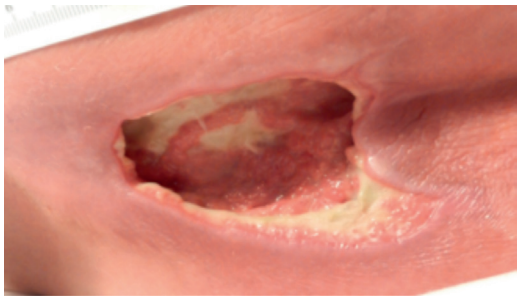

Figure 1. Category III pressure ulcer wound (EPUAP, 2014).

FOAM DRESSINGS

Foam dressings have been used in wound care since the 1980s and continue to be a common choice in the management of moderate to heavily exuding wounds (Bianchi et al, 2011). It is essential that modern woundcare products can promote

moisture balance at the wound interface through controlled absorption and evaporation to remove excess exudate and prevent the wound drying out, whilst also providing a physical and bacterial barrier to prevent leakage or extrinsic contamination (Leonard et al, 2009). Wound healing progresses most rapidly in an environment that is clean and moist but not wet, as well as being insulated, while being protected from trauma and bacterial invasion (Brett, 2006). Foam dressings have the ability to retain fluid and transmit moisture vapour away from the wound, through the back of the dressing, via evaporation (Adderley, 2008).

Wound exudate is often misconceived as a negative, when in fact it is known to assist wound healing by preventing the wound from drying out, aiding migration of tissue repairing cells, providing nutrients, enabling diffusion of immune and growth factors, and assisting in autolysis (WUWHS, 2007). Exudate is defined as a fluid produced in wounds, made up of serum, leukocytes and wound debris. The volume of exudate reduces as healing progresses. Exudate is thought to have bacterial and nutrient properties (Adderley, 2008). Effective exudate management can reduce time to healing, reduce exudate-related problems such as periwound skin damage and infection, improve quality of life, reduce frequency of dressings and clinician input, and improve healthcare efficiency (Vowden and Vowden, 2004). The effectiveness of a dressing at managing wound exudate affects patient quality of life, the condition of the surrounding skin and wear time, and healing rates. Foam dressings may be helpful in managing exudate levels, thus preventing strikethrough and periwound maceration (White and Cutting, 2008).

ACTIVHEAL FOAM ADHESIVE

Activheal Foam Adhesive, depicted in *Figure 2*, is a two-layer dressing indicated for moderate to heavy exuding wounds. The dressing comprises a polyurethane foam pad and a polyurethane membrane,as shown in *Figure 3*, with each layer contributing to the performance of the dressing. The core of the dressing is a layer of absorbent polyurethane foam that absorbs wound exudate rapidly and vertically into the dressing. The absorbent pad retains the exudate within the dressing, preventing the exudate from re entering the wound and preventing maceration to the periwound and surrounding skin (Ousey et al, 2011). The polyurethane foam membrane provides an effective barrier function that is waterproof whilst allowing the transpiration of exudate, aiding the total fluid handling capacity of the dressing (Ousey et al, 2011).

EVALUATION STUDY DESIGN

An evaluation of the Activheal Foam Adhesive dressing was undertaken in the acute care setting. The study was a product evaluation where use of the dressing was observed within standard practice, and no other changes were made to the wound care pathway. No additional interventions were made to standard care and patients were not randomised to treatment. As such, ethical approval was not required, although organisational and patient consent were undertaken. Patient confidentiality was also maintained.

As adhesive foams can be used as both primary and secondary products, the evaluation included use of Activheal Foam Adhesive alongside other prescribed dressings. Wound outcomes included wound size, wound bed status, exudate levels, and periwound skin condition. The dressing performance was evaluated according to the ease of use, management of exudate, maintenance of a moist wound environment, patient comfort during removal and wear, and ability to stay in place.

Evaluations took place for a maximum of 4 weeks, although the dressing could be discontinued if a different therapy was required following a full wound assessment, if the wound healed, or if the patient requested the product to be discontinued. Patients over the age of 18 were included in the evaluation if they were assessed as suitable for an adhesive foam and were excluded if they could not give informed consent or had suspected allergies to any of the dressing's components.

An initial wound assessment was undertaken, during which time the patients' age, sex, wound type and comorbidities were established. Wound type, wound bed status, exudate level, and periwound skin condition, along with recording of previous treatment were also recorded within the initial assessment. At each dressing change, the wound assessment was repeated, and the reason for the

Figure 2. ActivHeal Foam Adhesive dressing

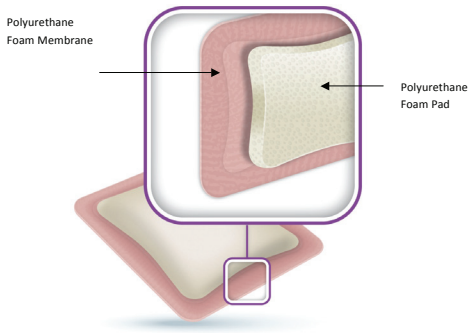

Figure 3. Two-layer construction of the ActivHeal Foam Adhesive.

Table 1. Types of wound by aetiology/ primary or secondary dressing

Type of wound		Primary (*n*=1)	Secondary (*n*=9)
Surgical wounds	New		
	Dehisced		1
Pressure ulcers	Grade 2		2
	Grade 3		2
Diabetic foot ulcer	Ischaemic		1
Trauma wound	Laceration	1	
Leg ulcer	Venous		1
	Arterial		1

dressing change and performance of the dressing in terms of comfort, ease of application and removal, and additional products used were recorded. At the end of the evaluation, the clinicians were asked to rank overall performance using a visual analogue scale (1=excellent, 5= poor performance), rating the dressing's ability to manage exudate, provide a moist wound environment, and ensure patient satisfaction and ease of use.

All data were recorded in a standardised form and a simple analysis was planned where no statistical methods were employed.

RESULTS

The ActivHeal Foam Adhesive dressing was used on 10 patients in a large acute hospital through their wound care services. Six patients (60%) were male and four (40%) were female. The patients' ages ranged from 47 to 93 years, with a mean age of 71.2 years, and comorbidities were present in 100% (*n*=10) of the patients. Comorbidities include diabetes, obesity, heart failure, alcoholism, dementia, peripheral vascular disease, chronic obstructive pulmonary disease, cerebral vascular accident, arterial disease and aortic stenosis.

The dressing was applied according to the manufacturer's instructions on a range of wound types in both acute and chronic states. *Table 1* shows the types of wounds by aetiology, highlighting whether ActivHeal Foam Adhesive was used as a primary or secondary dressing.

ACTIVHEAL FOAM ADHESIVE AS A PRIMARY DRESSING

ActivHeal Foam Adhesive was used as a primary dressing on 10% of the wounds treated (*n*=1), and improvement was observed in this patient. At the end of the evaluation, the wound had progressed onto healing.The wound's size had not increased. The wound bed status improved in this patient, from 100% granulating tissue to 100% epithelial tissue. Exudate levels and periwound skin condition were also recorded over the duration of the evaluation; exudate levels are difficult to quantify and evaluation outcomes can depend on the subjective clinical judgement of the clinician assessing the wound (WUWHS, 2007). *Figure 4* shows exudate levels at the start and end of the assessment period. A trend towards lower exudate levels was seen, with substantially more patients ending the assessment period with low exudate levels compared with moderate or high levels of exudate.

PERFORMANCE

ActivHeal Foam Adhesive was used as a primary dressing on one patient. The patient's wound was described as a laceration; at the start of the evaluation, the wound comprised 100% granulating tissue with moderate levels of exudate.There were no episodes of leakage from the dressing and dressing changes were routine. There were three dressing changes during this evaluation;after these changes the evaluation was discontinued as the wound had 100% epithelial tissue.

The ActivHeal Foam Adhesive when used as a primary dressing effectively managed wound exudate and provided a moist wound-healing environment. Clinicians were satisfied with the ActivHeal Foam Adhesive performance

characteristics assessed. 'Maintaining a moist environment', 'managing exudate', 'ease of application', 'stays in place' and 'comfortable for the patient to wear' were all assessed as excellent. 'Ease of removal' scored well too.

ACTIVHEAL FOAM ADHESIVE AS A SECONDARY DRESSING

For 90% of the wounds treated (*n*=9), Activheal Foam Adhesive was used as a secondary dressing in conjunction with other products, including:

- A hydrogel (20%, *n*=2), to assist in debridement of necrotic tissue
- A fibrous gelling alginate dressing (20%, *n*=2), used for absorbency of exudate and desloughing of the wound bed
- An alginate rope (30%, *n*=3), for use within a cavity wounds, along with assisting with absorbency, aiding autolysis and desloughing of the wound bed
- An antimicrobial dressing (20%, *n*=2), to reduce the bioburden in the wound bed.

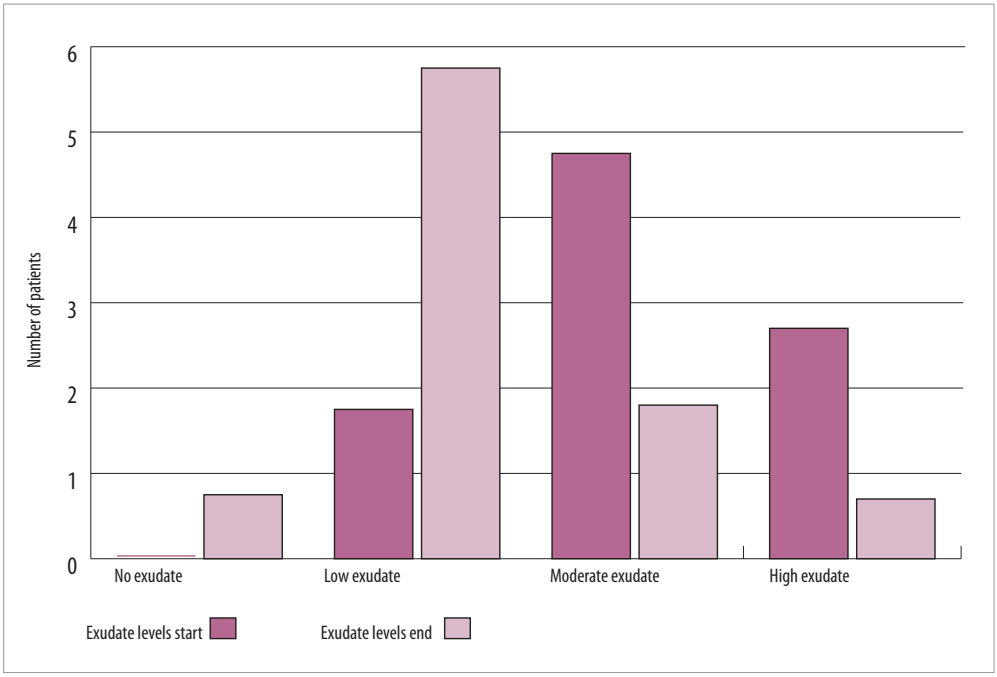

Figure 4: Exudate levels at the start and end of evaluation.

PERFORMANCE

Activheal Foam Adhesive dressings were applied as a secondary dressing for 69 dressing changes. Of these, 97% (*n*=67) were undertaken routinely to observe the wound. The other 3% (*n*=2) were undertaken when the dressing required changing as it had reached its full capacity.

The choice of primary dressing and the outcome of this on the wound will have influenced the frequency of dressing change. Of the nine patients who used Activheal Foam Adhesive as a secondary dressing, 22% (*n*=2) had their dressing changed daily, 44% (*n*=4) had their dressings changed on alternate days, 22% (*n*=2) were changed twice weekly, and 11% (*n*=1) were changed weekly.

At the end of the evaluation, 33% (*n*=3) progressed to healing. There was an overall reduction in wound size in 66% in the remaining six patients. In 60% of the patients (*n*=6) for whom ActivHeal Foam Adhesive was used, wounds were recorded as having improved. The overall exudate level appeared to reduce in 100% of patients (*n*=9).

OVERALL PERFORMANCE OF ACTIVHEAL FOAM ADHESIVE

At the end of the evaluation, clinicians were asked to rate the overall acceptability of the dressings. Clinicians were satisfied with ActivHeal Foam Adhesive for all performance characteristics assessed, as shown in *Figure 5*.

Areas of particular satisfaction were 'comfortable for the patient', 'maintaining a moist environment' and 'ease of application'. ActivHeal Foam Adhesive dressing performed well in respect to fluid handling and durability. The clinical performance of the dressing met the clinicians' expectations of foam dressings.100% of the clinicians related its performance as excellent in regards to maintaining a moist environment was 100%.

For a dressing to remain cost-effective, it is important that it stays in place. The dressing also addressed patients' needs in terms of easy application and removal, prevention of leakage, and wound progression. This shows that the Activheal Foam Adhesive is acceptable for its intended use and this translates into positive clinical outcomes for the patient.

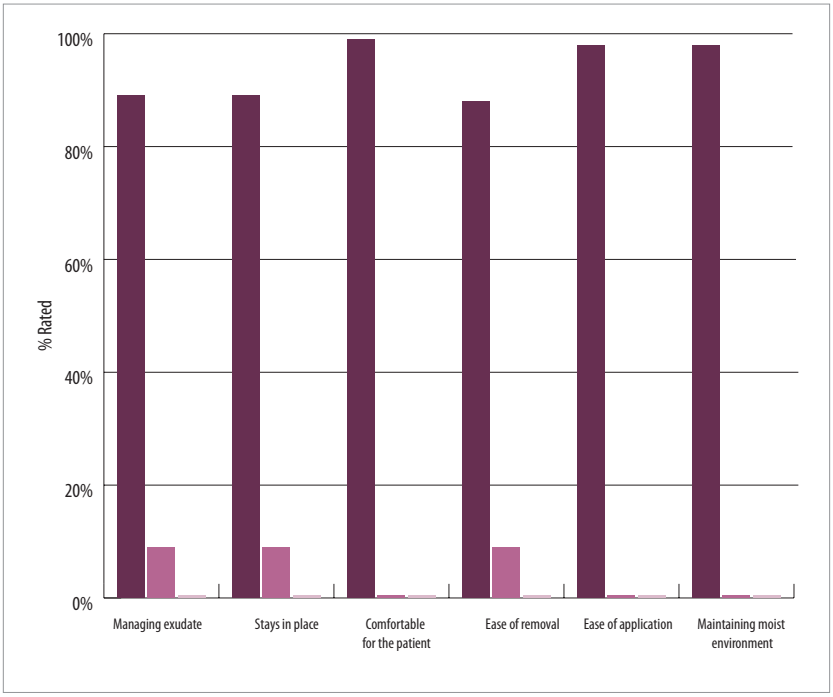

Figure 5: Clinician assessment of ActivHeal Foam Adhesive performance characteristics overall

DISCUSSION

Adhesive foams dressing are widely used in the management of wound exudate, as either primary or secondary dressings. The aim of this clinical in-market evaluation was to observe the performance of the ActivHeal Foam Adhesive dressing usedin standard practice on wounds requiring a foam dressing. A more structured study may have produced more robust conclusions; however, this data does demonstrate on a patient-by-patient basis how clinicians often have to change treatment regimes to manage the complexities of wound healing.

The ActivHeal Foam Adhesive dressing performed well across a wide range of wounds. These wounds were not particularly complex or large in size, but all required a foam dressing that would be comfortable, easy to apply and remove, and could manage exudate safely and effectively. The ActivHeal Foam Adhesive dressing conformed well to the wound and provided patients with comfort and security. The high level of acceptability is demonstrated in *Figure 5*. Overall, the ActivHeal Foam Adhesive dressing provided a suitable environment to facilitate wound healing, and to manage exudate safely and effectively. It performed well when used as a secondary dressing, when a primary product was required to address other problems in the wound bed (such as increased bacterial load and removal of devitalised tissue), securing the product in place while providing exudate management. When an antimicrobial primary dressing was used, there were no observed problems, and the performance of the ActivHeal Foam Adhesive was not impaired. The foam provided safe and secure adhesion so there was no leakage of exudate and minimal risk of periwound skin damage.

CONCLUSION

Foam dressings are popular and used frequently in the management of exuding wounds. The performance of the ActivHeal Foam Adhesive dressing was evaluated when used both as a primary and a secondary dressing, on a number of different wound types.

This evaluation was limited in that it was uncontrolled and patient numbers in each category were low. It was difficult to demonstrate the full capacity of the dressing to manage exudate, as many of the dressing changes were routine changes for wound observation, which is more frequent within the acute care setting.

However, the results of the evaluation did demonstrate positive endpoints for exudate management, moist wound environment, and periwound protection. It is challenging for a clinician to choose the appropriate dressing, and understanding the actions and use of foams will help in achieving the best possible clinical outcomes for the patient. The results of this evaluation support this outcome. WUK

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