Clinical review: foam dressings

The clinical evaluation team of the UK National Health Service (NHS) compiled a report, which provided a clinical assessment of the usability and requirements of foam dressings. This was done by evaluating the packaging, opening, clinical use and disposal of various brands of foam dressings available to the NHS from the national procurement provider. The report aims to provide guidance on product selection to clinicians by highlighting the properties and functions of the various products, without providing a universal determination on the clinical efficacy of a particular product.

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Summarised by Hafiza Parkar, Department of Pharmacology, University of Pretoria
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Clinical context

Scope, intended use, practice and clinical impact

Foam dressings are the most frequently used dressings in health care and have a direct patient and clinical impact due to their routine application by healthcare workers and caregivers. These dressings protect the wound from infective organisms and further harm. They are used to create a wound environment conducive to healing by controlling factors such as pressure, moisture, wound exudate, hypergranulation and wound maturation. The composition of the foam product varies among different products and product ranges. Composition differences such as dressings with or without a border, with or without a non-adherent membrane, as well as the profile and density of the foam can affect the patient experience and the outcome of the healing process.

Foam dressings may be used as primary dressings to provide protection or to reduce the over granulation in hypergranulating wounds, thus enhancing the maturation of the epithelium. They may also be used as secondary dressings to manage wound exudate or to secure primary dressings. These dressings are available in a diverse range of sizes, shapes and formats. This allows their use as primary and secondary dressings, for variation in wound and patient size, under devices such as compression hosiery, and on differing anatomical positions, including difficult to dress areas.

The choice of product is especially important in creating a wound environment that would optimise the intricacies of the wound healing process. A wound which is protected from the external environment and remains moist and clean for prolonged periods will heal optimally as there will be reduced susceptibility to infection. This subsequently leads to an improved patient experience as the frequency of dressing changes and pain associated with dressing changes would be reduced. Ultimately this reduces the workload on the healthcare professionals and stress on the patient.

Literature search

Literature searches conducted across the National Institute for Health and Care Excellence (NICE) databases concluded that there was a lack of robust evidence surrounding the performance of wound care products aiding in wound progression. This may be attributed to the generated data being based on individual case studies of specific products, which may have been biased by factors such as lack of clear methodology, manufacturer sponsorship and subjective opinions of clinicians. While this data may be of qualitative value, it was established that the quantitative data needed to be more robust in order to confidently qualify for product selection and comparison.

NHS clinical engagement and establishment of clinical criteria

The NHS hosted a number of clinical conversation events where clinical staff (subject experts and regular users of wound care products) were invited to share knowledge and experiences in order to develop a shared vision of the requirements that foam dressings should meet. The evidence gathered at these events was collated to create the clinical criteria by which products were evaluated. The proposed clinical criteria were validated in a workshop, resulting in the finalised clinical criteria. The clinical criteria are divided into four broad categories, which are further divided into subcategories:

1. **Packaging criteria**: visibility of product category, visibility of size and shape, instructions and product information
2. **Opening and preparation criteria**: ease of opening, ease of following instructions and information on whether the product can be cut
3. **Clinical use criteria**: conformability, wear time, percentage wound contact layer that is foam, ability to reposition dressing, fluid capacity management, moisture vapour transmission rate, ease of removal and associated pain
4. **Disposal of packaging**

Laboratory assessment of products

The selected foam dressings were subjected to laboratory testing in order to quantitatively assess the following factors:

- The percentage wound contact layer that is foam expressed as a percentage of wound contact layer (%WCL)
- The fluid handling capacity of the dressing and the moisture vapour transmission expressed as grams per 10-centimetre square (g/10 cm^2)
- The absorbency of the dressing under 40 mmHg pressure reported in grams per centimetre square (g/cm^2)

Product evaluation

Products were reviewed by practising NHS clinicians according to the developed criteria. The test was developed to move through the NHS Clinical Evaluation Team product cycle of packaging, opening, clinical use and disposal. Each clinician entered data independently without inter-rater comparison into their own workbook. The data from the various workbooks was collated, reviewed and summarised by the lead clinical specialist for the project.

A total of 78 foam dressings were reviewed, antimicrobial foam dressings were not included in this review as they would be more accurately compared against other antimicrobial dressings. The product assessment results were divided into eight subcategories: adhesive foam (11), adhesive foam lite (1), non-adhesive foam (18), non-adhesive foam lite (1), silicone adhesive foam (20), silicone adhesive foam lite (7), silicone non-adhesive foam (16), and silicone non-adhesive foam lite (4).

For the purposes of this summary, the scores of all products across the eight subcategories were examined, and a maximum of three products were selected based on favourable clinical use criteria scoring (Table 1). This does not in any way invalidate the use and efficacy of the other products featured in the review and it is advised that clinicians refer back to the report to make an informed decision.

Future recommendations

The report recognised that there is no single product that would address all clinical and individual needs. However, due to the expanding range of foam dressings available on the market, the NHS recommended that the subcategories and grouping of foam products should be standardised and suppliers should therefore consider a standardisation for colour coding products by group/classification. Additional recommendations were that the maximum wear time of the product should be clearly displayed and that a standardised tool to demonstrate fluid capacity should be established. The standardisation of the main subclassifications of foam products would potentiate a clearer understanding of the clinical properties of a particular product and would aid the clinician in making the correct product choice; this will ultimately lead to optimised wound healing.

Table 1: Summary of higher ranked products according to subcategory

Subcategory	Product brand name	Company
Adhesive foam (11)	Tegaderm Foam Adhesive	3M United Kingdom PLC
	PermaFoam Comfort	Paul Hartmann Ltd
	Tielle Plus Adhesive	KCI Medical Ltd
Adhesive foam lite (1)	Tielle Lite	KCI Medical Ltd
Non-adhesive foam (18)	ActivHeal Non-Adhesive	Advanced Medical Solutions (Plymouth) Ltd
	Biatain Non-Adhesive	Coloplast Ltd
	Askina Foam	B Braun Medical Ltd
Non-adhesive foam lite (1)	Advazorb Lite	Advancis Medical
Silicone adhesive foam (20)	Mepilex Border Post Op	Mölnlycke Health Care Ltd
	Biatain Silicone	Coloplast Ltd
	Askina Dresil Border	B Braun Medical Ltd
Silicone adhesive foam lite (7)	Biatain Silicone Lite	Coloplast Limited
	Mepilex Border Lite	Mölnlycke Health Care Ltd
	Advazorb Border Lite	Advancis Medical
Silicone non-adhesive foam (16)	Cutimed Siltec	BSN Medical Ltd
	Mepilex XT	Mölnlycke Health Care Ltd
	Allevyn Gentle	T.J. Smith & Nephew Ltd
Silicone non-adhesive foam lite (4)	CovaWound	Covalon Technologies (Europe) Ltd
	Advazorb Silflex Lite	Advancis Medical
	Kliniderm Foam Silicone Lite	H&R Healthcare Ltd

*Note: Table not inclusive of supplier pages featured in report