MINIMISE Moisture™: a local quality improvement initiative raising awareness of moisture-associated skin damage

KEY WORDS
- Clinical pathway
- Incontinence-associated dermatitis (IAD)
- Moisture-associated skin damage (MASD)
- Pressure ulcers
- Wound healing

The term moisture-associated skin damage (MASD) has gained momentum in the nursing press in recent years. There are national drivers (NHSI, 2018) that aim to improve patient care and prevent harm to patients caused by moisture damage. A local campaign has been implemented aiming to raise awareness and reduce the incidence of MASD. Positive outcomes have been achieved, which include a clear recording and reporting process to assist continuous quality improvement; a new clinical pathway; a reduction in incidents and raised awareness among staff.

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Moisture-associated skin damage (MASD) is an umbrella term that covers different types of skin damage caused by moisture. It develops where urine, faeces, stoma output and/or perspiration is in continuous contact with intact skin (for example, perineum, perianal, buttocks, groins, inner thighs and the natal cleft) and in skin folds where skin is in contact with other skin, such as under the breasts, underarms and between the buttocks (Voegeli, 2012).

There are four types of MASD (Gray et al, 2011; Fletcher et al, 2020):

- Incontinence-associated dermatitis (IAD), damage caused when urine and faeces make prolonged contact with the skin
- Intertriginous dermatitis (or intertrigo), where the skin can become damaged as a result of friction and moisture, when two surfaces of skin are in contact with one another
- Periwound moisture-associated dermatitis, caused by higher volumes of exudate, skin becomes macerated and can breakdown
- Peristomal dermatitis, sore and excoriated skin around the stoma.

In June 2018, NHS Improvement recommended that incidences of MASD should be monitored in the same way as pressure ulcers (PU; NHSI)

Background

Previous local campaigns to reduce PUs inspired this initiative. They were successful and had a positive impact in raising awareness and reducing PU incidence. MINIMISE Moisture™ was developed as a local campaign in Liverpool Heart and Chest NHS Foundation Trust (LHCH), primarily as an education and awareness campaign to reduce the incidence of MASD. However, it also provided an opportunity for staff to review resources and skin care products that were used to prevent and treat MASD.

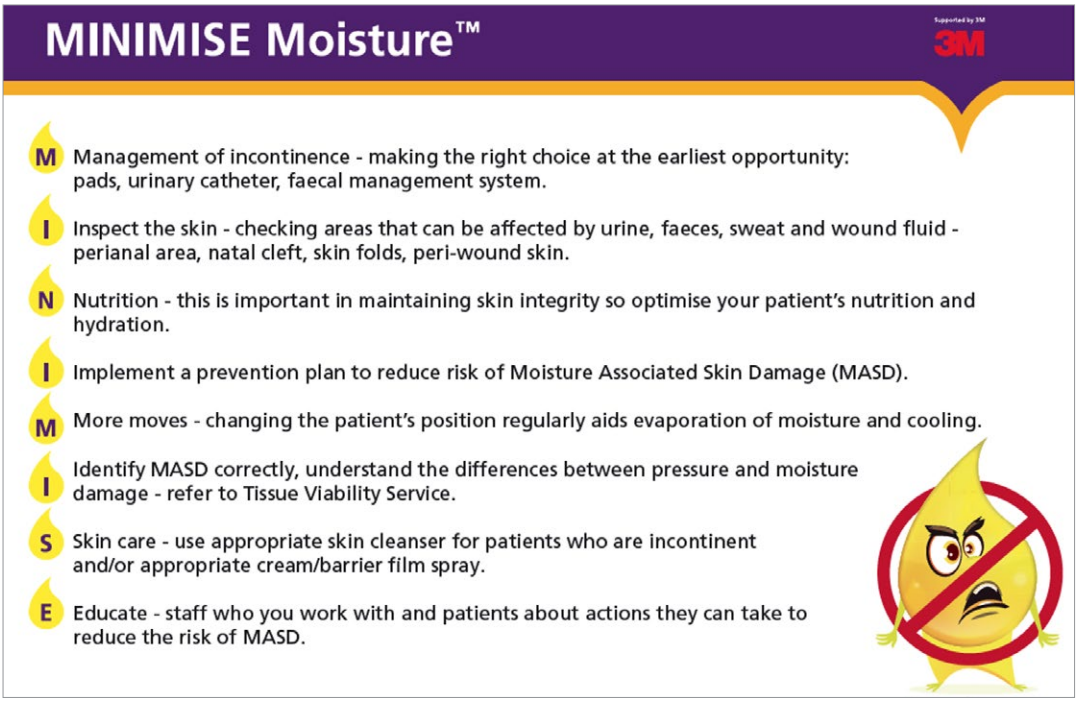
The acronym 'MINIMISE' was developed after conducting a literature review of the current evidence relating to MASD (Gray et al, 2011; Ousey et al, 2012; Voegeli, 2012; All Wales Tissue Viability Nurse Forum, 2014; Beeckman et al, 2015).

MINIMISE Moisture highlights key areas to consider, from identifying 'at risk' patients, to implementing effective prevention strategies (shown in *Figure 1*). It incorporates many of the best practice principles outlined in International Best Practice Recommendations: Prevention and management of moisture-associated skin damage (Fletcher et al, 2020).

Alongside the implementation of the campaign, a review of products and the development of useful resources for staff has contributed to increasing knowledge and awareness of staff, achieve more standardised care, as well as a reduction in new incidences of MASD.

The challenge to reduce MASD has become a national one, very much like the challenge to reduce PU incidence. As tissue viability nurses, PU prevention is always at the forefront of our minds, and it will continue to be in the future, such is the pain and suffering they can cause to patients.

Figures 1. MINIMISE Moisture™ campaign



However, MASD can also result in patient harm. The pain and suffering caused by MASD, often through incontinence (IAD) has been observed in practice and can, at times, be severe.

The physiological effects of urine, faeces and perspiration on the skin are well documented. Ammonia and urea in urine and harmful enzymes in faeces can both affect the skin's protective barrier, changing the natural pH of the skin and making it alkaline, which causes the skin to become reddened and to breakdown. Bacterial and fungal infections can develop. Overhydration of the skin commonly occurs with urinary incontinence and liquid faecal incontinence, as patients have a much higher risk of developing IAD, with excessive fluid from loose stools and faecal enzymes causing skin damage (Le Lievre, 2002; Voegeli, 2012; 2019). Acton et al (2020) reported benefits of using an advanced skin protectant in preventing IAD (Cavilon Advance Skin Protectant). This product is included in our own IAD protocol after successful evaluation in preventing IAD particularly in patients with liquid stools.

There is also a close link between the occurrence of IAD and PUs, with IAD resulting in a five time's higher likelihood of PU development (Beeckman et al, 2015).

MINIMISE Moisture aims to reduce the incidence of MASD, the pain and suffering it can cause to patients, and the associated costs of treatment. After a short audit of practice in the Trust, it was evident that a number of different products and practices were being used, resulting in a wide variation across the Trust. While our incidence of MASD may not have been particularly high, it was recognised that improvements could still be made.

Therefore MINIMISE Moisture aimed to:

- Raise the profile of MASD as a patient safety issue
- Raise awareness of the key considerations around the prevention and management of MASD
- Ensure that staff have up to date evidence-based resources to support their practice and access to products to optimise patients' skin integrity.

Thereby:

- Reducing the incidence of MASD
- Avoiding costs associated with treatment of MASD
- Reducing risk of PU development, and associated costs of treatment.

What does 'MINIMISE' stand for?

M — Management of incontinence. Incontinence is a recognised risk factor in the development of PUs, highlighted in the PU prevention aSSKINg framework (NHSI, 2018). Patients who have urinary and/or faecal incontinence should have a

plan in place to protect the skin and reduce the risk of IAD developing. Where able, the cause of incontinence should be identified and eliminated, and treatment options examined (Fletcher et al, 2020). Reversible causes of incontinence may include urinary tract infection, diuretics and constipation or diarrhoea. Following assessment, it is important to make the right choice to manage incontinence at the earliest opportunity: this could include using effective incontinence products (e.g. pads) or temporary insertion of a urinary catheter or a faecal management system may be advised (Beeckman et al, 2015). Fletcher et al (2020) state that it is important to consider causal, indirect and contextual factors when assessing a patient who may be at risk of IAD.

I — Inspect the skin. Close inspection in skin folds and all areas that can be affected by urine, faeces, stoma output and/or perspiration is required. Moisture can often be trapped between skin folds and creases. Include the perianal area, natal cleft, between thighs, groins and under the breasts. If the patient is incontinent, more frequent skin inspection is often needed due to their higher risk of MASD/IAD.

N — Nutrition and hydration. It is important to optimise nutrition and hydration since nutritional status plays an important role in the maintenance of healthy skin, we know this because deficiencies in diet can cause skin problems. Skin provides a physical and chemical barrier between the outside environment and the inside tissues of the body. This 'barrier function' is critical to protect underlying tissues from bacteria, chemicals and environmental exposures. Improving nutritional status can improve the appearance and strength of the skin. It can also reduce the risk of further deterioration, which is why nutrition should be part of the assessment and management of a patient at risk of developing MASD (All Wales Tissue Viability Nurse Forum, 2014).

I — Implement a care plan for the prevention or management of MASD for at risk patients. Prevention is always better than cure. All patients with incontinence are at risk of IAD (Beeckman et al, 2015). It is very important to recognise patients at increased risk of developing IAD (such as, liquid stools or diarrhoea) and implement appropriate prevention strategies (Fletcher et al, 2020).

M — More moves. Immobile patients are at risk of MASD as moisture builds up on the skin. Changing their position regularly will aid evaporation of moisture from the skin and cooling, helping to prevent this build-up of moisture. Moisture also becomes trapped in skin folds where there is minimal air circulating. A dyspnoeic patient can sweat excessively due to over activity of the sympathetic nervous system, so when seated, the back, buttocks and backs of legs are at higher risk of MASD. Skin cleansing and repositioning i.e. more moves, can help reduce that risk. Changing clothes and bed linen can help keep skin cooler and drier (All Wales Tissue Viability Nurse Forum, 2014). Repositioning is, of course, an essential strategy in the prevention of PUs, as stated in both the National Institute for Health and Clinical (NICE, 2014) and the 2019 European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Injury Advisory Panel (NPIAP) and Pan Pacific Pressure Injury Alliance guidelines.

I — Identify MASD correctly. Anatomical sites and appearance of pressure and moisture damage can be similar, but treatments will be different (Yates, 2020). It is important that incidents be accurately reported too. Using a tool to help understand the differences between MASD/IAD and PUs can be useful. This could include:

- The patient's history: whether they are incontinent or not
- Symptoms: stinging or pain associated with the skin damage
- The clinical presentation and appearance: the location, the shape/edges of the lesion(s), the tissue type/depth.

If unsure, it is advised to treat as both pressure and moisture until a more accurate assessment can be made, often by observing the skin changes over time.

S — Skin care. A structured skin care regimen is recommended for patients at risk of MASD (Beeckman et al, 2015; Fletcher et al, 2020). This includes cleansing the skin to remove irritants and protecting the skin with a barrier product to reduce exposure to urine and/or faeces, or sweat, and of course, friction. Soaps are often alkaline and can damage the skin barrier function. As such, soap and water should be avoided to maintain the skin's normal pH (Fletcher et al, 2020). Towel drying can

also contribute to skin damage, where skin is more vulnerable to the effects of shear and friction. A skin cleanser with a pH similar to the skin's pH is recommended and a no rinse cleanser or pre-moistened wipe, for patients who are incontinent (Beeckman et al, 2015). A cleansing wipe 'air' dries, therefore there is no requirement for towel drying. They can also simplify a skin care regimen, supporting staff compliance and achieving a consistent approach, rather than having lots of different products available (Voegeli, 2012).

After cleansing, it is important to protect the skin to prevent MASD. Barrier products are used to provide a barrier between the skin and the moisture and irritants which the skin is exposed to (Voegeli, 2012). For patients at risk for IAD, a skin protectant which can repel moisture and irritants is recommended; For patients with IAD, a skin protectant that can reduce pain or improve comfort is recommended (Fletcher et al, 2020).

E — Educate. Educating staff and patients is important as such staff should be able to:

- Identify different types of MASD
- Differentiate from other skin conditions/aetiologies
- Understand the impact MASD can have on patients
- Be aware of actions that can be taken to prevent MASD or to treat it if it has developed.

It is important that patients understand effective prevention measures to help prevent future occurrences of MASD and, if it does develop, how best to treat it. The importance of keeping areas of the skin at risk clean and dry, inspecting the skin regularly and good hygiene should be emphasised. The use of moisture wicking fabrics in skin folds, supportive garments and loose-fitting clothing can help minimise skin-to-skin contact (Fletcher et al, 2020).

Planning and implementation of MINIMISE Moisture

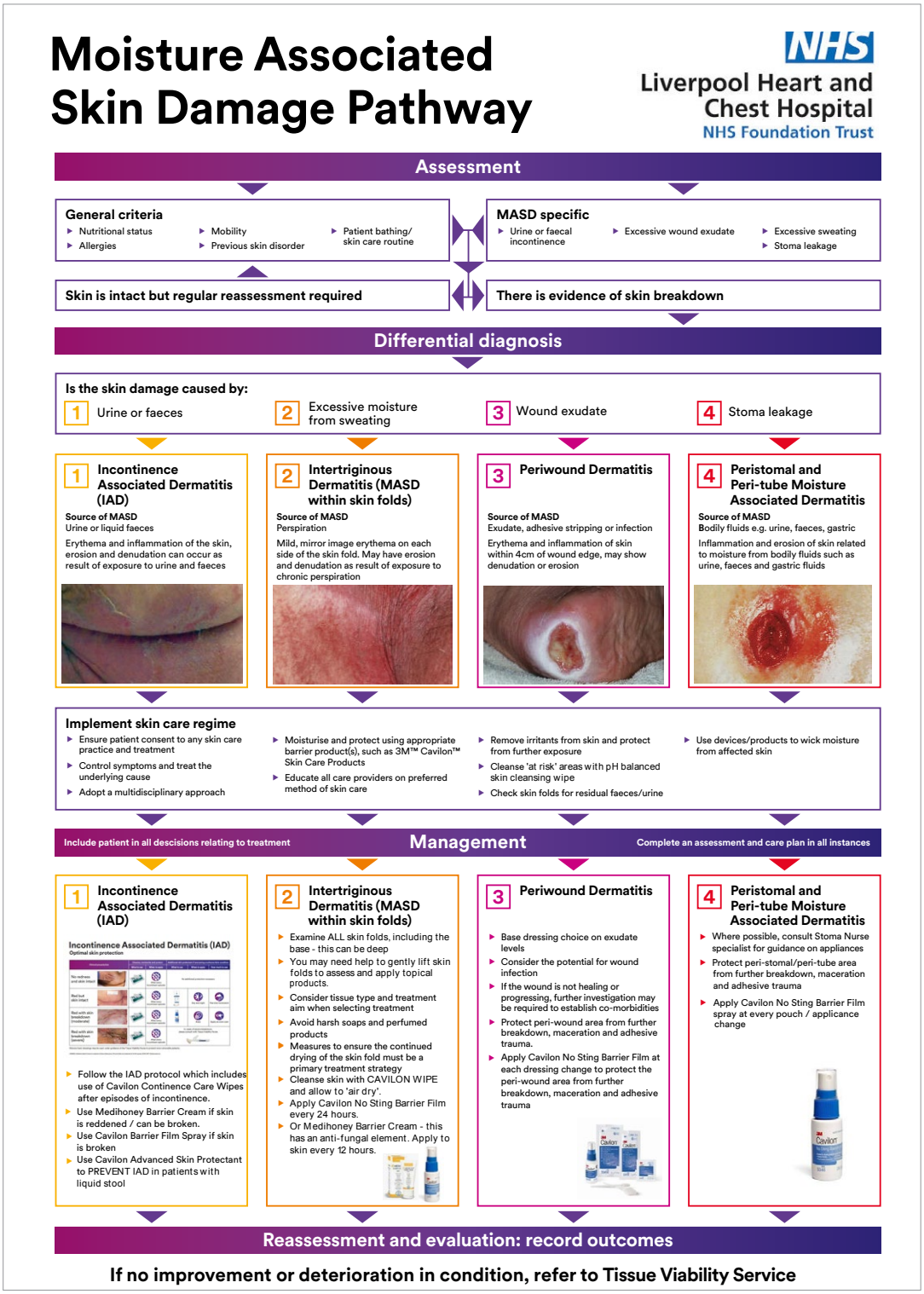
The campaign was implemented across the organisation, including medical and surgical wards and critical care. The campaign was to be implemented in a local nursing home, however, due to COVID-19 related restrictions this had to be postponed.

Feedback from patients was sought at the planning, implementation and evaluation stages. The tissue viability nurses talked to patients about their experiences, providing powerful messages to share with staff. Patients described MASD as 'painful', 'very sore', 'burning', 'unbearable' and 'embarrassing'. Staff were also asked about their knowledge of MASD and it became evident that it was very varied, often limited and a variety of different skin products were being used at different times. A new clinical pathway using a small number of products, with clear guidance for staff when to use them, improving cost and efficiency has been developed (*Figure 2*). Staff report that it is easier to adhere to, so the delivery of effective care is more likely.

The Tissue Viability Service collaborated with other stakeholders, including industry (3M), pharmacy/stores, senior nurses and clinical staff. The campaign formally ran from March to December 2019. Progress was monitored and reported using an A3 reporting process. An A3 reporting process is a quality improvement method using a structured problem-solving approach, initially developed by Toyota (Anderson et al, 2011). A3 posters were created and presented to the executive team: an initial poster outlining the quality improvement project, aims and objectives, methods, and timeframes for completion; an interim poster mid-way through, providing an update on progress and review of actions; and a final poster to summarise the project, if aims have been achieved, areas for improvement and any future actions. It can help focus aims and objectives and outcome measures, to be able to demonstrate if improvements have been made (Anderson et al, 2011). This reporting process was effective in keeping the project on track. A unique character was developed, the MINIMISE Moisture logo and a trademark was approved in March 2020.

One of the challenges was reaching all key staff and sustaining changes in practice. As many communication channels as possible were used — posters were on all wards and clinical areas, pull up banners have been rotated between wards/clinical areas, screensavers have been used with key information and corporate communications. It has been promoted at all study days, training events and other forums. A MINIMISE Moisture promotional video was created, available on YouTube, which summarises the meaning of MINIMISE. The support of the health care assistants and support workers is invaluable. They

Figure 2. Clinical Pathway



play a key role in preventing PUs, in skin inspection, manual handling and repositioning, in identifying patients at risk of MASD and supporting preventative strategies. We provided additional training for these groups, empowering them to promote best practice and challenge others where practice could be improved. Also important was the visibility of the tissue viability nurses on the wards and our engagement with all staff including nurses, health care assistants, support workers, members of

the allied health profession, and doctors, working alongside staff to promote these key considerations.

Measuring outcomes

Data collection started as early as 2017, so baseline data was available to evaluate the outcome of the intervention. All four types of MASD were collected, but the two main types observed were IAD and intertrigo, with very few cases of peristomal and periwound MASD. Every potential new incident of skin damage (MASD or pressure damage) was reviewed and verified by a tissue viability nurse to support accurate recording and reporting. It is recognised that this may not be possible in larger organisations, as such education and training of staff in assessing accurate aetiologies would then be essential to provide assurance that data is reliable and accurate.

IAD was simply categorised as 'IAD' with no recording of intact or broken skin, or the presence or absence of infection. IAD categorisation tools such as Ghent Global IAD Categorisation Tool (Beeckman et al, 2015) may be used to support more accurate and consistent data collection.

Key achievements

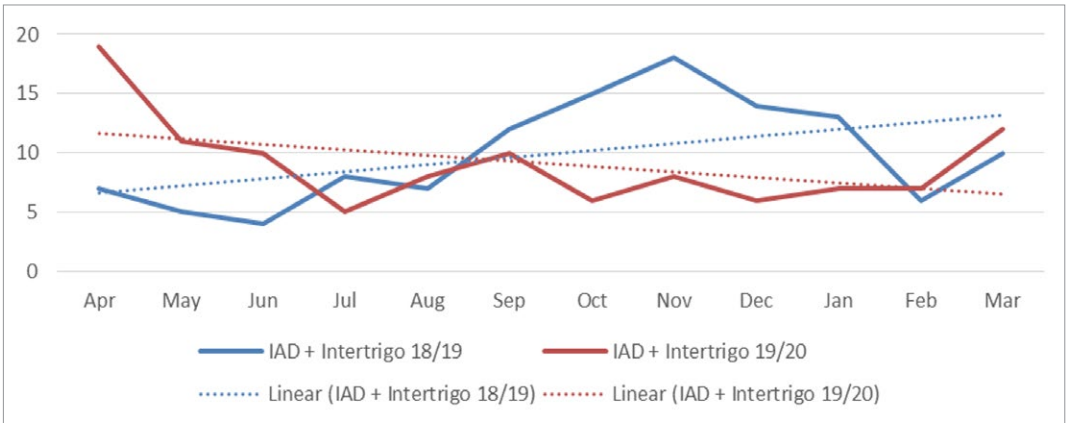
Key achievements have included:

- A reduction in the incidence of MASD. The MINIMISE Moisture campaign was launched in February 2019 and it is thought that due to the increased knowledge and awareness of staff, as a result of the campaign (and additional training and education), incidence initially increased in March and April 2019. The red line (*Figure 3*) highlights a reduction in new incidents of IAD and intertrigo between April 2019 and March 2020. The data includes all new incidents on all wards and critical care.

In April 2019, almost 20 new incidents of IAD and intertrigo were recorded. A higher number of incidents was expected after awareness was raised and education and training delivered. This may still seem like a small number, however, our organisation is relatively small, with approximately 240 beds. Our aim was still to reduce our incidence of MASD. In February 2020, just six new incidents of IAD and intertrigo were recorded. An increase was seen in March 2020, thought to be related to the early impact of the COVID-19 pandemic, which included redeployment of staff and staff shortages.

Incidence is more accurate during the period of April 2019 to March 2020, as staff assessed MASD appropriately, where previously it may have been under reported, discounted as just 'sore' or 'excoriated' skin. For this reason, the actual difference in numbers and the improvement made is likely to have been greater than shown here.

The Tissue Viability Service continues to promote the key principles of MINIMISE Moisture. A monthly report is completed and shared with all ward managers, the senior nursing team and the Executive Team, to report our current



*Incontinence and Intertrigo account for almost all types of moisture associated skin damage we see in our organisation (although there are 4 types and all 4 types are collected). The red line indicates the reduced number of incidents between April 2019 and March 2020

Figure 3. Incidence of IAD and intertrigo comparing 2018–19 to 2019–20

Figure 4. Toolkit for implementation of MINIMISE Moisture

incidence and trends. This supports ongoing monitoring and continuous improvement, planning additional actions to help reduce future incidence. Additional actions have included targeted training, the provision of cleansing wipes and barrier cream as ward stock, for instant access as needed and the availability of advanced skin products such as Cavilon Advanced Skin Protectant (3M) in our highest risk areas, such as critical care.

- Increased knowledge and awareness of staff with a focus on preventing MASD, rather than treating reactively after the damage is done. tissue viability nurses have observed closer skin inspection in practice, more accurate assessments of MASD, skin damage which previously would have been described and dismissed simply as 'sore skin' or 'excoriation.'

A staff survey was completed six months after the initial launch of the campaign highlighting change in staff awareness, knowledge and understanding of MASD:

- 90% felt the campaign had raised their awareness of MASD
- 96% felt better able to identify patients at risk of MASD
- 91% felt better equipped to provide high quality care as a result
- Standardised care based on best practice is supported by a new MASD Clinical Pathway and IAD protocol.
- Products have been streamlined and staff have easy access to effective products to support the prevention of MASD.
- Effective reporting system ensuring continuous quality improvement in the future,

CONCLUSION

There has been a range of national campaigns used to raise awareness of PU prevention over the past decade, including Stop the Pressure Day, React to Red, Your Turn, Zero Pressure campaigns and the introduction of a range of care bundles including, SSKIN. These have resulted in a heightened awareness and understanding of prevention, management and treatment of pressure damage that has successfully reduced PU incidence.

MINIMISE Moisture is a local campaign which highlights key areas to consider in preventing MASD and promotes best practice based on the current available literature (Beekman, 2015). It is a campaign that may have the potential to be replicated in any care setting. A toolkit for implementation has been developed that provides theoretical and practical guidance on how MINIMISE Moisture could be implemented in other organisations, with links to free downloads (posters) and links to promotional merchandise *(Figure 4)*. A link to the toolkit can be found at https://tvs.org.uk/skin-care-2/. To discuss further, please contact the author.

Declaration of interest: There are no conflicts of interests. We acknowledge and thank 3M for their support in providing products for evaluation, some promotional resources used and for their support with the development of the electronic toolkit for implementation.

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