Cost effectiveness and improved patient outcomes using a super-absorbent dressing

In some chronic wounds, excessive exudate can inhibit wound healing. Clinicians must manage the wound, ensure cost and clinical effectiveness and a positive patient experience as mismanagement may lead to non-concordance. This article discusses the evaluation of absorbent products within a community provider organisation, and includes patient feedback and opinions of the clinicians delivering the care.

Key words:
Cost effectiveness
Super-absorbent dressing
Patient outcomes

Exudate is a normal and important factor in the wound healing process[1]; acute wound exudate contains a number of essential nutrients, white cells, enzymes and inflammatory mediators to support wound healing[2]. However, in some chronic wounds, exudate can become excessive and inhibit wound healing if high levels of inflammatory mediators and activated matrix metalloproteinase are present[1]. Copious amounts of exudate can lead to physical effects such as maceration of the peri-wound and skin stripping[3], causing pain and discomfort. Therefore, addressing the underlying cause and maintaining the optimal level of moisture within the wound bed is crucial to prevent delayed healing, promote quality of life and the effective use of resources[4].

Excess exudate: impact on Quality of Life

Evidence shows that excessive exudate can be problematic for patients and have a significant impact on emotional well-being[5]. If mismanaged, patients may be less concordant with treatment, leading to poor clinical outcomes and wasted resources[6]. Clinicians need to consider the effect that the dressing they choose will have on promoting improved quality of life. Ebbeskog and Ekman's study of patients with venous leg ulceration, described how leaking bandages had a significant negative impact on patient quality of life, leading to social withdrawal and isolation[7]. Menon also highlights the psychological impact of living with a highly exuding wound; embarrassment and low self-esteem, often leading to clinical depression[8]. Thus, it is important to understand issues that concern the patient and identify suitable and acceptable treatment options.

Diagnosing the underlying factors contributing to high levels of exudate production will enable the clinician to develop an effective care plan, and involving the patient in their care will encourage concordance and fulfil a key national requirement[9].

Super-absorbent dressings

There are many non-adherent primary dressing products with varying characteristics which claim to have superior absorbency. Some are listed as protease modulators due to their ability to bind the harmful proteases within the dressing material, preventing them from remaining within the wound bed. Others are described as absorbent dressings used for managing chronic exuding wounds[10]. However, it could be argued that the performance of a product cannot be assumed according to its category listing, as its physical properties may be significantly different and there are many other variables to consider[11]. These include: the ability of the dressing to handle the exudate; the length of time the patient is able to wear the dressing without exudate breaching it and the profile of the dressing and its ability to maintain its integrity when it becomes wet[12]. The aetiology of the wound also needs to be considered; for example, leg ulcers treated with full compression therapy tend to have an initial rapid reduction in oedema and exudate, so may start treatment with a super-absorbent dressing but progress quickly to a simple non-adherent dressing[13].

Box 1 outlines the requirements of an absorbent dressing for managing heavily exuding wounds:

Box 1: Requirements for an absorbent dressing[4]

- Can absorb
- Can retain fluid
- Can protect the peri-wound and surrounding skin
- Can perform under compression without indentation
- Is easy to apply and remove
- Is cost effective

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Dressing evaluation

In our provider organisation, the wound management formulary is continually reviewed by a group of key clinicians in partnership with local medicines management teams. This on-going review is preferable to annual or bi-annual reviews of the whole formulary, as it enables the organisation to be proactive and responsive in ensuring value for money and clinical effectiveness. Monthly review of the local On Line Non-prescription Ordering System (ONPOS) data ensures that issues such as high spends, excessive use of products and possible areas of poor practice are highlighted and addressed.

During a recent review, a significantly high spend on non-adherent super-absorbent products was noted. Following discussion with the tissue viability nurse and the link nurses, a number of reasons for this increase in expenditure were identified:

- an increase in the caseload of patients with mixed aetiology leg ulcers, or with comorbidities such as congestive cardiac failure; as full compression is contraindicated in this patient group, exudate management can be challenging
- a variation in the knowledge and skills of health care professionals in relation to wound management products, leading to possible misuse
- patient ability to concord with treatment regimens
- price of the current formulary listed products

It was agreed with medicines management and the local tissue viability link nurse group to explore similar alternative products and evaluate their clinical and cost effectiveness and compare with the super-absorbent dressing currently used. A number of non-adhesive dressing products claimed to meet the criteria outlined in Box 1; six products were included in the evaluation process:

- sorbion sachet S™ – described as a protease modulator
- Drymax™ – described as a protease modulator
- Alione® – described as an absorbent dressing
- Kerramax™ – described as an absorbent dressing
- Cutisorb Ultra™ – described as a protease modulator
- Eclypse™ – described as an absorbent dressing

Methodology

Methods of evaluation can often be unstructured and inconsistent; for example, dressings companies may offer evaluation forms for the purpose of documenting the performance of their products. Locally, wound assessment and product evaluation documentation is standardised using the TIME framework; this determines the appropriate product to use and/or evaluate for a particular wound. TIME is a systematic approach for the implementation of wound bed preparation and focuses on assessment of the wound bed[14,15], where T is tissue type (viable or non-viable), I refers to the presence or absence of inflammation or infection, M is moisture balance and E is the wound edges – are they non-advancing? For the purpose of this evaluation, the product would be evaluated using the 'M' (moisture balance) aspect to determine if the products were able to manage excess moisture.

The forms used for evaluation also included:

- wound development and history
- wound position
- wound bed, including percentage of tissue types
- measurement of wound length, width and depth
- pain assessment
- exudate level and type
- peri-wound appearance
- patient feedback
- clinician feedback

One form was used per wound for a period of up to four weeks.

Inclusion and exclusion criteria

Patients included were aged 18 years or above, had mental capacity and were able to give consent. They had a moderate to heavily exuding wound and treatment with a non-adherent super-absorbent dressing was indicated.

Results

Twenty-one patients were included in the evaluation, approximately four per dressing included. The dressing currently on formulary was not used formally in this evaluation, but previous experience using this dressing was considered against the evaluation criteria.

One dressing was pulled from the evaluation as it failed to effectively contain any exudate. At the end of the four-week period, the initial feedback for Alione® (now Biatain Super®, Coloplast Ltd.) was positive compared with the other evaluated dressings. Nurses stated that the product was easy to apply and remove and had performed well, even under modified compression; patients felt it was very comfortable. The only concern raised was the range did not include a very large size; the company is however, exploring the manufacturing of additional sizes. All other dressings failed to deliver effective exudate absorption and thus protection of the peri-wound area.

The group was concerned that initial feedback for Alione® was from only four patients, which did not give sufficient data to make a permanent change to the formulary. Therefore, Alione® was made available on the local online non-prescription ordering system (ONPOS) for a period of three months to gain further feedback from clinicians and patients.

During this time, a further 26 patients were treated with Alione®. The majority of wounds were those requiring modified compression therapy and leg ulcers where compression therapy was contraindicated, the primary objective being exudate management. No negative comments regarding the dressing performance were expressed. Feedback was overwhelmingly positive for all 26 cases; 100 per cent reported that:

- exudate was controlled and contained within the dressing
- peri-wound and surrounding skin was protected with no evidence of maceration.
- there was no evidence of strikethrough
- there was no indentation under modified compression
- patient's reported the dressing was comfortable
- nurse visits for dressing change decreased by at least 1 per week
- no other primary dressing was required
- no negative patient feedback was reported

Box 2: Calculated clinical resource savings using Alione®			
Number of patients	**Cost of clinician (per visit)**	**Value of x 2 fewer visits over a two week period**	**Total savings from evaluation**
26	£70	£140	£3640

Costs and savings

An analysis of the available data for a three-month period using the ONPOS system, revealed a saving of £7,500 for the product group, equating to a potential annual saving of £30,000. Unexpectedly, a further saving of £3,500 was identified during the evaluation period due to a reduction in the use of wound contact layers. Alione® has an integral contact layer which it is hypothesised contributed to this change in clinical practice. A review of the 12 month period prior to and following the change, indicated that the number of Alione® dressings used in year 2 was 62 per cent lower than the number of dressing used in year one prior to the changes to formulary and product selection. This could be attributed to the reduction in dressing changes and visits as reported in the evaluation. Nursing time is often not included in evaluations; however, they are the most expensive resource, with costs ranging from £35-£70 for a nursing visit[16]. If we assume an average treatment period of two weeks per patient with this type of dressing, savings on clinical resources alone amounted to £3,640 (*Box 2*).

Discussion

Health care needs to be delivered safely and with improved measurable outcomes[9]; the patient experience should be at the heart of everything we do. Provider services including tissue viability must strive to be efficient without compromising quality, using the best available evidence to inform clinical practice. The NHS should be 'patient-led', so it is important to measure the patient experience by focusing on the immediate concerns for the individual and the effect the chosen treatment has on promoting a positive experience. By engaging patients in their care we are more likely to be successful at optimising wellbeing thus promoting concordance with treatment and a reduction in wastage of resources[6], a cost saving often not captured or documented.

Research evidence as well as cost analysis data should help to drive and inform change to ensure we meet this challenge

The literature suggests that wound management has a significant impact on healthcare resources[17]. Qualitative research studies identify common themes of concerns particularly for leg ulcer patients; Walshe[18], Charles[19] and Douglas[20] all identify that pain, odour and leakage of exudate had a significant impact on quality of life. For tissue viability lead nurses and health care professionals in general, it poses a huge challenge as local organisations face budget cutbacks and realise efficiency savings. The Wounds UK best practice statement on development of a formulary[21] states *'A dressings formulary needs to be fluid and dynamic, to ensure it meets the needs of patients and their wounds'*. Therefore it is important that the tissue viability nurse and the link nurse group consistently review the product groups included in the local formulary. It is also important that health professionals can be accountable for dressing products selected for formulary inclusion and demonstrate that public money is being utilised efficiently and effectively whilst giving assurance that they have the ability to provide the best outcome for the patient.

Conclusion

The patient experience is central to the care we provide. Patients want to be assured that we will do them no harm; we will deliver care that is timely, appropriate and meets individual needs. Choosing a product which is capable of managing exudate particularly where levels are high and problematic ensures that the wound is maintained in a state which promotes the optimum environment for healing and promotes a positive experience for the patient. With the introduction of local clinical commissioning groups purchasing clinical services, organisations which can demonstrate value for money and a high level of patient satisfaction with services will be the preferred providers of care.

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Declaration of interest

Coloplast Limited provided the products used for the evaluation and assisted with information for this publication.

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10x10	10	4610	ELY103	290-2054
12.5x12.5	10	4612	ELY104	290-1999
12x20	10	4625	ELM085	302-9592
15x15	10	4615	ELY105	290-2021
20x20	10	4620	ELY114	294-1029

For very highly exuding wounds

Biatain Super Non-Adhesive

Size (cm)	Qty	Code	NHS	PIP
10x10	10	4630	ELY106	290-1858
12.5x12.5	10	4632	ELY107	290-1957
12x20	10	4645	ELM086	302-9584
15x15	10	4635	ELY108	290-1924
20x20	10	4639	ELY115	294-1011

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