Importance of peristomal skin protection

It has been reported that one in 500 people in the UK are living with a stoma (Colostomy UK, 2022) and nearly three-quarters of people with a stoma experience skin problems. Therefore, skin assessment, prompt identification of risk and preventing skin problems is the cornerstone of peristomal skin care. This article introduces common peristomal complications, focusing on the assessment and prevention of two distinct groups of peristomal skin damage; peristomal moisture-associated skin damage (PMASD), one of the types of moisture-associated skin damage (MASD), and peristomal medical adhesive-related skin injuries (PMARSI).

KEY WORDS:

- Stoma
- Peristomal moisture-associated skin damage (PMASD)
- Peristomal medical adhesive-related skin injuries (PMARSI)

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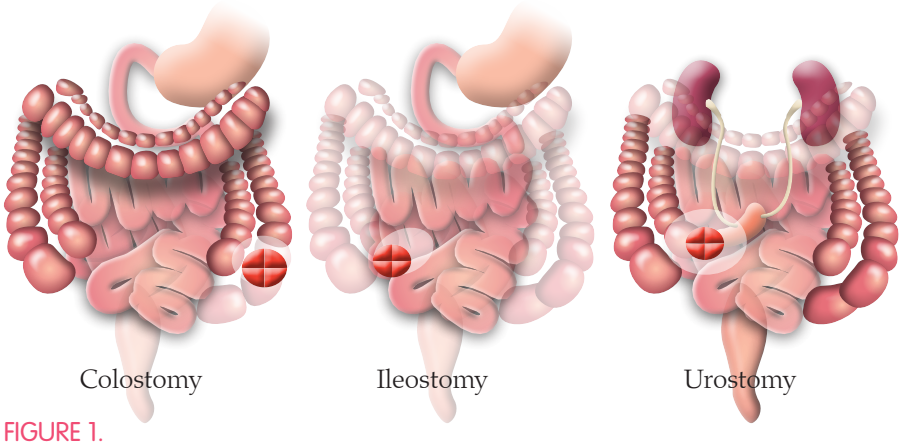

FIGURE 1.
Types of stoma.

Derived from the Greek word for 'mouth' or 'opening', a stoma refers to a surgical opening onto the outside surface of the skin that has been formed to pass faeces or urine (Burch, 2010; Jones, 2016).

The StoMap Programme Baseline Report (2019; www.eoecph.nhs.uk/stomap-baseline-report.htm) estimates that there are 176,824 people in the UK living with a stoma. Individuals of all ages can have a stoma. It can either be temporary or permanent, depending on the reason for the stoma formation. The creation of an ostomy is a life-changing event resulting in alterations in body image (Nichols, 2018), with a lifelong effect on the outcomes of an ostomate's health quality.

In the author's clinical opinion, common medical conditions that might lead to a stoma are:

- An obstruction to the bladder or bowel
- Bowel cancer
- Bladder cancer
- Crohn's disease
- Diverticulitis
- Inflammatory bowel disease
- Ulcerative colitis.

THE SKIN

The skin is the largest organ in the body and is made up of three layers, epidermis, dermis and subcutaneous layer. The outermost layer of the epidermis, the stratum corneum, is the most important layer in maintaining the pH-dependent barrier function of the skin (Jones, 2014).

The stratum corneum is a combination of lipids, keratins and protein. Its primary function is to act as a barrier between the deeper layers of skin and the outside environment, preventing toxins and bacteria from entering the body. Moisture is held in the stratum corneum preventing evaporation into the atmosphere via transepidermal water loss (TEWL) which, in turn, keeps the skin hydrated. This creates what is known as the natural moisturising factor (NMF). Cell turnover in the stratum corneum occurs every 28 to 30 days in young adults and 45 to 50 days in elderly adults (Menon et al, 2012).

If the skin is exposed to too much moisture, it becomes overhydrated and prone to maceration (Parnham et al, 2020). This makes it easier for irritants and microorganisms to penetrate the skin and impair its barrier function, and reduces the skin's integrity to mechanical forces such as friction and shear (Young, 2017; Parnham et al, 2020).

Differentiating skin tones

It is important for general practice nurses (GPNs) to understand the differences in skin tones to provide the best prevention and/or treatment of moisture-associated skin damage (MASD) and medical adhesive-related skin injury (MARSI) (*Table 1*). Regardless of the type of stoma, 'the skin immediately surrounding the stoma should look like the skin on the rest of the abdomen' (Stelton, 2019) and should not have

any discolouration. For example, ostomates with lighter skin tones should not have reddened peristomal skin, and ostomates with darker skin tones should not have darker discolourations on their peristomal skin. It is important to remember that a stoma is part of the patient, and the condition of their skin reflects their general health and might be affected by any health issues, such as hypoxia and anaemia (Stelton, 2019).

The need for clinical research into darker skin tones has led to articles that have highlighted evidence of inequity in relation to clinical care and patient assessment, leading to higher prevalence of severe injuries before detection of damage occurs in people with darker skin tones (Gunowa et al, 2020).

To avoid skin tone bias, clinicians should be encouraged to tailor skin assessment when it comes to assessing MASD and MARSI (*Table 1*; Wounds UK, 2021).

TYPES OF STOMA

There are three main types of stoma (*Figure 1*):

- Colostomy, which will pass formed faeces and flatus. Most commonly used in patients who have had rectal cancer
- Ileostomy, which will pass loose faeces and flatus. Created for patients with conditions such as ulcerative colitis
- Urostomy, which will pass urine. Formed from the ileum and most commonly used when the patient has bladder cancer (Jones, 2016; Burch, 2017).

The most common type of stoma formed in the UK is the colostomy, followed by the ileostomy, with the least common being the urostomy (Burch, 2017).

COMMON PERISTOMAL SKIN COMPLICATIONS

Peristomal skin complications can be caused by a variety of factors, but the main ones are chemical and mechanical. For example, peristomal moisture-associated skin damage (PMASD) can occur as a result of the skin being exposed to effluent from the stoma (Salvadalena et al, 2020), while peristomal medical adhesive-related skin injury (PMARSI) happens during the removal of adhesive pouching systems. Salvadalena et al (2020) found that, on average, peristomal skin complications started 64 days after undergoing stoma surgery, resulting in the three most common types of peristomal skin complications, namely:

- Acute or chronic irritant dermatitis (such as PMASD)
- Maceration
- Mechanical trauma.

Clinical research has found that skin injuries related to medical adhesives are prevalent but underreported (Le Blanc et al, 2013; Stelton, 2019).

Peristomal skin complications can be categorised according to the DET (discoloration, erosion and tissue) score, as mild, moderate, and severe (Salvadalena et al, 2020), e.g:

- Mild (1–3): discoloration=3; no erosion or tissue overgrowth; total score=3
- Moderate (4–6): discoloration=3; erosion=2; no tissue overgrowth; total score=5
- Severe (7–15): discoloration=3; erosion=3; tissue overgrowth=2; total=8.

PERISTOMAL SKIN CARE

One the biggest challenges following stoma surgery is maintaining skin integrity around the stoma. As said, regardless of the type of stoma, the surrounding skin should look like the skin on the rest of the abdomen. It should not be discoloured (Stelton, 2019). Unfortunately, most ostomates will experience peristomal skin problems at some point in their lives, making peristomal skin complications one of the most prevalent ostomy-related complications influencing an individual's health status and quality of life (Fellows et al, 2021).

Successful treatment in peristomal skin health, or skin health in general, can have a positive impact on an individual, and in the collective, provide an overall societal benefit (Nichols et al, 2019). Similar conclusions were drawn by LeBlanc et al (2019), who found that peristomal skin problems led to impaired physical function, poor quality of life, and higher costs.

Skin problems can be divided into two distinct groups — moisture-associated skin damage (MASD) and medical adhesive-related skin injuries (MARSI) — requiring different approaches to prevention and management.

Moisture-associated skin damage (MASD)

MASD is an umbrella term adopted by healthcare professionals

Table 1: Assessing MASD and MARSI in darker skin tones (adapted from Wounds UK, 2021)

Type of skin damage	Possible presentation	Tips for practice
Moisture-associated skin damage (MASD)	Change in skin colour: this may present as redness, darkening, lightening or blue/purple tones	■ Inspect the skin thoroughly and regularly, and make sure that protective measures such as barrier products are used in at-risk patients before damage occurs ■ The skin should be checked for changes so that diagnosis can be made before maceration occurs if possible
Medical adhesive-related skin injury (MARSI)	Damage may be difficult to spot if clinicians are looking for 'redness'	■ Skin integrity and issues such as dryness should be considered when using adhesive products ■ Extra care should be taken to avoid MARSI, and to identify it when it occurs in patients with dark skin

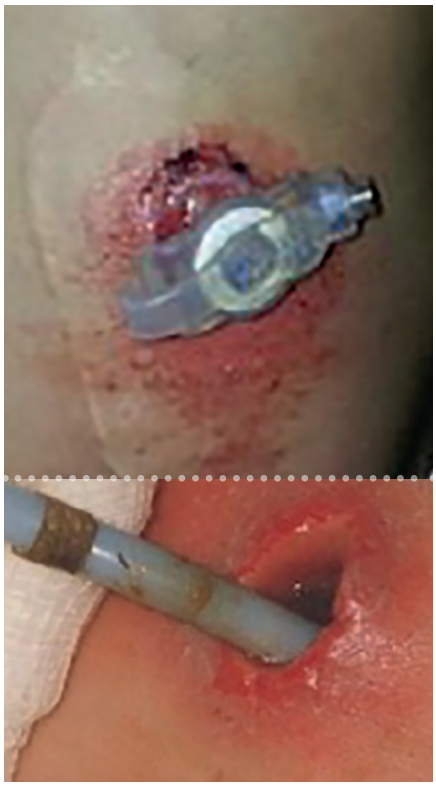

FIGURE 2.
Peristomal skin complications.

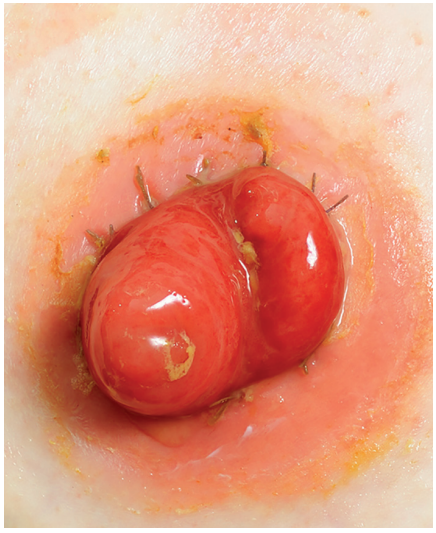

FIGURE 3.
Peristomal dermatitis.
Photograph: iStock/pavlemarjanovic.

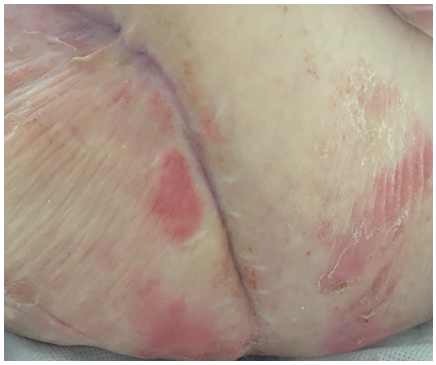

FIGURE 4.
MARSI.

for skin damage of various aetiologies associated with prolonged or continuous exposure to moisture (Young, 2017; Parnham et al, 2020). The four clinical manifestations are:

- Incontinence-associated dermatitis
- Intertriginous dermatitis
- Periwound moisture-associated dermatitis
- Peristomal moisture-associated skin damage (PMASD) (*Figure 3*) (Young, 2017), which this paper focuses on.

The difference between the four conditions is the type of moisture that induces the skin damage, such as effluent from a stoma coming into contact with the skin (Young, 2017).

Peristomal moisture-associated skin damage can happen quickly, causing distress, pain and difficulty in obtaining a good seal, and often results in the embarrassment of effluent leakage (Parnham et al, 2020).

Management of PMASD depends on the correct choice and application of the ostomy device and a structured skin care routine (Young, 2017).

Medical adhesive-related skin injuries (MARSI)

MARSI (*Figure 4*) has recently been defined as: 'Skin damage related to the use of medical adhesive products or devices such as tapes, wound dressings, stoma products (referred to as PMARSI), electrodes, medication patches and wound closure strips' (Fumarola et al, 2020).

MARSI can be divided into three categories, namely:

- Mechanical (e.g. skin stripping, tension injury/blister, skin tear)
- Dermatitis (e.g. irritant contact and allergic dermatitis)
- Other (e.g. maceration and folliculitis) (Fumarola et al, 2020; Kelly-O'Flynn et al, 2020).

Intrinsic and extrinsic risk factors that make the skin more prone to MARSI include:

- Intrinsic: extremes of age (neonates and elderly), dehydration, malnutrition, dermatological conditions, underlying medical conditions (e.g. infection, diabetes), oedema
- Extrinsic: dry skin and harsh cleansers, prolonged exposure to moisture, medications (e.g. long term corticosteroids and anti-inflammatory agents, radiation therapy, photodamage or exposure to ultraviolet light, tape or removal of adhesive devices and itching (Fumarola et al, 2020).

Comprehensive skin assessment should be performed in all patients before applying a medical adhesive, and at each time a medical adhesive is removed (Hadfield et al, 2019; Fumarola et al, 2020).

There are four ways that PMASD and PMARSI can be prevented (Hadfield et al, 2019; Kelly-O'Flynn et al, 2020; Swift et al, 2021):

- Preparation of the skin by ensuring it is clean and dry and the application of a barrier film (e.g. MEDI DERMA-S Total Barrier Film, Medicareplus International), allowing it to completely dry before application of an adhesive device
- Selecting the appropriate medical adhesive ensuring that it flexes with the contours of the skin and movement
- Application of the adhesive product — ensuring there is no stretch or tension and it is in full contact with the skin
- Removal of the adhesive product — removing slowly while supporting the skin, utilising a silicone adhesive remover (e.g. LIFTEEZ Medical Adhesive Remover, Medicareplus International).

Practice point

The S.M.A.R.T. Card is a convenient, wearable version of the S.M.A.R.T. Resource. Sign up to receive a free S.M.A.R.T. Card at: Medicareplus.co.uk/smartcard.

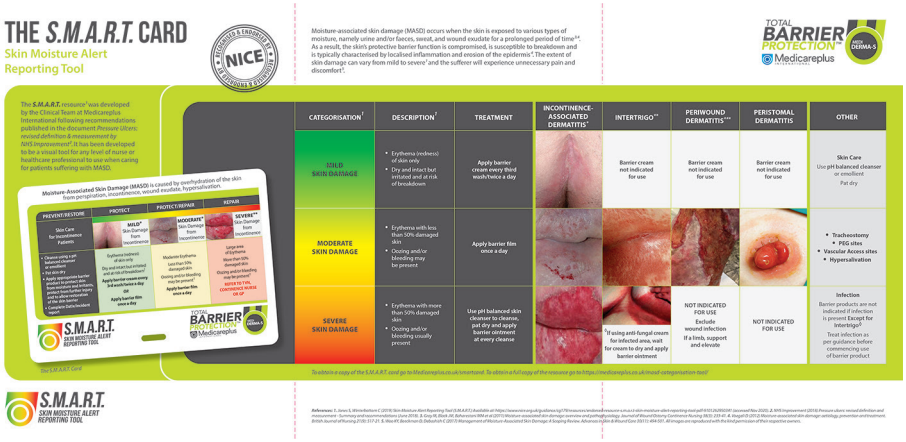

FIGURE 5.
S.M.A.R.T. Card (adapted by S Jones and C Winterbottom for Medicareplus International Limited with kind permission from the National Association of Tissue Viability Nurses Scotland (NATVNS) 2014 — Scottish Excoriation and Moisture Related Skin Damage Tool).

THE S.M.A.R.T. RESOURCE

The S.M.A.R.T. resource (*Figure 5*) was developed by the clinical team at Medicareplus International following recommendations in the document, *Pressure ulcers: revised definition and measurement framework* (NHS Improvement, 2018).

It has been developed to be a visual tool for any level of nurse or healthcare professional to use when caring for patients suffering with MASD. The S.M.A.R.T. resource is endorsed by the National Institute for Health and Care Excellence (NICE, December 2019).

PRODUCT FOCUS

This paper will now look at two products which provide a skin care solution for both PMASD and PMARSI.

MEDI DERMA-S Total Barrier Film

Using a protective barrier film can help protect damaged and intact skin from the harmful effects of moisture and irritants, as well as from potential skin damage that may be caused by the application of adhesive ostomy products. Medi Derma-S Total Barrier Film (*Figure 6*) has been found to provide protection from PMASD on intact and moderately damaged peristomal skin in adults and paediatric patients (Southgate and Bradbury, 2016; Copson and De Freitas, 2021). The film is available in several formats, such as wipes, aerosol or pump spray, 1ml or 3ml film applicators and dries within seconds for ease of use.

It is a silicone-based medical grade liquid, which forms a thin, transparent, protective film when evenly applied to the skin. It gives protection from bodily fluids (i.e. urine and faeces), from adhesive products, and friction-related trauma for up to 72 hours (Huish and Walters, 2016; Hadfield, 2017). To help minimise the risk of skin sensitivities, Medi Derma-S Total Barrier Film is alcohol, fragrance, latex, parabens and phthalates free and is not made with natural rubber latex.

To help improve patient comfort, the film has a non-sting formulation (Dykes et al, 2012; Huish and Walters, 2016; Hadfield, 2017) and does not need to be removed between applications. It is indicated for the prevention and management of MASD and is suitable for mild-to-moderate skin damage (Copson and De Freitas, 2021).

However, a different approach is needed to prevent MARSI. As a result of the lack of awareness of and education on MARSI, proactive prevention is key in avoiding pain and skin damage (Kelly-O'Flynn et al, 2020).

Figure 7 shows the results from a 14-patient evaluation in a neonate intensive care unit of the skin barrier film conducted over a one- to two-day period (Hadfield, 2017). All the patients had intact skin both before and after the evaluation, with only one neonate having slight erythema following adhesive device removal. There was no change in the level of skin damage, with no skin damage being seen following dressing removal in all the patients involved. It was also noted that no pain or stinging was vocalised when the barrier film product was applied. The clinicians and patients/

FIGURE 6.
MEDI DERMA-S Total Barrier Film 30ml Pump Spray, 50ml Aerosol, Sterile 1ml and 3ml Applicators and Wipes.

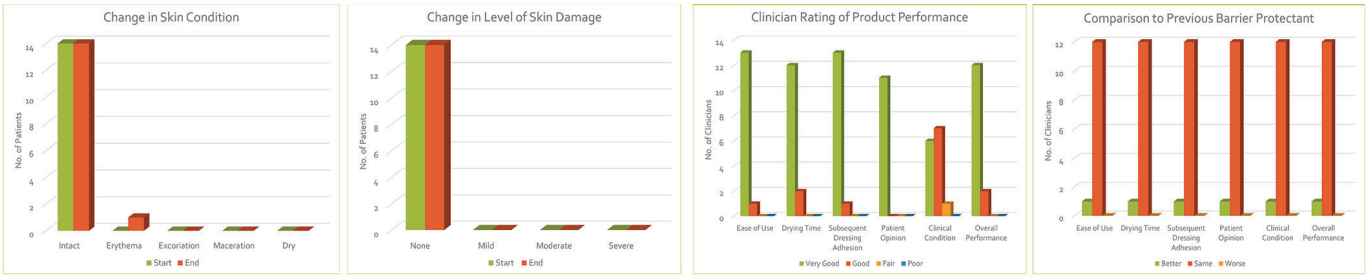

FIGURE 7.
Results of a clinical evaluation of MEDI DERMA-S Total Barrier Film for preventing MARSI (Hadfield, 2017).

carers rated the barrier film as either very good or good across all the evaluation domains, and either better than (n=1) or the same as (n=12) the previously used barrier film. The product was considered to be clinically acceptable and suitable for inclusion on the local formulary to replace an existing product.

LIFTEEZ Medical Adhesive Remover aerosol and wipe

LIFTEEZ Medical Adhesive Remover aerosol and wipe (*Figure 8*) is a non-sting, no-rinse formulation which can be used to help prevent PMARSI by dissolving the adhesives used in stoma or ostomy appliances while also being gentle on the skin (Jones et al, 2018).

It has several benefits to patients and clinicians (*Table 2*) and should be used as part of a structured approach in the total management of a patient's skin (Kelly-O'Flynn et al, 2020).

Table 2: Clinician and patient benefits of using LIFTEEZ (Jones et al, 2018; Hadfield et al, 2019)

Clinician benefits	Patient benefits
■ Fast and easy removal of stoma appliance with no skin stripping	■ Reduced pain during stoma appliance change
■ No effect on adhesion of replacement stoma appliance	■ Reduced erythema and skin trauma to fragile skin
■ Increased patient comfort	■ Reduced or no analgesia requirements
■ Increased patient compliance	■ Reduced anxiety around stoma appliance removal
■ Increased patient engagement in their own care	■ Reduced time needed for appliance change

CONCLUSION

Peristomal skin damage is a common problem for ostomy patients and so education on risks and prevention is vital. Skin care should be high on the agenda for any healthcare professional who provides clinical care to ostomy patients and, in particular, protecting the skin from the harmful effects of moisture and the removal of adhesive products. Importantly, care needs to be taken when assessing different skin tones. Skin tone bias should be avoided and clinicians should be encouraged to tailor skin assessment when it comes to assessing PMASD and PMARSI (*Table 1*; Wounds UK, 2021). GPN

FIGURE 8.
LIFTEEZ Medical Adhesive Remover 50ml Aerosol and Wipes.

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MPL1080/A4/STOMAADVERTGPN/03.22

Reference: 1. *LeBlanc K et al, JWOCN Mar/Apr 2019*

Remember...

The role of the stoma specialist nurse is varied and encompasses aspects of care such as:

- Preoperative assessment and education of the patient and their significant other
- Stoma siting
- Stoma training in hospital and community setting (Burch, 2017).

Patients with a newly formed stoma should receive continuity of care for up to three months after discharge from hospital (Association of Stoma Care Nurses UK, 2015). Support and guidance for healthcare professionals and patients should be available as a matter of routine. Many stoma nurses run patient groups or clinics where patients can discuss any problems and talk to other stoma patients.

Stoma organisations include:

- Colostomy UK: www.colostomyuk.org/
- Ileostomy and Internal Pouch Association: https://iasupport.org/

Information for the general public:

- NHS UK: www.nhs.uk/conditions/colostomy/ www.nhs.uk/conditions/ileostomy/
- Bladder and Bowel Community: www.bladderandbowel.org/bowel/stoma/what-is-a-stoma/
- Find stoma support services (England): www.nhs.uk/service-search/other-services/Stoma%20support/LocationSearch/388

Information for healthcare professionals:

- The Association of Stoma Care Nurses UK: www.ascnuk.com

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