

Barrier products

In England and Wales £33.3 million is spent annually on barrier creams and films (ePACT September to November 2016). Medicines optimisation projects in this area focus on using products appropriately and avoiding waste. This includes appropriate product selection, correct usage and addressing the underlying issue where possible. This bulletin reviews the place in therapy of barrier preparations. It offers guidance and support material for organisations considering reviewing their prescribing of these products.

Recommendations

- Barrier preparations are available as ointments, creams and films. Indications, mode of use and frequency of reapplication vary, so it is important to follow the individual manufacturer's instructions.
- Barrier preparations have a role in preventing and managing skin damage due to moisture and irritants. This can be due to:
 - » Urinary and/or faecal incontinence.
 - » Chronic venous leg ulcers and other wounds.
 - » Perspiration in skin folds.
 - » Presence of a stoma.
- Do not use barrier creams as sole protection against contact with allergens.
- Choose a barrier product that does not reduce the effectiveness of other interventions. Some products (particularly oil-based) can impede dressing or tape adhesion and interfere with the absorption capability of continence pads.
- Do not use barrier preparations in isolation, but rather as part of a strategy that includes risk assessment and an appraisal of the underlying issue.
- Consider the need for an assessment of continence, stoma or wound care where barrier preparations are requested, particularly repeatedly.
- Local formularies can support prescribers in making appropriate, cost-effective barrier preparation choices. Formularies should include information about product suitability and specific instructions for product use.
- Prescriptions and dispensing labels should also include specific instructions for product use. Avoid non-specific instructions (e.g. 'as directed').
- Ensure GP practices have a process in place for identifying and investigating prescriptions for non-formulary barrier products or excessive quantities.
- Barrier creams and ointments for nappy rash should be purchased over-the-counter with advice from an appropriate health care professional. This could be a health visitor, pharmacist or a GP, depending on the severity of the nappy rash.

Background

Moisture-related skin damage

Healthy skin provides a barrier to moisture, harmful substances and environmental irritants. The skin's outermost layer, the stratum corneum, can be damaged by prolonged exposure to moisture. This is commonly linked to continence issues, where the skin comes into contact with faeces/urine. It can also be associated with exudating wounds, peristomal skin, and excessive perspiration (particularly in the folds of skin). Older people are at a higher risk of moisture-related skin damage due to a thinning of the overall epidermis that occurs with age.¹

Skin has a pH of 5.5, which helps to protect against bacterial and fungal infection. Urine, sweat and faeces are alkaline and increase the pH which irritates the skin and decreases its barrier function.² Irritants such as ammonia from urine and corrosive enzymes present in faeces and wound exudate further disrupt the skin and increase the risk of its breakdown.³ Greater susceptibility to damage from physical pressure and friction increases the risk of pressure ulcers.²

Barrier preparations

Barrier preparations are intended to protect the skin from moisture and irritants. They are available as ointments, creams or films. A wide variety of preparations are available containing different ingredients (or combinations of ingredients). For example:

- Oil-based ointments that are occlusive and repel moisture.⁴
- Zinc oxide-containing creams or ointments soothe and protect the skin.⁵
- Products incorporating dimeticone, a silicone based water repellent.⁶
- Creams and films containing acrylate polymers which form a clear layer on the skin to protect it.⁴
The acrylate polymer also influences the product's durability and allows adhesive devices to hold in place.⁷

The traditional ointment type barrier products (e.g. zinc oxide or petroleum based) have the advantages of being relatively cheap and easy to apply. However their greasy nature can impede dressing or tape adhesion and they may interfere with the absorption capability of continence pads. Zinc oxide ointment does not allow visualisation of underlying skin.⁴

Water-based barrier products do not affect the absorbency of continence pads.⁸ Some of the newer barrier creams are highly concentrated and only need to be applied in small amounts. They may also be more resistant to being washed off and therefore less frequent application may be needed.^{9,10}

Protective films use silicone polymers such as dimeticone to create a dry, water repellent transparent barrier. They can be applied via sprays, foam applicators or wipes. They do not moisturise the skin as ointments and creams do. However they can often be applied to broken or irritated skin, which is not always the case with barrier creams. Films must be allowed to dry completely before applying pads or clothing, or they may stick. Applying too many layers can make the area feel stiff and cracking can occur, which will allow moisture to penetrate.¹¹

Indications, mode of use and frequency of reapplication varies with all barrier products and it is important to follow the individual manufacturer's instructions.⁸

National guidance

Wounds and incontinence

The National Institute of Health and Care Excellence (NICE) have published guidance on the prevention and management of pressure ulcers. Their recommendations include undertaking risk assessment, repositioning, ensuring adequate nutrition and hydration and using pressure redistribution devices. In addition, they recommend considering a barrier preparation to prevent skin damage in adults who are

at high risk of developing a moisture lesion or incontinence-associated dermatitis, as identified by skin assessment. This could include those with incontinence, oedema, or dry skin.² A continence assessment may identify the need for urinary or faecal containment products.⁸ Further best practice publications endorse a similar multifaceted approach to the prevention and management of moisture lesions.^{8,11}

For neonates, infants, children and young people who are incontinent, NICE recommend the use of barrier preparations to help prevent skin damage, such as moisture lesions.²

Barrier ointments (e.g. zinc and castor oil ointment) are recommended in the management of nappy rash. They should be applied thinly at each nappy change. They should not be used where a candida infection is suspected/present until the candida infection settles down.¹² They can be purchased over-the-counter (OTC) with advice from an appropriate health care professional. This could be a health visitor, pharmacist or a GP, depending on the severity of the nappy rash.¹³

NICE recommend that people with faecal incontinence are offered skin care advice that covers both cleansing and barrier products. They note that the majority of people with faecal incontinence do not experience regular sore skin around the anus. However, some people seem to be prone to this, for example those with general frailty, immobility, poor health, continuous passive soiling, profuse diarrhoea or double incontinence.¹⁴

Barrier preparations also have a role in managing other chronic wounds, such as chronic venous leg ulcers and malignant skin ulcers.^{8,15,16} Periwound moisture (maceration) can cause skin breakdown, increasing the risk of infection.⁸ The peri-ulcer skin should be treated with a bland emollient, and ulcer margins should be coated with a barrier preparation to prevent maceration of surrounding skin.¹⁵

Maceration is likely to occur within skin folds that are in contact with each other. Barrier products may help reduce the irritant effects of maceration on healthy tissue.⁸ Intertrigo is an inflammatory condition of skinfolds caused by skin-on-skin friction. Secondary infection with bacterial or fungal infection is common. The mainstay of treatment is keeping high-risk areas clean and dry, weight loss in those who are obese, and treatment of infection when it is present.¹⁷

Stoma

Specific guidelines on the use of barrier preparations in those with a stoma are not available. However they have an accepted role in managing sore skin around stoma sites. Prior to the use of a stoma accessory, such as a barrier cream, a stoma nurse should assess the individual. This allows the underlying issue, commonly a leaking appliance, to be addressed. Not all barrier products are appropriate for this indication; some impair the adhesion of the stoma appliance, so careful product selection and correct use are essential.¹⁸

Contact dermatitis

Barrier creams may also have a role in helping to prevent irritant contact dermatitis, but their use as sole protection against contact with allergens or irritants is not recommended.¹⁹ The British Association of Dermatologists consider barrier creams by themselves to be of questionable value in protecting against contact with irritants.²⁰ The Royal College of Nursing do not recommend barrier creams for preventing contact dermatitis in health care staff. Appropriate preventative measures such as the regular use of moisturisers after hand washing should be promoted.²¹

Clinical effectiveness

Wounds and incontinence

NICE identified six relevant randomised controlled trials (RCTs) and two economic studies for their guidance on the prevention and management of pressure ulcers. The RCTs compared barrier products to placebo or other inert substances rather than to other barrier preparations. The evidence was considered to be of low to very low quality, due to imprecision and risk of bias in the studies. There was

limited evidence of clinical benefits with the use of barrier preparation for incidence of new pressure ulcers when compared to placebo. It was noted that some of the barrier preparations used in the studies were not available in practice. There was insufficient evidence to allow for a recommendation on a specific barrier preparation.²

The two economic studies were only partially applicable to the NHS and had potentially serious limitations. The Guideline Development Group considered it cost-effective to selectively use barrier preparations in those at significant risk of developing a moisture lesion. They regarded the cost of barrier preparations to be small and far outweighed by the potential benefits in this population.²

No RCTs or cohort studies in neonates, infants, children or young people were identified for pressure ulcer prevention. The recommendation to use barrier preparations to help prevent skin damage in this group was based on formal consensus.²

NICE identified two RCTs and one cohort study for their guideline on the management of faecal incontinence. The studies were in long term elderly hospital or nursing home patients. One RCT compared a foam cleanser to soap and water, whilst the other RCT compared Sudocrem® and zinc oxide cream. The prospective cohort study compared usual care (in the three month pre-intervention period) with a new skin care protocol involving staff education and the use of Cavilon® products. Statistically significant differences favouring the foam cleanser, Sudocrem® and Cavilon® were reported for participants retaining healthy skin, skin redness and incidence of incontinence dermatitis, respectively.¹⁴

NICE have summarised the evidence relating to the management of chronic wounds with advanced dressings. This subject is comparable to barrier preparations in that it also addresses wound prevention and management, and there is similarly a limited evidence base to guide practice. NICE recommend that dressing selection should be made after careful clinical assessment of the person's wound, their clinical condition, and their personal experience and preferences. If a specific dressing cannot be adequately justified on clinical grounds, the least costly dressing of the type that meets the required characteristics should be routinely chosen.²² It seems appropriate to follow a similar approach in selecting barrier preparations.

Contact dermatitis

Two systematic reviews have assessed interventions for contact or occupational dermatitis. The first identified two good-quality and two fair-quality studies that found barrier creams to be effective in preventing irritant contact dermatitis, and one good-quality study that did not. The second, a Cochrane review, found that barrier creams or moisturisers were no more effective for preventing occupational irritant hand dermatitis than no treatment.¹⁹

Prescribing support

Patient factors to consider before selecting a barrier product include:

- Whether the skin is intact or broken.¹¹
- If skin infection is present - barrier products may be contraindicated.¹⁰
- If continence pads are being used.¹¹
- If it is to be used at a stoma site - a product specifically recommended for this indication that won't reduce adhesion of stoma appliance should be chosen.¹⁸
- If the person has any sensitivities to any of the ingredients.

If barrier products are being requested repeatedly, consider if an assessment of continence, stoma or wound care issues is necessary.

Patient pathways that incorporate appropriate use of barrier preparations, along with other interventions, can support clinicians in managing problems such as incontinence associated moisture

lesions. An example '[Red bottom pathway – incontinence](#)' is available as an implementation support resource, which can be adapted for local use.

To support appropriate use of barrier preparations and reduce waste, local formularies should include information about product suitability and specific instructions on product use. Specific instructions for use should also be included on the prescription and the dispensing label, rather than non-specific instructions (e.g. 'as directed').

A [summary of barrier products](#), which includes information to support correct use, is available as an implementation support resource.

Costs

There are large cost differences between the different barrier preparations available. In general, the traditional creams and ointments are less costly than the modern creams and films. However the modern preparations, when applied correctly, should be used in much smaller quantities and applied less frequently. This must be borne in mind when comparing the cost of preparations.

Film preparations are available as sprays, foam applicators and wipes. Foam applicators and wipes are generally more costly. They should only be selected when a spray is unsuitable, e.g. use of foam applicators when a high degree of precision is needed in the area of application.

Figure 1 below gives the price/g (or ml) of barrier creams. It focuses on modern cream types; traditional barrier creams have been omitted. Figure 2 gives the price/ml of barrier films in a spray presentation. Prices are based on the largest pack size and are from the Drug Tariff November 2016. The products included may vary in their ingredients, indications and mode of use and are not necessarily interchangeable.

Figure 1. Price in pence/g or ml of barrier creams

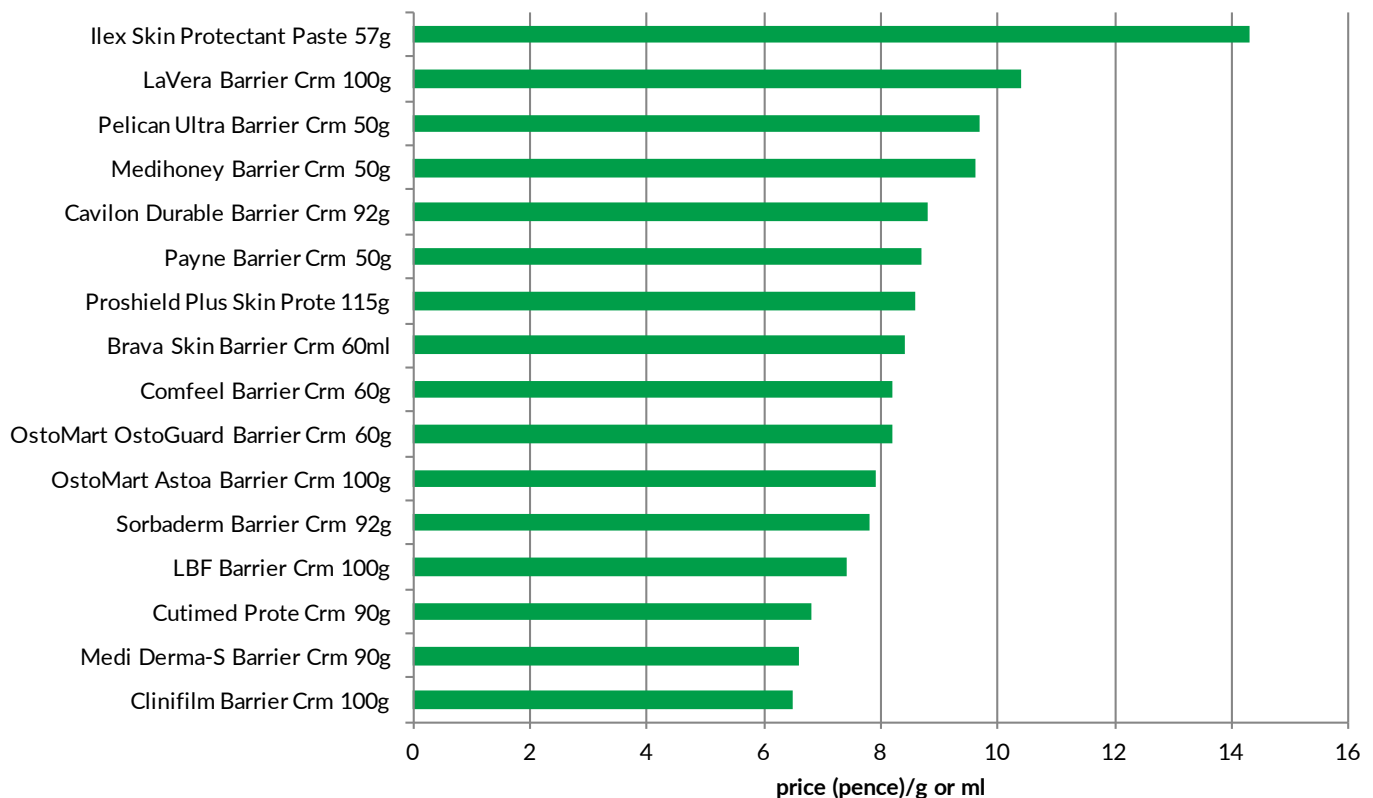
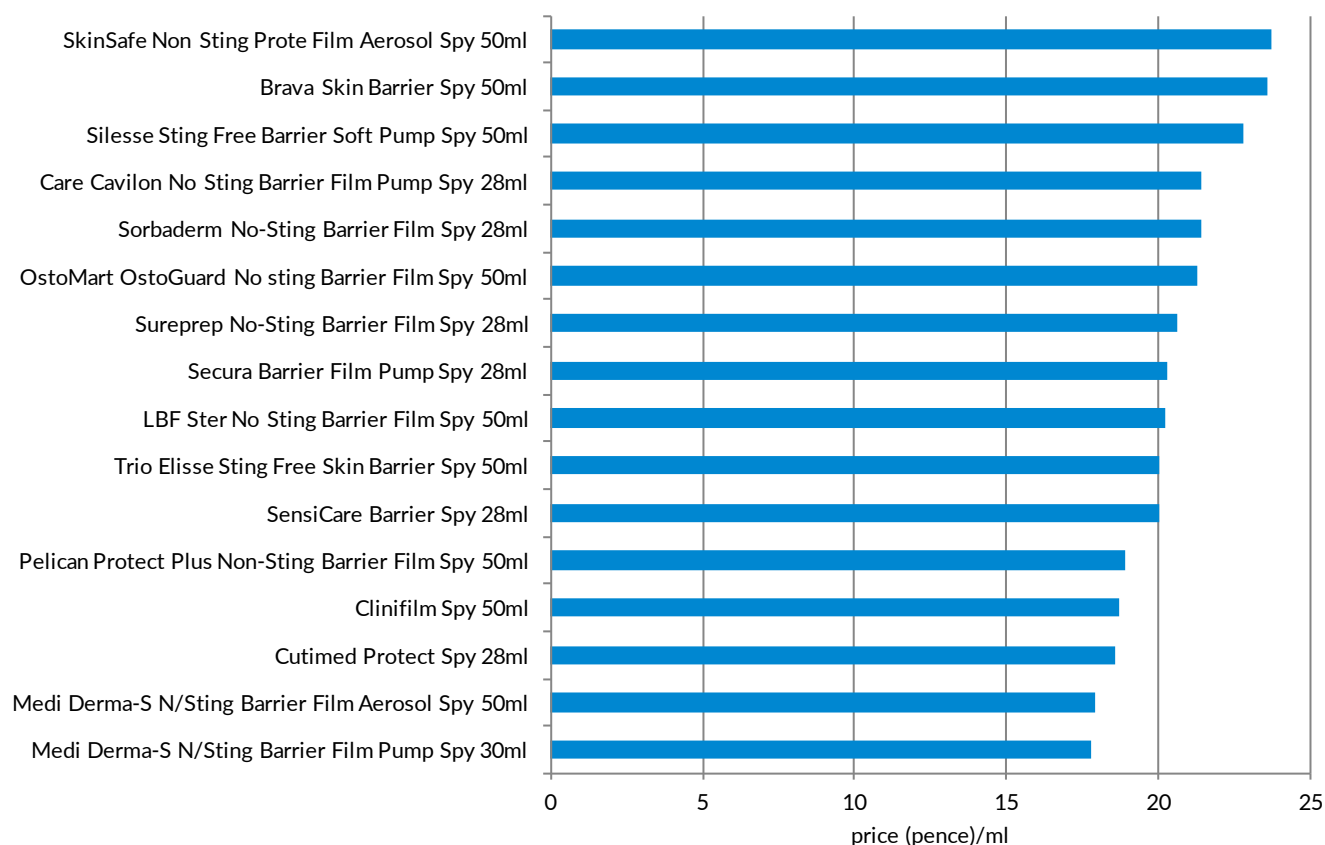


Figure 2. Price in pence per ml of barrier films



Savings

In England and Wales £33.3 million is spent annually on barrier creams and films (ePACT September to November 2016). It seems likely that savings could be made by:

- Ensuring cost-effective barrier preparations that are suitable for the intended purpose are chosen. Local formularies can support this.
- Ensuring health professionals and patients understand the correct method of use of the chosen product, including method and frequency of application.
- Questioning the regular or excessive ordering of barrier products, to establish if an assessment of continence, stoma or wound care issues is necessary.
- Promoting OTC purchase of barrier creams and ointments for nappy rash.

A 20% reduction in prescribing of barrier preparations (excluding nappy rash barrier products) would produce savings in the order of £6.2 million annually. This equates to £10,113 per 100,000 patients. This may be achieved by choosing the most cost effective and appropriate products, and by reducing wastage and inappropriate prescribing.

An 80% reduction in prescribing of nappy rash barrier products (by promoting OTC purchase) would produce savings in the order of £2 million annually. This equates to £3,198 per 100,000 patients.

Summary

Barrier preparations are intended to protect the skin from moisture and irritants. A wide variety of preparations are available, which differ in their indications and in their mode of use. Barrier preparations should not be used in isolation, but rather as part of a strategy that includes risk assessment and an appraisal of the underlying issue.¹¹ When used appropriately, they are likely to provide a cost effective means of helping to prevent and treat moisture-associated skin damage.²

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Additional PrescQIPP resources



Briefing



Product summary and pathway

Available here: <https://www.prescqipp.info/category/367-barrier-products>



Data pack

Available here: <https://www.prescqipp.info/datahub#visual-data-packs-from-2017>

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