Skin care and barrier protection

Influences from several distinct areas, including patient safety, pressure ulcers, wound care, peristomal care, incontinence-associated dermatitis and dermatology, has led to the important issue of barrier protection and skin maintenance being high on both the clinical, managerial and political agenda.

An important aspect of patient safety is the promotion and maintenance of skin integrity. This is one of the most important tasks for clinicians to undertake across all care settings and it is essential that it is never underprioritised. The current national agenda regarding patient safety is supported by the National Patient Safety Agency (NPSA) with the aim of leading and contributing to improved, safe patient care by informing, supporting and influencing the health sector NPSA (2010).

Skin care

The changes in skin with increasing age, the increase in incontinence, the potential for periwound/stomal moisture and the increased risk of pressure ulceration warrants essential and effective skin care. Any damage to the skin compromises the barrier and can have a range of effects including maceration, discomfort/pain, increased risk of infection and further skin breakdown. The fundamental principles of effective skin care are prevention, maintenance and treatment, with the focus on appropriate wound management, management of incontinence, cleansing and the use of an appropriate barrier protection which, when accompanied by well-moisturised skin, offers the skin the best protection.

However, prevention is not an easy task; it requires persistent vigilance from healthcare professionals and family members (Beeckman et al, 2011). Three areas of essential skin care include:

- Gentle cleansing of the skin, with particular attention to the perineal and peri-genital area
- The application of a skin moisturiser
- The application of skin barrier.

Skin barrier in relation to the periwound and peristomal areas is important in supporting appropriate adhesion of dressings and stoma appliances, wear time and the prevention of the periwound/stomal area from breakdown and potentially further extension of the wound. Both of these areas are a significant concern. Wound exudate is important because it has a central role in wound healing and is a normal part of the inflammatory process. It is mainly comprised of water,
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but also contains electrolytes, nutrients, proteins, inflammatory mediators, protein ingesting enzymes, growth factors and waste products, as well as various types of cells (Romanelli et al, 2010). Peristomal skin problems are a concern due to the fact that repeated application and removal of stoma appliance is reported to affect 68% of patients (Williams, 2010).

To prevent pressure ulceration (NICE, 2014) and the effects of incontinence (NICE, 2006; 2007) it is recommended that a comprehensive holistic skin and continence assessment and documentation are undertaken with the patient. The aim of the treatment should be to reduce exposure to moisture and friction and minimise exposure to urine/faeces. Additionally, clinicians should be able to differentiate between incontinence-associated dermatitis and pressure ulcers (Stephen-Haynes et al, 2015).

Skin cleansing
The use of soap products and detergents (i.e. bars of soap and bubble bath/foam) can strip essential lipids from the epidermal barrier (Beeckman et al, 2011). Many of these products are alcohol-based, which also has a drying effect. The pH level of skin is usually 5.5. Cooper and Gray (2001) reported that most soaps and cleansers are alkaline with a pH level of 9 which strips the skin of its acid mantle protection as the skin becomes more alkaline. An added hazard when using bars of soap is the risk of cross infection. When skin ages, there is a reduction of sebum, which may cause itching, potentially leading to scratching and excoriation (Ratliff and Fletcher, 2007).

Use of a soap substitute by older people reduces the incidence of dryness, redness and flaking of their skins, and products that do not contain lauryl sulphate are recommended as this is a common skin allergen and irritant. A high-emollient skin cleanser is recommended following urinary incontinence and a foam cleanser following faecal incontinence (NICE 2007). It is advisable not to use preparations that contain preservatives, fragrances, alcohol, perfumed moisturisers and lanolin as these can all potentially cause sensitivity.

Skin moisturiser
The moisture content of the skin determines elasticity, firmness and the functions of the epidermis. Any alteration of moisture level affects the skin’s barrier properties (Bardsley, 2012). Moisturising skin to reduce dryness may help to reduce the risk of breakdown and enhance the skin health of patients (Stephen-Haynes, 2011). Generic skin protectors include zinc oxide in various bases and paraffin (either white, soft or yellow) (Joint Formulary Committee, 2017). While these products are effective at repelling moisture from the skin, if over-applied they can cause ‘clogging’ on incontinence pads, thus reducing their absorbency and effectiveness (Newton and Cameron, 2005; Penzer, 2009).

It is essential for clinicians to use products as licensed and recommended: Metanium® (Thornton & Ross) and Drapolene® (Omega Pharma) are designed and licensed for nappy rash in babies and are inappropriate for use in older adults (Joint National Formulary, 2017). In addition, they do not provide the barrier protection required. Caution should also be exercised with creams that contain zinc oxide as they have a tendency to ‘cake’ on the skin surface and they are made from arachis (peanut) oil, which may cause allergic reactions (Joint Formulary Committee, 2017). Care should also be taken with paraffin-based products, which can be flammable in larger quantities (NPSA, 2007).

Consideration should be given to the availability of the products as single use or single patient use (i.e. a 2 g or small sachet is single use, whereas a larger tube of spray film or cream is single patient use and is designed for longer use, but always by an individual patient). It is important that pots/tubes are not shared, that creams/films are dispensed without contamination.

Skin Barrier protection
The appropriate use of barrier protection can contribute to the prevention and maintenance of the skin’s barrier function, helping to protect and restore it from exposure to urinary and faecal incontinence, other bodily fluids, such as exudate, and also from adhesives trauma and friction (Stephen-Haynes, 2011). Changes in skin moisture level can lead to a reduction in the skin’s barrier function, thereby allowing the penetration of irritants (Voegeli, 2012).

Traditional skin barrier creams contain a lipid and water emulsion plus a metal oxoid or silicone ingredient to repel water (Voegeli 2012). However, the greasy nature prevents effective application, retention of adhesive dressings or tape. While they may protect the skin from urine and faecal enzymes they can affect the effectiveness of incontinence pads (Zehrer, 2005) and reduce the ability of the wound dressing or stomal appliances to stay in place (Stephen-Haynes and Stephens, 2012). More recently, the development of barrier protection has included polymers that provide a ‘second skin’ which rapidly dry on contact with the skin. These skin barrier films are topical preparations that are available as a spray, foam applicator or wipe.

Barrier protection provides a protective water-repellent barrier against irritants and harmful bodily fluids, such as urine, faeces and wound exudate (Stephen-Haynes and Stephens, 2012). Barrier products are highly concentrated and frequently last up to 72 hours, and clinicians should be aware that applying more does not increase effectiveness. Additionally, removal of barrier protection is not required before re-application.

The ideal barrier protection is clinically effective, hypoallergenic, non-cytotoxic, alcohol-free, non-sting, easily applied, has a long wear time and is cost-effective. The skin should always be dry before applying barrier protection. Where barrier protection is applied
and there is skin to skin contact, it is essential for the area to dry before returning to the normal skin position.

Barrier films can be applied to broken or irritated skin without stinging, and dry quickly to create a breathable and transparent film. Barrier films will not affect the application of adhesive dressings and tapes and are simple for both healthcare providers and patients/carers to use.

Some barrier creams are indicated for intact skin only and when these barrier creams are overapplied (overused), the skin will feel greasy/overly moist and, therefore, it is important to apply sparingly. Some barrier creams may also be used on injured skin to help manage moisture-related skin damage; these products are to be applied more liberally over moisture lesions.

**Barrier protection cautions**

Whatever products are used, it is essential to monitor the patient regularly and document clearly. Providing patient and carer information can also be helpful, particularly in the community setting, where their access to clinicians is limited.

It is also important to discontinue the use of the barrier protection when the primary objective has been achieved. Patients should also be aware that barrier protection is not a replacement for nursing care and does not replace personal hygiene or their general moisturiser and it is essential to continue with these. Many barrier products are contraindicated on infected areas of the skin, including fungal infection, therefore, it is always essential to follow the manufacturer’s instructions.

**When to use barrier protection**

- **Film**
  - Protect from moisture associated skin damage (bodily waste, fluids etc.)
  - Reduce risk of maceration and skin stripping from adhesive devices

- **Cream**
  - Protect from moisture associated skin damage (bodily waste, fluids etc)
  - Reduce risk of maceration
  - Reduce risk of skin stripping from adhesive devices
  - Protect periwound skin
  - Moisturise to improve skin integrity.

**Conclusion**

The maintenance of healthy skin integrity is a significant clinical challenge for healthcare professionals and carers. Ensuring essential nursing is delivered in relation to incontinence is important, including the use of appropriate incontinence containment, stoma care and the appropriate use of appliances. Healthcare professionals should also ensure that appropriate skin assessment and management, pressure ulcer prevention, cleansing, moisturising and barrier protection all take place.

The early recognition of the risk of incontinence-associated dermatitis should alert the clinician to the delivery of essential pressure ulcer prevention. This can prevent significant discomfort for the patient and contribute to increased patient safety. The appropriate use of barrier protection is an essential part of skin care and clinicians need to be aware of its use in clinical practice and be able to explain its use and benefits to patients and carers.

**References**


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Table 1. Barrier Protection.

| What is barrier protection? | Barrier protection provides long-lasting protection from skin breakdown by acting as a barrier against irritation from body fluids. Sk

| Who is barrier protection used for? | The barrier film can be used clinically for incontinence, peri-stomal skin protection, peri-wound skin protection and adhesive trauma protection. Films can be applied to broken or irritated skin without stinging, and dry quickly to create a breathable and transparent film. Barrier cream can also be used to moisturise and protect severely dry skin. Can increase adherence of adhesive products and thus should be used with caution on fragile skin. Should not be used on infected skin.

| Can I see it on the skin? | No, the film is transparent, allowing for continuous visualisation and monitoring of skin at risk of breakdown. The cream can be seen on initial application but should be applied until it is no longer visible.

| What does barrier protection do? | They provide a protective water-repellent barrier against irritants and harmful bodily substances, such as urine and faeces and wound exudate.

| When should I apply barrier protection? | Barrier protection provides up to 72 hours of skin protection depending upon the severity of the corrosive fluid or exposure and as it does not contain alcohol, it does not sting.

| If I apply more will that be better? | No, if over applied the skin will feel more greasy. When this occurs, wait for the skin to feel less greasy before applying anymore barrier.

| Do they affect incontinence pads or dressings? | Barrier films will not affect the application of adhesive dressings/ tapes and incontinence pads are simple for both healthcare providers and patients/carers to use.

| Do I need barrier film or cream? | If the skin is broken or you need to moisturise you need barrier cream, otherwise use film.

| Can I over apply barrier protection? | Yes, this may be due to the volume used or the frequency of use. A "pea" size amount of cream would be sufficient to cover the back of a hand and a 10 pence coin size will be sufficient for an average sized sacrum.

| How long will barrier protection last for? | 72 hours or every 3rd wash for general skin care At each dressing/appliance change

| What size do I need? | It is important to use the appropriate amount with consideration to the frequency of application. A range of sizes are available.

| Can I just use a paraffin based product? | They may be used but are not recommended in conjunction with wound dressings, incontinence pads and stoma appliances. Care should also be taken with paraffin based products which can be flammable in larger quantities.

| Should propellant barrier sprays be kept away from naked flames? | Yes. Additionally, they should be kept away from the eyes, clinicians should consider the safe use of barrier in a propellant and a single use foam applicator may be more appropriate.

| Are they expensive? | Barrier products are more expensive than traditional barrier; however they do not clog incontinence pads or prevent dressing and stoma devices from adhering. Barrier products provide effective skin moisturising and long-term barrier protection from bodily fluids. Thus appropriate use can be clinically and financially cost effective.

| What is the ideal barrier protection? | The ideal barrier protection is clinically effective, hypoallergenic, non-cytotoxic, alcohol free, non-sting, easily applied, has a long wear time and is cost effective.

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