



Wound Bed Preparation

It's About TIME

The prevalence of incontinence in the elderly increases this population's risk for skin breakdown, particularly pressure ulcers. Moisture increases shear and friction on the skin, which affects skin permeability and barrier function. Enzymes present in urine and fecal matter exacerbate these negative effects; cleansing can be abrasive and further disrupt the skin's natural chemical environment. Skin breakdown is costly. Treatment expensive and quality-of-life issues are challenging. Plus, because pressure ulcers awareness in both the public and judicial sectors has increased, the potential monetary and emotional expense of litigation must be considered.

A successful incontinence management plan protects skin integrity and prevents skin health from compromise. Prevention philosophy that combines industry-leading medical education programs with a complete skin care product line provides clinical, emotional, and financial benefits in all healthcare settings. Tissue status, infection/inflammation, moisture imbalance, and epidermal margin (the TIME approach to wound care) cannot be competently implemented until underlying causes of skin impairment are addressed.

This is the seventh in a series of 12 articles dedicated to wound bed preparation.



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The Problem — How to Manage the Effects of Incontinence on the Skin

Incontinence is up to five times more prevalent in people over 50 years of age than among their younger counterparts.¹ More than 5.5 million Americans (11.1% of men and 15.2% of women over 50 years of age) suffer from fecal incontinence; the lowest estimate of lifetime cost is \$17,166 per patient.² Approximately 33% of acutely ill hospitalized adults experience fecal incontinence and more than a third of nursing home residents experience urinary incontinence all or most of the time.³

The incontinence/pressure ulcer connection. Urinary and fecal incontinence can lead to perineal dermatitis and skin damage.⁴ A study by Maklebust et al⁵ [AU; Reference?] involving 270 patients noted that fecal incontinence was a factor in 56.7% of patients with pressure ulcers and that patients with fecal incontinence were at 22% greater risk of acquiring ulcers than patients without fecal incontinence. Lyder et al⁶ observed that all 16 elderly patients with urinary and fecal incontinence in a geriatric unit developed perineal dermatitis (those with urinary incontinence alone did not develop a skin reaction).

How incontinence increases the risk for skin breakdown.
Moisture. Moisture leads to increased friction and shear forces on the skin. Prolonged moisture also increases skin permeability and alters barrier functioning. Ultimately, the altered barrier function allows more irritation and microbial permeability. The presence of urine increases the pH of the local environment, also increasing skin permeability. The chronic exposure of urine is irritating and causes maceration (see Figures 1 and 2).

Enzymes. Digestive enzymes break down food; types and combinations of proteolytic and lipolytic enzymes vary throughout the digestive tract and are found in secretions of the stomach and pancreas. Although essential to the body's metabolism, digestive enzymes excreted via chronic incontinence, severe diarrhea, or ostomy wounds put skin at risk for breakdown. The presence of feces and urine has a synergistic effect on the skin (see Figure 3).

Clostridium difficile, with its potential to colonize the gut and release toxins, increases the risk for skin impairment. Because the bowel becomes inflamed and intestinal mucosa swell, liquid is not absorbed and digestive enzymes are not broken down. This decreases time to transit the stool, causing a chemical burn to the skin (see Figure 3).



Figure 1.



Figure 2.

Cleansing. The cleanups associated with incontinence provide an additional component to chemical irritation to the skin. Scrubbing is abrasive to the skin and alters the skin's natural pH. When these factors are combined, the skin may be more susceptible to breakdown.

Diarrhea - Chemical Burn

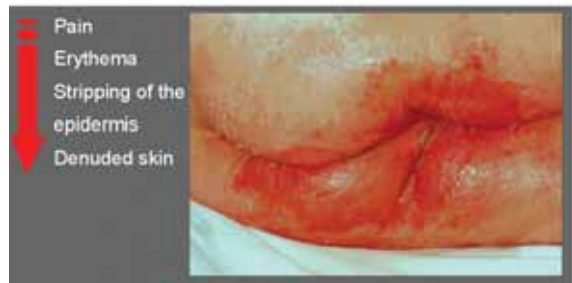


Figure 3.

The cost of skin breakdown. Pressure ulcers pose a significant public health problem, with incidence up to 38% in acute care settings and 23.9% in long-term care settings. A pressure ulcer can cost up to \$70,000 to treat per patient; nationally, pressure ulcers cost the healthcare system close to \$1.6 billion per year in acute care settings.⁴ Robinson et al⁷ estimated an average hospital direct cost to treat pressure ulcers of \$400,000 to \$700,000 annually. Increased public awareness about the occurrence of pressure ulcers has led to an increasing number of lawsuits — annually, more than 17,000 pressure ulcer-related lawsuits are filed in the US. Individual awards are reaching millions of dollars,⁸ driving up the cost of liability insurance and increasing the cost of care nationwide.

Regulatory considerations. Guidance changes from the Centers for Medicare and Medicaid Services (CMS) related to the treatment and prevention of pressure ulcers mandate the implementation of an effective preventive skin care plan. Objectives of the revised Guidance document include: 1) determining if an identified pressure ulcer is avoidable or unavoidable and 2) evaluating the adequacy of the institution's program and interventions to prevent and treat pressure ulcers. Prevention and treatment programs for pressure ulcers must demonstrate that institutional protocol reflects current best clinical practice in the prevention and treatment of pressure ulcers.

The Solution — A Successful Preventive Care Plan that Starts with High-Quality Skin Care Products

SkinEquity™, a prevention philosophy from Smith & Nephew (Largo, Fla.), is designed to protect skin and prevent skin breakdown by combining medical education with product availability to create clinical, emotional, and financial benefits in all healthcare settings. Caregivers are inspired through the provision of consistent education, training, and high-quality care.

Prevention is a proactive investment. Consistent training, knowledge, and effective products lead to positive outcomes for patients, their families, and caregivers. Understanding the anatomy and physiology of skin and what risk factors contribute to breakdown empowers healthcare providers to intervene earlier and take ownership for patient care.

Individualized care. The skin care plan should be based on assessment of the skin and its response to specific products. Key considerations include:

- What is the etiology of the skin condition?
- Is the skin dry? Chapped? Denuded?
- What is the skin care goal for the patient?
- Which skin care products are most appropriate for indi-

Part 7: Protecting Skin from Breakdown

- individualized skin care regimen?
- What are the product ingredients?
- Is an antimicrobial indicated?
- Have any irritation and efficacy tests been performed on the product?
- Is research available to validate selection of the product?

Product selection.

Skin cleansers. Protecting vulnerable skin means knowing what products to use and how and when to use them. Knowing what ingredients to look for in skin care products – and which to avoid — is important to any skin care plan. Traditional cleansing methods, such as soap and water, are more time-consuming than one-step no-rinse cleansers. Most soaps, which build up difficult-to-rinse residue, have high pH levels that can interfere with the skin's protective acid mantle. Soap may irritate and remove skin's natural lubricant, leaving it susceptible to dryness, cracking, and skin tears.

Skin-friendly ingredients are essential for effective, gentle cleansing without stressing vulnerable skin. Usage considerations include:

- **Surfactants.** Some surfactants, such as sodium laurel sulfate, utilize an ionic charge, stripping the skin of natural oil and causing dryness and irritation. Nonionic surfactants such as polysorbate 20 clean without causing irritation
- **pH balance.** The skin's normal pH level is 4.8 to 5.6, or slightly acidic. Many cleansers can disrupt this balance, causing dryness and allowing bacteria to proliferate. Cleansers should be pH-balanced or buffered to protect the skin's acid mantle
- **Antimicrobial properties.** Skin exposed to excessive moisture can become macerated and more susceptible to infection. Antimicrobials help prevent bacterial infection and eliminate odor-causing bacteria. Benzalkonium chloride is an antimicrobial proven effective against common pathogens such as *Staphylococcus aureus* as well as strains of *Staphylococci* and *Streptococci*.

Skin protectants. One of the main methods of protecting skin from damaging effects of incontinence (moisture) is to prevent urine and feces from directly contacting the skin. Skin protectants should be applied after every incontinence episode and contain an appropriate active ingredient for maximum efficacy.

Key ingredients include:

- Dimethicone – A type of silicone, this cream is transparent when applied and dries quickly, allowing for visual inspection of the skin. It leaves no residue, will not wash away, and is less likely to clog undergarments
- Petrolatum — A semi-transparent ointment, it protects and conditions the skin
- Zinc oxide — This white paste or cream provides a high level of protection, does not absorb, and leaves a non-transparent layer. It also provides conditioning and shooting **[AU: Shooting?]** properties.

Preventive skin care returns are three-fold. Clinically, outcomes improve and fewer complications, including a decreased incidence of pressure ulcers, occur. Financially, hospital stays are shorter, treatment costs are lower, and exposure to liability risk is lessened. Emotionally, when caregivers see their efforts make a difference in patient care, teamwork, motivation, and ownership

of care are fostered. For example, in a study of high-risk patients in a subacute care facility,⁹ a pressure ulcer incidence rate of 1% to 3% was sustained over a 6-year study period with the use of SECURA* (Smith & Nephew, Largo, Fla.) products. The total cost of SECURA preventive skin care products in this study was only \$0.46 per day per patient (see Figure 4). A 3-year study¹⁰ in a 98-bed acute care facility demonstrated a sustained pressure ulcer incidence rate of <2.08% and a cost of skin care per patient of only \$0.48 per day when SECURA was used as part of an overall prevention plan.

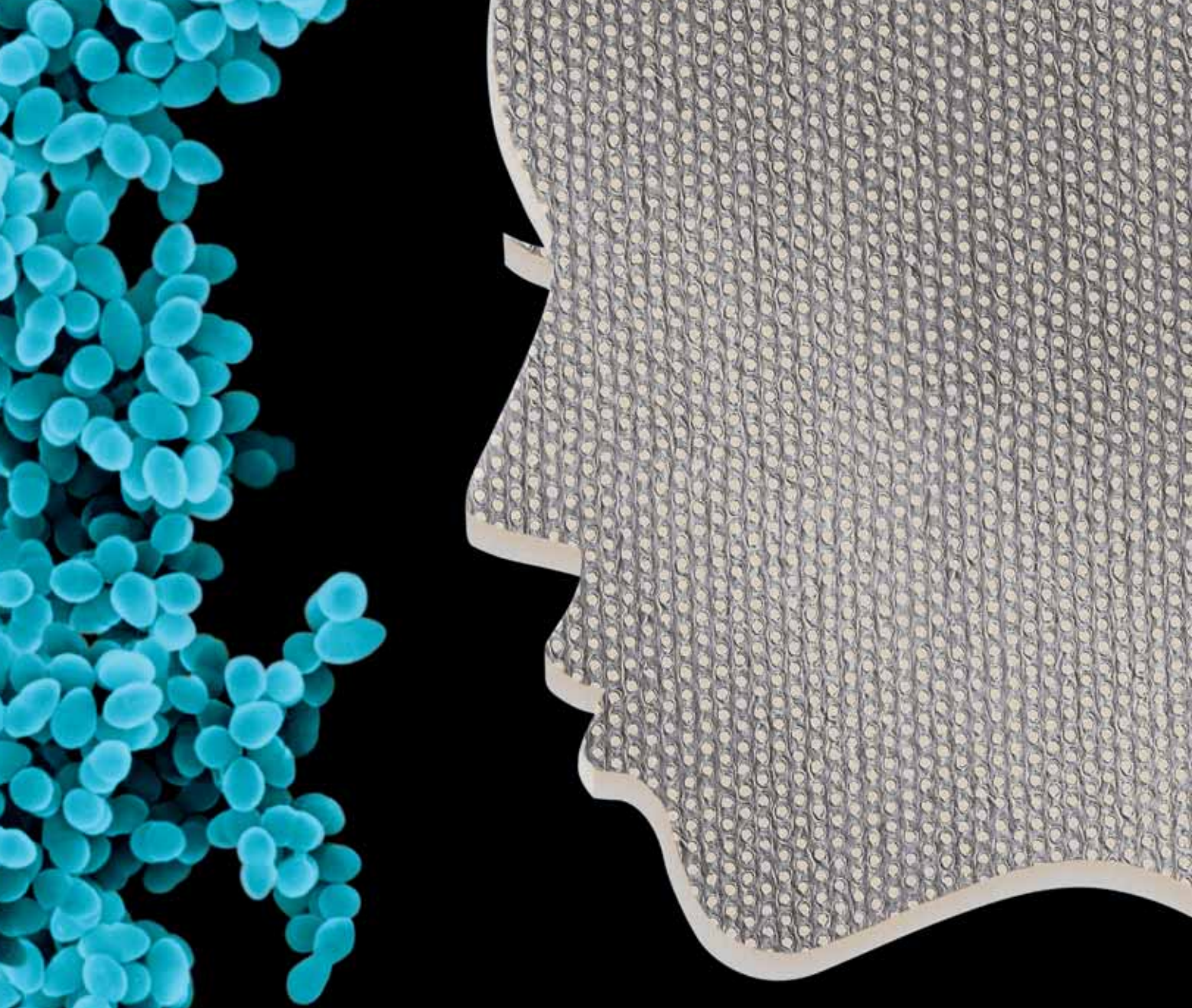
While SkinEquity™ cannot eliminate all pressure ulcers and threats of liability, it may help reduce the incidence of pressure ulcers and skin breakdown and, in turn, lead to a reduced costs and better patient outcomes.

Conclusion

Despite efforts by healthcare professionals to manage the effects of urinary and fecal incontinence on the skin, perineal dermatitis still affects many elderly patients. Effective preventive skin care, which yields fewer pressure ulcers, takes only a few minutes a day to provide and equates to higher levels of patient dignity and comfort as well as positive clinical, emotional, and financial outcomes. The CMS, like other insurers, is demanding more accountability from providers; an effective prevention program may help facilities improve patient outcomes avoid potential fines, and enhance its reputation in the community. Clinicians must rise to the challenges of preventive care, building a strong foundation with the understanding that skin care products are not created equal. Skin knows the difference.

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