

# Evaluating a skin barrier film in faecal and urinary incontinence

Skin is an important organ. Not only is it the largest organ of the human body, it also protects the body in a number of ways, providing innate immunity through its function as a physical barrier against pathogenic microbial invasion, controlling fluid loss and regulating body temperature (Sibbald et al, 2003). The stratum corneum is the outermost of the five layers of the epidermis and is largely responsible for the skin's vital barrier function. If the stratum corneum breaks down, the barrier function of the skin can become impaired.

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## KEY WORDS

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Sorbaderm® No-Sting  
Barrier Film  
Compromised patients  
Maceration

Impairment of the skin's barrier function can occur due to corrosive body fluids, e.g. chronic wound exudate, urine and faeces, but also through moisture, abrasion and biological influences, such as a reduction of skin elasticity in the older person, which can affect the skin barrier and result in dry and compromised skin (Black, 2007).

Repeated removal of adhesive wound care products can also lead to skin stripping, which can eventually reduce the skin's barrier function.

Once the skin's barrier function is impaired, its ability to regulate moisture balance is also compromised. The skin is then vulnerable to chemical and/or mechanical irritants, which can cause

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Figure 1: Sorbaderm® No-Sting Barrier Film.

inflammation in the underlying layers. Continued irritant exposure can result in excoriation, rash, oedema and the risk of secondary infection. Patient comfort can also be compromised and these factors can also contribute to additional healthcare costs.

Skin changes also occur with age and disease, which can also lead to more fragile skin and an increased risk of damage to the skin's barrier function.

Patients with incontinence and chronic wounds have multiple risk factors, mainly because moisture and chemicals from bodily fluids can be in prolonged contact with the skin, initially causing

skin maceration and damage. Again, this can increase the risk of infection, delayed wound healing and result in the formation or enlargement of wounds.

The key aims therefore, are to reduce the risk of maceration and damage to the outer skin layer by maintaining good skin care and initiating appropriate treatments to manage moisture leakage. This can be achieved by:

- ▶ Maintenance of normal skin moisture levels, i.e. ensuring the skin is appropriately hydrated, can 'breathe' (e.g. using a non-occlusive covering), and that any excess moisture is not held in prolonged contact with the skin
- ▶ Prevention of skin damage from physical or chemical means, e.g. adhesives (skin stripping), urine, wound fluids, faeces or other harmful chemicals (Newton, 2006; Black, 2007).

Skin barrier products are used to protect the skin from the damaging factors discussed above.

## Skin barrier films

A skin barrier film is a liquid that polymerises to form a thin, transparent, flexible barrier on contact with the skin. This can be applied prophylactically to intact and undamaged skin, or as part of a treatment for sore or broken skin to protect it from friction, moisture or adhesives. It works as a secondary skin layer and is usually breathable.



Figure 2: Sorbaderm being applied using the spray format.



Figure 3: Sorbaderm being applied using the applicator.

### Sorbaderm® No-Sting Barrier Film

Sorbaderm® No-Sting-Barrier Film (NSBF) (Aspen Medical Europe Ltd) (Figure 1), is a novel skin barrier film with the following attributes:

- ▶ Provides up to 72-hours of skin protection
- ▶ Does not contain alcohol (non-stinging)
- ▶ Can be used on both intact and damaged skin

- ▶▶ Transparency allows for continuous visualisation and monitoring of skin at risk of breakdown
- ▶▶ Waterproof
- ▶▶ High moisture vapour transmission rate (MVTR) (>1500g/m<sup>2</sup>/24hours)
- ▶▶ Non-cytotoxic — this means it will not compromise healing or skin repair
- ▶▶ Contains acrylate copolymer to provide film flexibility.

Sorbaderm NSBF is indicated for incontinence skin care, adhesive trauma protection, peri-stomal and peri-wound skin protection.

Sorbaderm NSBF is available in the same formats as the standard formulary product Cavilon (3M) — a 28ml spray (Figure 2) and 1ml and 3ml applicator (Figure 3).

### The evaluation

Sorbaderm NSBF was evaluated on 13 patients on a specialist ward within the authors' hospital trust where patients are isolated due to infection with Norovirus (Norwalk) or *Clostridium difficile*, both of which can result in acute diarrhoea. Some of the patients included in the evaluation also had urinary incontinence. Due to the nature of the incontinence and the associated skin cleansing, this patient group is highly likely to suffer from skin problems, such as maceration and inflammation.

The effective protection of skin is therefore essential for the health and treatment of these patients. These conditions can negatively impact on nutritional status, which in turn can also affect the condition of skin and the body's ability to repair the skin.

Evaluations on patients with these conditions are a tough test for any skin barrier film. For patients with these extreme skin care needs, it is vital that the product is able not only to maintain an effective barrier, but also promote skin health by reducing inflammation and allowing for broken skin to heal.

Each patient on this ward is assessed individually and where appropriate another leading NSBF product is applied. Referrals to the dietetic department is dependent on the patient's MUST score (Malnutrition Universal Screening Tool). This tool is used to highlight adults who are at risk of malnutrition or who are already malnourished (British Association for Parenteral and Enteral Nutrition [BAPEN], 2008). All patients are nursed on a high specification mattress and are upgraded dependent on their Waterlow risk assessment score.

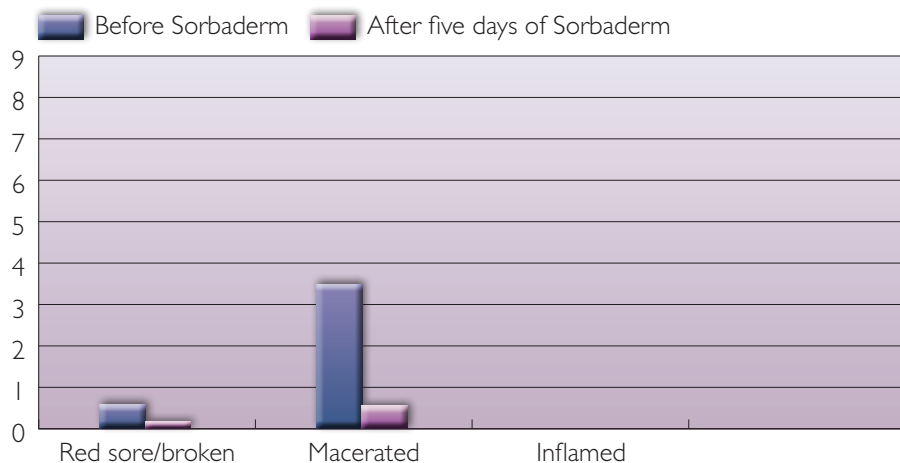


Figure 4: Results over the five-day evaluation period.

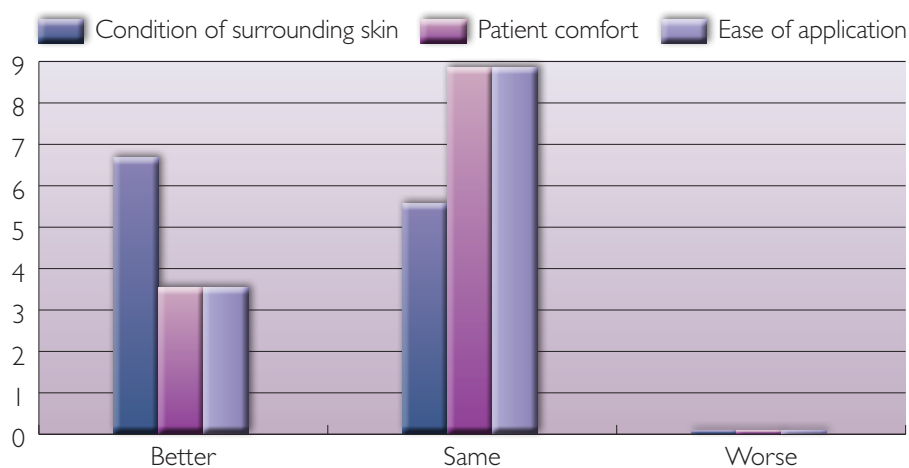


Figure 5: Assessment of the use of Sorbaderm compared to the usual NSBF.

For the purpose of this evaluation, the usual NSBF used on the unit was substituted for 28ml Sorbaderm NSBF spray and was applied once every 24 hours using the same technique that the nurses would normally use, i.e. applying to clean and dry skin by holding the spray nozzle 100–150mm from the skin and applying a smooth, uniform coating of film over the entire area, while moving the spray in a sweeping motion.

The cohort, including patients aged between 60–90 years and predominantly experiencing infection with norovirus or *Clostridium difficile*, was evaluated over a five-day period. Their skin was assessed by the nurses before and during use and, according to its condition, recorded as one of the following:

- ▶▶ Healthy
- ▶▶ Inflamed
- ▶▶ Macerated

- ▶▶ Dry and flaky
- ▶▶ Other.

At the end of evaluation an assessment was made to determine how the product compared to the usual treatment in terms of:

- ▶▶ Condition of surrounding skin
- ▶▶ Patient comfort
- ▶▶ Ease of application
- ▶▶ Whether the patient experienced pain on application.

The nurses were also asked to provide their own comments and feedback on a questionnaire.

### Results

Before the application of Sorbaderm NSBF, each of the patient's skin was inflamed. Some patients had broken areas of skin to the anal cleft, sacrum and buttocks following episodes of incontinence.

Over the five-day evaluation period, the moisture-related skin damage in some cases had improved or completely resolved, and in others the skin had become healthy again. One spray was used per patient as per normal use. At the beginning of the study, eight patients had inflamed skin, four had macerated skin and one had broken skin. At the end, the picture had changed and nine patients had healthy skin, three had inflamed skin and one had macerated skin (Figures 4 and 5).

In all instances Sorbaderm was considered easy to use and apply with no pain experienced on application of the film.

### Conclusion

The tissue viability service provides evidence-based support and advice on all aspects of wound care throughout the 2,200-bed trust. Preventing and treating possible maceration of the skin is a particular challenge within the trust, especially within high risk areas such as the *C. difficile* ward, therefore the authors chose this ward to evaluate Sorbaderm NSBF. In this clinical environment, with a small cohort of very compromised patients, Sorbaderm NSBF provided the same or better protection and barrier function than the usual NSBF product used on the ward in all cases. **WUK**

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