Preventing skin damage: a Welsh perspective

The number of older people living the UK is rising and with this comes an increasing complexity of care needs. In terms of increases to the number and proportion of older people in the UK population, the percentage of persons aged 65 and over rose from 15% in 1985 to 17% in 2010 (an increase of 1.7 million people) (Office for National statistics[ONS], 2008). By 2035, it is projected that those aged 65 and over will account for 23% of the total population (ONS, 2012). While the principle of maintaining older people safely in their own homes is a Welsh Government policy (Welsh Assembly Government, 2005; 2011), it is not always possible to achieve this and some older people become so dependent that they require care in residential and care homes. As people get older, the risk of them becoming incontinent rises, especially for those living in care homes, where up to 50% of residents experience incontinence (Cooper, 2011). Many of these individuals are at risk of tissue damage, particularly incontinence dermatitis and pressure ulcers (Rees and Pagnamenta, 2009; Cooper, 2011), so it is important that preventative measures are put in place. This article explores different aspects of preventing and effectively managing skin damage in Wales, including damage caused by incontinence. It focuses on research and practice developments undertaken in Wales, including the generation and implementation of evidence into practice through education, and changes in nursing practice through SKIN Bundles. This article was prepared with the support of 3M Healthcare.

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Wales has a strong track record in developing wound care practice and wound healing research including:

- Pharmacological research led by the pharmacist Professor Terry Turner, (OBE) at Cardiff University, where he first described how laboratory research could be translated into clinical practice through identifying the characteristics of the 'ideal dressing' (Thomas, 1997)
- Laboratory studies first undertaken by pharmacist Dr Steve Thomas, where he established and led the Surgical Materials Testing Laboratory (SMTL) in Bridgend in 1977. This work has since expanded to include the development of larval therapy and a broad range of research projects
- The Wound Healing Research Unit (WHRU) in the School of Medicine (now Cardiff University) was established by Professor Leslie Hughes and, thereafter, Professor Keith Harding, emerging in the mid-1970s and formalised in 1991. This multi-professional team undertakes a broad range of biomedical and clinical research, as well as Masters level education
- The All Wales Tissue Viability Nurse Forum was established in 2003 to provide a unified approach to the development and delivery of wound care across Wales.

INCONTINENCE DERMATITIS IN OLDER PEOPLE

Pressure ulcers and incontinence dermatitis are associated with a combination of urinary and faecal

incontinence, which has been reported to be as high as 50% in long-term nursing home residents (Newman et al, 2007). Incontinence in older people is associated with thinning dermis and a loss of elasticity and dryness, rendering the skin susceptible to damage (Rees and Pagnamenta, 2009; Beekman et al, 2010).

Incontinence dermatitis is a type of contact dermatitis caused by excess or caustic moisture from urine, stool or frequent washing, which reduces skin tolerance (Voegeli, 2008). In addition, moisture lesions are associated with incontinence (Defloor et al, 2005). The risk of developing pressure ulcers is also increased when the skin is left too wet over a prolonged period, becoming macerated or excoriated and increasing the risk of damage to the skin from friction (Bale, 2005).

Incontinence is a common clinical problem for patients cared for in nursing homes, rendering them vulnerable to skin damage (Bale et al, 2006). Incontinence is associated with large amounts of staff time being taken up with keeping patients' skin clean and protected to reduce the likelihood of such damage occurring. To avoid these types of skin damage, it is recommended that skin care be undertaken to protect and prevent incontinence dermatitis, moisture lesions and pressure damage (Black et al 2011; Cooper, 2011).

It has been demonstrated that soap and water harm the skin (Fiers, 1996; Voegeli, 2008), stripping it of the protective barrier that prevents bacterial invasion and friction damage (Bale, 2005). On the other hand, the use of specialist skin care/barrier products has consistently been demonstrated to provide the best patient outcomes (Lewis-Byers et al, 2002; Bale et al, 2004; Beeckman et al, 2009). However, despite having strong evidence for using specialist products, the way in which the skin of older people is cared for varies from country to country.

Traditionally, clinicians in the UK have used soap and water (Cooper, 2011), whereas in the USA there is a long history of using specialist skin care/barrier products (Fiers, 1996). This cultural difference is largely unaccounted for as specialised skin care/barrier products have been available in both countries for many years. However, in terms of specific patient benefit, the use of soap and water is damaging to the skin (Kirsner and Froelich, 1998) and their use has been demonstrated to be less effective than using a no-rinse cleanser and a durable barrier cream (Lewis-Byers et al, 2002; Bale et al, 2004; Langemo et al, 2011).

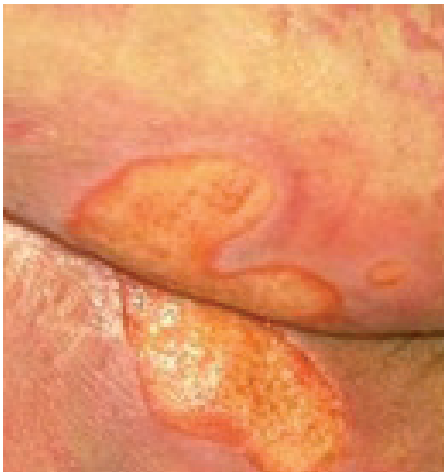

Figure 1: Kissing lesions.

MOISTURE LESIONS AND PRESSURE ULCERS

Moisture lesions are caused by incontinence and, on occasion, perspiration, and occur most commonly in the natal cleft and on the buttocks. They are often present on both buttocks as mirror lesions or 'kissing' lesions (Fletcher, 2008) (*Figure 1*).

Defloor et al (2005) first described the clinical issues resulting from the mistaken classification of moisture lesions as pressure ulcers, identifying that this common error artificially inflated pressure ulcers rates. Fletcher (2008) describes how moisture lesions differ from pressure ulcers as they do not occur over bony prominences and can occur where pressures are low.

These assertions are supported by histopathology research. For example, Houwing et al (2007) report that moisture lesions and pressure ulcers have very different histopathologies. Pressure ulcers are associated with an ischaemic pattern whereas moisture lesions have a pattern of chemical irritation. Fletcher (2008) identified the need for nursing staff to differentiate

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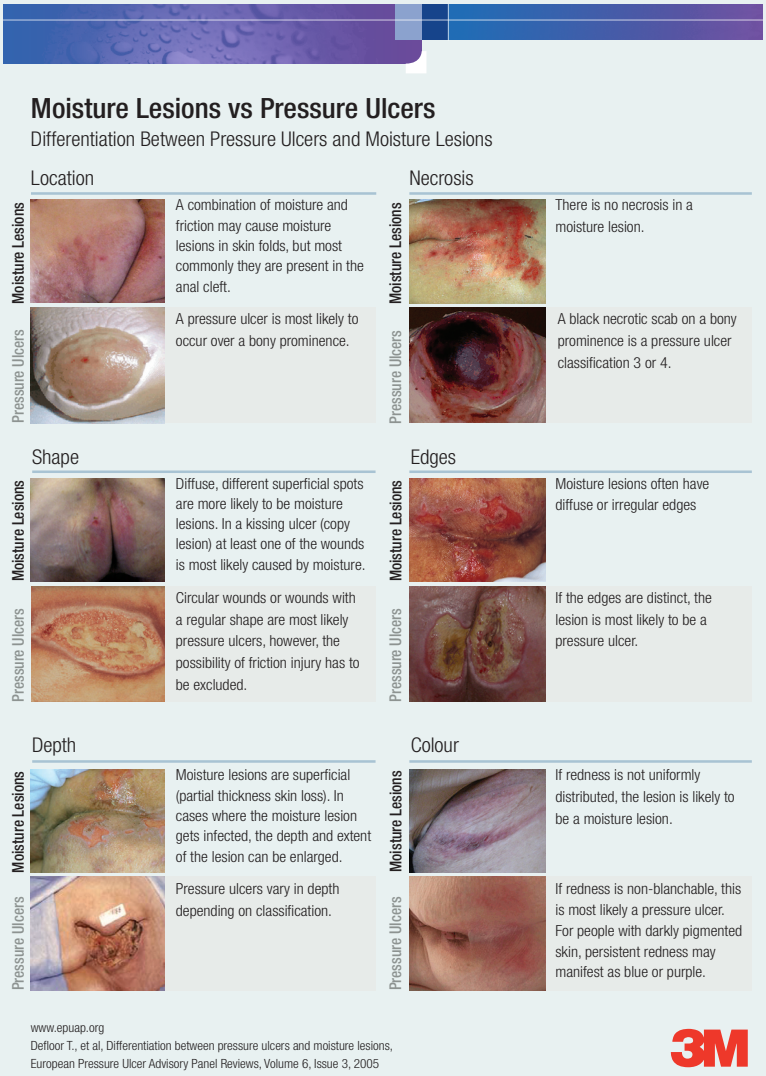

Figure 2: Educational tool used to differentiate between pressure ulcers and moisture lesions.

between moisture lesions and pressure ulcers and an educational tool has been developed by 3M Health Care for this purpose (*Figure 2).*

The USA has a long history of researching and developing skin care practice (Hunter et al, 2003; Bliss et al, 2007) and this has resulted in pH-balanced skin cleansers and adult barrier creams being routinely used in nursing practice in the USA (Black et al, 2011; Langemo at al, 2011).

Research of this kind has also been carried out and published in the UK (Hampton and Collins, 2001) and specifically in Wales (Bale et al, 2004). Bale et al (2004) reported improvements to patients' skin condition, with respect to both the occurrence of incontinence dermatitis (p=0.021) and pressure ulcers (p=0.041), following the implementation of a sacral skin care/barrier protocol utilising Cavilon skin care products (*Figure 3).*

Such results are not unusual and Hunter et al (2003) reported similar effects when specialist skin care products are used in conjunction with a protocol of care, resulting in a significant decrease in incontinence dermatitis and pressure ulcers.

Although specialist skin care/barrier products may not be consistently used across the UK, Wales in particular is increasing their use. Data published by the Welsh Assembly Government (2012) report a growth in the use of skin

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'In Wales, the independent sector will most likely need to expand, as more beds are needed for the increased number of dependent older people'

fillers and protectants — the category that covers skin care/barrier products — from 42,731 items in 2006, to 78,145 in 2011.

Research into the care of older peoples' skin recommends changes in nursing practice to include the use of specialist skin care/barrier products, as well as providing effective education, *aide-mémoires* and regular reinforcement, and supporting colleagues (Lewis-Byers et al, 2002; Hunter et al, 2003; Bale et al, 2004).

The important role of healthcare support workers in assisting nurses was recognised by Bale et al (2004), where many of the interventions and tools were targeted at these members of the workforce. In Wales, the independent sector will most likely need to expand, as more beds are needed for the increased number of dependent older people, and the financial and resource pressures placed on these institutions is set to increase.

However, important as the use of adult skin care/barrier products are, practice needs to be supported by skin care protocols to help staff (especially support workers) carry out skin care effectively. The use of skin care education and protocols, together with a structured approach, has been reported in the USA and in Wales (Lewis-Byers et al, 2002; Hunter et al, 2003; Bale et al, 2004).

Previous research carried out in Wales with patients admitted to a hospice, reported the use of new pressure-relieving equipment supported by a protocol (Bale et al, 1995). Practice became standardised and patient outcomes were improved by a 10-fold reduction in the incidence of pressure ulcers. Researchers concluded that a protocol for pressure ulcer risk assessment and the systematic use of pressure support systems greatly reduced the incidence of pressure ulcer development in patients nursed in a hospice (Bale et al, 1995). The researchers also cited the usefulness of the protocols as an essential element in implementing the new way of working.

In general, the driver for much nursing research is to improve practice, with the expectation that research will then be implemented into practice — this is the case for improving skin care through research. This expectation is a requirement for registered nurses (Nursing and Midwifery Council [NMC], 2008), where nurses and midwives should be providing evidence-based care. The challenge is to find the most effective way to do this.

Two Cochrane systematic reviews were undertaken to determine the evidence on how best to change clinical practice (Thomson O'Brien et al, 2000a, 2000b). These concluded that educational interventions employing a range of teaching methods, especially those that include workshops and interactive sessions, are most effective in changing the practice of clinicians. Where such education is delivered by teachers who visit clinicians in their work place, a positive effect on practice was also noted. Bale et al (2004) used the recommendations of this Cochrane Systematic review when designing their own research.

More recently, the Institute of Health Improvement (IHI, 2012) in the USA has been proactively attempting to deal with healthcare-associated harm — 98,000 people per year die due to medical errors in US hospitals, the fifth leading cause of death. From this, the Institute of Medicine set about building a safer health system (Kohn et al, 2000), which reduced morbidity and mortality in hospitals by introducing proven best practice and saving 100,000 lives in 18 months.

THE SKIN BUNDLE

Since 2009, the IHI approach has been adopted in Wales and one of the main work streams is the SKIN Bundle, which has been designed to prevent pressure ulcers. This work is based on the SKIN Bundle that was developed in 2004 at St Vincent's Medical Centre, a 528-bed hospital in Florida, US (Whitlock et al, 2011).

The SKIN Bundle provides a systematic approach for clinicians in Wales to:

- Change nursing practice
- Measure and manage pressure ulcer prevention

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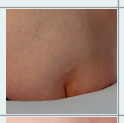
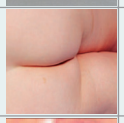
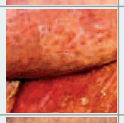
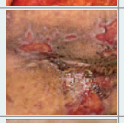
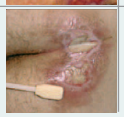
3M™ Cavilon™ Skin Care Products

Application Guide – Incontinence

Skin Condition		3M™ Cavilon™ Durable Barrier Cream	3M™ Cavilon™ No Sting Barrier Film
			
Normal intact elderly skin No incontinence		As required	
Faecal and/or urinary incontinence Intact skin		Daily application	
Faecal and/or urinary incontinence Erythema or moderate dermatitis but no broken areas of skin		Every third wash	72 hours
Faecal and/or urinary incontinence Severe dermatitis			24 to 48 hours
Faecal and/or urinary incontinence Excoriated weeping skin			24 to 48 hours
Peri-wound skin Pressure ulcers, grade II/III			At each dressing change

3M

Figure 3: Sacral skin care/barrier protocol.

- Provide standardised data across Wales
- Provide easily accessible data that are reported directly to board level.

The most empowering outcome of using the SKIN Bundle is that ward-based nurses, including ward sisters, nurse managers and senior staff, see prevention of pressure ulcers as their responsibility. The tissue viability nurses across Wales have overseen this initiative both at an individual level in their own Health Boards and also at an All Wales level through their All Wales Tissue Viability Nurse Forum as a group.

In IHI methodology, 'bundles' are groups of evidence-based interventions that are brought or 'bundled' together to form a systematic approach to delivering patient care.

The SKIN Bundle in Wales

The Welsh SKIN Bundle comprises four elements:

- **S**urface: this requires a safety check of the mattress and cushion; sheet check for wrinkles; patients have their Waterlow risk score reassessed at least daily
- **K**eeping moving: this requires that patients are repositioned, have their skin inspected and are encouraged to be mobile, together with written information for patients and their carers
- **I**ncontinence: this requires patients to be assisted with their toileting needs, the appropriate use of incontinence and skin protection

'It is possible at a glance for staff, patients and visitors to see how a ward is performing as the crosses are placed in highly visible areas'

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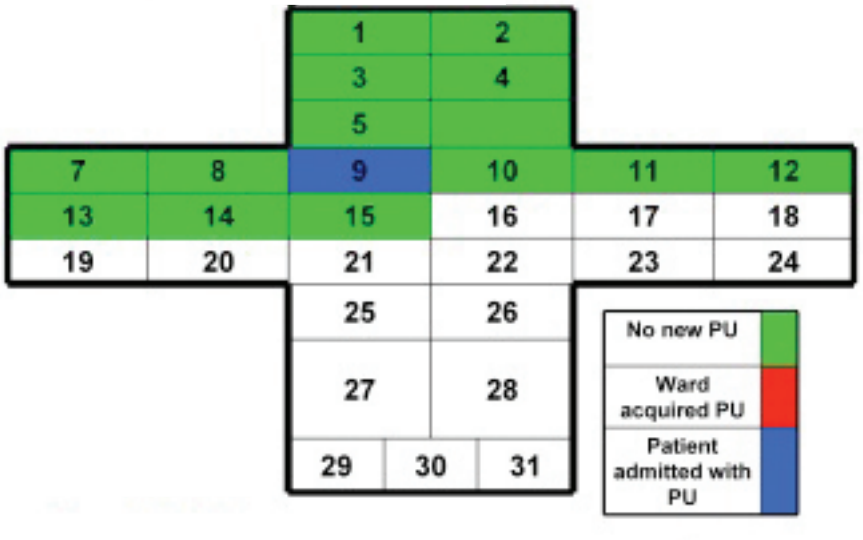

Figure 4. The Safety Cross, used to monitor pressure ulcer incidence.

products, with specialist advice sought if needed, and patient's skin kept clean and dry
- **N**utrition: this requires the use of a nutritional risk tool, with instructions followed and charts used, and patients kept well hydrated and with optimal nutrition taken.

The SKIN Bundle approach follows the National Pressure Ulcer Advisory Panel/European Pressure Ulcer Advisory Panel's (NPUAP/EPUAP, 2009) recommendations for the prevention of pressure and moisture skin damage so is congruent with international guidance, providing an effective approach for implementation.

Documentation is present at every patient's bed and patients' care is monitored at least hourly, with records updated contemporaneously. A core strength of the SKIN Bundle approach is the ongoing data collection, which informs staff working on the wards, their managers and the Health Board of progress and compliance with the Bundle.

The data are collected by using a 'Safety Cross', a diary that illustrates the number of days where no pressure ulcers have developed, the days where a patient with a pressure ulcer has been admitted and the days where a pressure ulcer has developed on that ward (*Figure 4*).

It is possible at a glance for staff, patients and visitors to see how a ward is performing as the Safety Crosses are placed in highly visible areas. In addition, monthly audits measure compliance with completion of risk assessments. Pressure ulcers are regarded as an incident of patient harm and clinical incident forms are completed that report pressure injuries.

A positive consequence is that tissue viability nurses are less likely to be seen as the only nursing group responsible for prevention and so the SKIN Bundle is a useful tool for changing behaviour and institutional culture. Tissue viability nurses can then enhance their role in supporting and managing patients with complex needs.

The principles of 1000 Lives (1000 Lives Plus, 2010; 2012) is to begin by education and training on the SKIN Bundle, introducing it in individual wards to achieve sustained compliance and then gradually rolling the Bundle out across the hospitals and ultimately the whole Health Board/Trust. This means that each of the seven clinical Health Boards/Trusts in Wales are at different points of rolling the SKIN Bundle out. Comparators across and between Health Boards is not possible at present as this is an evolving initiative.

However, it is possible to compare individual wards that were early adopters and have data on the progress of pressure ulcer skin damage over time. For example:
- There was an average hospital-acquired pressure ulcer incidence of 3–5% across Wales in 2012
- The Chief Nursing Officer (White, 2012) reports the success of SKIN Bundles across Wales, which has resulted in a dramatic reduction in pressure ulcers. She cites some wards across Wales reporting hundreds of days without an episode of hospital-acquired pressure ulcers
- Health Board '1' reports that since the introduction of the SKIN Bundle, no patients developed a pressure ulcer (1000 Lives Plus, 2010) in a two-year period following April 2010. This has continued

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with success across all hospitals reporting a reduction in pressure ulcer incidence from 10% to 1% (ABMUHB, 2011)
- Whitlock et al (2011) report on the implementation of the SKIN Bundle over a 12-month period from May 2009 to April 2010, where they experienced 95% compliance, resulting in an increase in the number of pressure ulcer-free days from 35 to 85
- Health Board '2' reported a reduction in the incidence of hospital-acquired pressure ulcers from 1.43% in February 2011, to 0.1% in June 2012
- Health Board '3' reported a reduction in the number of hospital-acquired pressure ulcers from 16 to five in the period from October 2011 to February 2012 (1000 Lives Plus, 2012). This formed part of their compliance with achieving a 50% reduction in pressure ulcers.

Implementing the SKIN Bundle across Wales has required engagement of the Executive Team in the Health Boards, with direct reporting of pressure ulcer data to them. This has been instrumental in raising the profile of pressure ulcers and their importance as a key quality indicator.

ALL WALES TISSUE VIABILITY NURSE FORUM

The All Wales Tissue Viability Nurse Forum was formed in 2003 with the aim of establishing a robust clinical network of tissue viability nurses, who could come together to share issues and good practice, and to develop the tissue viability specialty in a unified and consistent manner.

The group meet formally three times a year and have developed a programme of work, including:
- Undertaking Wales-wide pressure ulcer prevalence surveys employing EPUAP methodology
- Developing and publishing All Wales wound care competencies for the Open Learning Network (now Agored Cymru)
- Developing and publishing best practice documents
- Assimilating EPUAP/NPUAP guidelines for clinical use across Wales
- Providing a resource for the Chief Nursing Officer for Wales
- Benchmarking the implementation of the SKIN Bundle across Wales
- Working with the Welsh Health Supplies Chain to inform the content of the Welsh contract for wound dressings and products.

The group has published and presented this work and it continues to lead the development of clinical practice for nurses in Wales.

CONCLUSION

This article has described practice developments and research to prevent and manage skin damage in Wales, especially in respect to damage caused by incontinence — a common clinical problem in older people. The use of specialised, adult skin care products is widely recommended and much of the reported research results concur.

The challenge of using evidence to inform the clinical practice of nurses is acknowledged in this article, and some tried and tested solutions have been described and recommended. These include:
- The use of education and training
- The use of visual aids such as skin care protocols to facilitate judicious use of skin care/barrier products that are supported by an evidence base
- The use of visual educational tools to differentiate between moisture lesions and pressure ulcers
- The use in Wales of the Welsh SKIN Bundle to empower and clarify the role of the generalist nurse and support staff to deliver skin assessment, inspection and prevention
- The use in Wales of the Welsh SKIN Bundle to prevent pressure ulcer skin damage and the reporting of data to Health Boards/Trusts in Wales.

One of the benefits of working in a small, devolved nation is its geographical size, where a national approach can be more readily adopted. The small number of tissue viability nurses in Wales (around 35) means that the group can come together in a forum to undertake practice development for wound care.

It may well be the case that other regions in the UK would find some aspects of the Welsh experience useful. WUK

'One of the benefits of working in a small, devolved nation is its geographical size, where a national approach can be more readily adopted'

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