In 2010, an international consensus conference was held to review current evidence regarding the pathology, prevention, and management of incontinence-associated dermatitis (IAD). The results of this literature review were published in a previous issue of this Journal. This article summarizes key consensus statements agreed upon by the panelists, evidence-based guidelines for prevention and management of IAD, and a discussion of the major challenges currently faced by clinicians caring for these patients. The panelists concur that IAD is clinically and pathologically distinct from pressure ulcers and intertriginous dermatitis, and that a consistently applied, structured, or defined skin care program is effective for prevention and management of IAD. They also agreed that differential assessment of IAD versus pressure ulceration versus intertriginous dermatitis remains a major challenge. Panel members also concur that evidence is lacking concerning which products and protocols provide the best outcomes for IAD prevention and treatment in individual patients. Issues related to differential assessment, product labeling and utilization, staff education, and cost of care are the primary focus of this article.

Report of Consensus Conference on Incontinence-Associated Dermatitis: Clinical Implications

In 2010, an international consensus conference was convened to review the current evidence base regarding prevalence, pathology, prevention, and management of incontinence-associated dermatitis (IAD). The results of the literature review have been reported previously.1 Consensus statements from that article are summarized in Box 1. This article provides a summary of evidence-based guidelines for prevention and management of IAD, addresses current challenges in the assessment and management of IAD, and reviews implications for practice and research.

IAD is a prevalent condition with significant negative impact; it is painful, it places the patient at increased risk for secondary infection and for pressure ulcer development, and it can be costly and difficult to treat. Fortunately, the increased recognition of IAD has led to additional research focusing on strategies for prevention and management, design and validation of assessment tools, and development of IAD-related products. While additional research is needed to determine specific elements of an evidence-based practice guideline for prevention and treatment of IAD, existing evidence supports implementation of a defined or structured skin care regimen that incorporates consistent and appropriate use of cleansers, moisturizers, and skin protectants.1,2

Evidence Gaps

Despite progress in recognition, prevention, and management of IAD, significant gaps remain in both our evidence base and current practice that have implications for future...
research, caregiver education, and classification and use of products for IAD prevention and management. Gaps identified during the consensus conference included (1) differential assessment of IAD, intertriginous dermatitis (ITD), and pressure ulcers; (2) appropriate classification and use of products for prevention and management of IAD; (3) the critical importance of caregiver education, to include knowledge deficits to be addressed and potential strategies for providing this education; and (4) direct and indirect costs of IAD treatment and prevention.

**Differential Assessment**

For many years clinicians made no attempt to differentiate between lesions caused by moisture or pressure and friction (top-down lesions) and those caused by pressure and shear (bottom-up injuries). As a result, moisture-related lesions were classified as superficial (stage II) pressure ulcers. In the last 2 revisions of the pressure ulcer staging system, the National Pressure Ulcer Advisory Panel (NPUAP) added a caveat to the definition of stage II ulcers: “This category should not be used to describe skin tears, tape burns, IAD, maceration, or excoriation.”1,4 This statement reflects the growing consensus that differentiation between pressure ulcers and other types of lesions, such as moisture-related lesions, is clinically necessary.

One challenge in the assessment and management of IAD is the accurate differential classification of IAD versus other forms of moisture-associated skin damage, specifically intertriginous dermatitis, versus a stage I or stage II pressure ulcer.4,5 As noted in the literature review summarized by Gray and colleagues,1 IAD is frequently misclassified as a pressure ulcer despite the fact that IAD is not caused by ischemia; studies indicate poor agreement among clinicians in terms of differential classification of pressure ulcers and moisture lesions such as IAD. In 2006, DeFloor and colleagues6 evaluated interrater reliability of nurses when categorizing pressure ulcers and differentiation of pressure ulcers versus IAD based on photographs. Four hundred seventy-three nurses assessed 56 photographs and classified each wound as “normal skin,” “blanchable erythema,” “pressure ulcer grade 1, 2, 3, or 4,” or “incontinence lesion.” The overall kappa was 0.37, and the investigators noted that incontinence lesions were frequently classified incorrectly.6 Beeckman and colleagues7 conducted a large study involving 1452 nurses in 5 European countries, using photographs of normal skin, blanchable erythema, each grade/stage pressure ulcer, moisture lesions, and combined lesions. They reported that only 22% of the moisture lesions were classified accurately although accuracy was slightly higher among experienced nurses and those who had attended wound care training programs. In a separate study, Beeckman and associates8 evaluated baseline accuracy in pressure ulcer classification and compared an e-learning program and a 1-hour lecture in terms of improved accuracy. Their sample included 212 nurses and 214 senior nursing students. Preintervention scores revealed low accuracy in classification; scores improved significantly following educational intervention. The levels of agreement prior to the educational program are consistent with those of Mahoney’s group,9 who conducted a study in the United States evaluating the level of agreement among WOC nurses when asked to classify pressure, moisture and mixed wounds, and pressure lesions based on photographs; they reported an overall kappa score of 0.1708.

**Summary of Consensus Statements From the Incontinence-Associated Dermatitis (IAD) Consensus Conference**

IAD is now the accepted term for skin damage caused by exposure to stool or urine.

Variability in reported prevalence and incidence rates of IAD may be attributable to differences in care setting, the prevalence and character of the underlying incontinence (urine, fecal double urinary, and fecal incontinence), and lack of a fully developed assessment tool to measure IAD.

Clinical observation and histopathologic analysis suggest that IAD is the result of “top-down” injury.

The major etiologic factors for IAD are exposure to urine or stool, with liquid stool identified as a particularly potent irritant.

Factors contributing to the development and severity of IAD include high levels of *Staphylococcus aureus* or *Candida albicans*

The role of absorptive products in the pathogenesis of IAD is not well understood. The use of occlusive absorptive products has been associated with an increased likelihood of IAD; the use of modified products that provide enhanced water vapor transmission may reduce the risk of IAD.

Differential assessment of IAD, pressure ulcers, and other forms of skin damage is difficult for both staff nurses and wound care nurses; accuracy in differential assessment is positively impacted by education and by the use of structured differential assessment tools.

There is a dearth of evidence regarding best regimens for prevention and treatment of IAD, although most studies do support consistent use of a well-defined skin care regimen.

Current clinical consensus supports the following as key components of an effective program for IAD prevention:

- Gentle cleansing with a no-rinse cleanser with pH range similar to normal skin.
- Moisturization to maintain normal levels of intercellular lipids and the skin’s normal barrier function.
- Application of moisture barrier product (petrolatum-based, dimethicone-based, zinc oxide-based, or liquid film-forming acrylics).

- From Gray et al.1

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**BOX 1.**

**Summary of Consensus Statements From the Incontinence-Associated Dermatitis (IAD) Consensus Conference**

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<thead>
<tr>
<th>Statement</th>
<th>Details</th>
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<tbody>
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Houwing and associates\textsuperscript{11} suggest that accurate distinction between IAD and pressure-induced ulcers is neither feasible nor important. However, members of the IAD consensus document concur that misclassification is a problem, for several reasons: (1) effective treatment of any type of skin breakdown must include correction of etiologic factors, and measures to protect against prolonged pressure are quite different from those designed to correct exposure to urine and stool; (2) misclassifying IAD as a pressure ulcer increases the agency’s risk for litigation, since pressure ulcers are now considered to be medical errors; (3) misclassification of IAD lesions as pressure ulcers compromises the integrity and validity of prevalence and incidence data and makes meaningful benchmarking impossible; and (4) incorporation of IAD lesions in pressure ulcer prevalence data prevents accurate measurement of the prevalence and incidence of both conditions and does not allow comparison of data for benchmarking purposes.\textsuperscript{10}

Given differences in etiology and pathophysiology, accurate classification of IAD versus pressure ulceration appears straightforward on initial consideration. Pressure ulcers are ischemic lesions, caused by tissue and vessel deformation that leads to progressive tissue hypoxia and death. Pressure ulcers are characterized as bottom-up injuries, because they originate in deep tissue layers and progress toward the surface.\textsuperscript{10,12} They typically present as full-thickness wounds located over bony prominences or under medical devices, are characterized by significant tissue necrosis and tissue loss, and are often associated with undermining and tunneling.\textsuperscript{2,13,14} In contrast, IAD is an inflammatory response to prolonged exposure of the skin to stool and/or urine; the lesions are characterized as top-down injuries that initially present as erythema of intact skin but may progress to vesicle formation and epidermal loss, especially when the area is also exposed to friction.\textsuperscript{7,15,16} Thus the location, depth, and characteristics of pressure ulcers and IAD differ considerably; Table 1 highlights these differences.

So why is accurate classification of IAD lesions and pressure ulcers such a challenge? Several factors contribute to the difficulty clinicians experience when classifying lesions as IAD or pressure ulcer. Many patients who are at risk for IAD are also at risk for pressure ulcer development; indeed, some patients are very likely to have mixed etiology lesions. Another is the fact that both stage 1 pressure ulcers and mild to moderate IAD present clinically as erythema of intact skin, even though the underlying etiologic factors differ. The erythema associated with stage 1 pressure ulcers represents an inflammatory response to ischemic damage involving the subdermal tissues, while the erythema associated with IAD represents an inflammatory response to irritant exposure that is confined to the epidermis and dermis. A lesion that is exposed to both pressure and stool or urine presents a diagnostic dilemma, because visual inspection and palpation may not allow the clinician to accurately determine the depth of the injury and magnitude of inflammation. In these cases, clinical experience suggests that assessment of the lesion’s blanchability may help clarify etiology. Wounds that are associated with a pressure/shear etiology are characterized by nonblanchable erythema. Therefore, the clinician can be taught to gently press on the erythematous area to determine whether or not it blanches. Lesions that do not and are located over a bony prominence should be classified as a stage 1 pressure ulcer.\textsuperscript{1} Adequate environmental lighting and clear exposure of the involved area are critical to accurate assessment of erythema and determination of blanchability. Skin pigmentation also influences assessment accuracy; erythema is especially difficult to detect in

\begin{table}
\centering
\begin{tabular}{|l|l|l|l|}
\hline
 & Pressure Ulcer & IAD & ITD \\
\hline
Location & Over bony prominence or under medical device & Perineum; perianal area; inner thighs; buttocks & Integumental cleft \\
Associated factors & Reduced mobility & Urinary and/or fecal incontinence & Groin creases; Diaphoresis \\
 & May have reduced sensory awareness & & \\
Depth & Initially may present as stage I or sDTI; ultimately usually full thickness (III/IV) & Usually partial thickness & Usually partial thickness, at least initially \\
Shape/distribution & Typically round; if shear involved, may be oval/elongated; distinct borders & Irregular and indistinct borders common & Linear break in skin \\
Associated findings & May have necrotic tissue; may have undermining or tunneling & Surrounding skin typically macerated & Surrounding skin frequently macerated \\
\hline
\end{tabular}
\caption{Differential Classification of Pressure Ulcers, Incontinence-Associated Dermatitis (IAD), and Intertriginous Dermatitis (ITD)}
\end{table}

Abbreviations: IAD, incontinence-associated dermatitis; ITD, intertriginous dermatitis.
darkly pigmented skin. In this case, accurate assessment requires palpation of the tissue to determine changes in firmness or temperature.

Partial-thickness skin loss also may result in confusion with differential classification of IAD versus pressure ulcers. Pressure ulcers are ischemic lesions that begin in the deep tissue layers and progress toward the surface, and partial-thickness lesions represent epidermal loss with preservation of dermal and underlying tissue layers. Therefore, it seems unlikely that partial-thickness lesions represent pressure-induced injuries. Nevertheless, stage II pressure ulcers are defined as “partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough [that]… may also present as an intact or open/ruptured serum filled or serosanguinous filled blister.”

Differentiation between IAD and intertriginous dermatitis also may lead to confusion in classification. Intertintiginous dermatitis is defined as skin damage caused by trapped perspiration and frictional forces between opposing skin surfaces and typically presents as inflammation and linear lesions occurring at the base of skin folds (eg, beneath the pannus, underneath pendulous breasts, or in the groin crease). It involves skin damage from internally produced moisture (perspiration); thus, prevention and management of these lesions involves strategies to wick moisture away from skin creases and to keep the skin dry and supple. In contrast, IAD involves skin damage caused by exposure to external moisture sources, specifically stool and urine, and management involves the use of skin protectant products.

Tools that may aid clinicians in the accurate classification of IAD and ITD versus pressure ulcers include diagnostic instruments designed to detect early changes in the skin layers and soft tissues that correspond to superficial and deep tissue damage. Bates-Jensen and colleagues used electrical capacitance testing to evaluate subepidermal moisture content (SEM) as a predictor of pressure ulcer development, especially in patients with darkly pigmented skin. In their pilot testing, higher SEM levels were associated with PU development, but no instrument for clinical measurement of SEM measurement is currently available. Andersen and Karlsmark evaluated 4 diagnostic instruments for their ability to detect pressure ulcer development, especially in patients with darkly pigmented skin. The Thermographic Imaging System (Wound Vision, Indianapolis, Indiana) has also been investigated for its ability to detect pressure damage to tissue before ulceration occurs. The device employs infrared thermography to visualize the skin and subcutaneous tissue. This instrument is newly available to clinicians but not yet widely used. Additional research is needed to determine its role in early detection of pressure injury to subcutaneous tissue.

Despite progress in the development of technologic aids to early diagnosis, clinicians currently must rely on visual and palpatory assessment of damaged skin to determine probable etiology. In addition, limited tools are available to aid clinicians in reliably differentiating pressure/shear injuries from moisture-related lesions such as IAD and ITD. The European Pressure Ulcer Advisory Panel (EPUAP) developed and published a guidance document titled “Pressure Ulcer Classification: Differentiation Between Pressure Ulcers and Moisture Lesions.” This document provides a chart that compares pressure ulcers,
moisture lesions, and mixed lesions in terms of causative factors, location, shape of the lesion, anatomic depth of the lesion, presence of necrosis, edge characteristics, and color of the lesion and surrounding skin.

Guidelines for differential assessment and classification of IAD and pressure ulcers have been incorporated into EPUAP’s Pressure Ulcer Classification Self-Assessment Tool (PUCLAS). This document provides instruction to the clinician along with a self-evaluation exercise designed to improve skills classifying (grading) pressure ulcers and differentiating pressure ulcers from moisture lesions. Beeckman and colleagues23 conducted a randomized controlled trial to evaluate the efficacy of the PUCLAS tool in improving nurses’ ability to accurately differentiate between pressure ulcers and IAD. They enrolled 1217 nurses from 4 European countries. Participants were asked to classify 20 photographs as either IAD, pressure ulcer, or mixed etiology wound; the etiology of the wounds in the photographs were determined by unanimous consensus from a panel of wound care experts. Participants received no feedback regarding the accuracy of their baseline classifications. Following baseline data collection, participants allocated to the intervention group received education on differential assessment that included lecture, PowerPoint photos, video, and exercises. The control group received a 15-minute review of the various grades of pressure ulcers according to the EPUAP classification system. Participants were then asked to classify 40 photographs for etiology. Baseline classification accuracy was 44.5%, with no difference between the control and intervention groups. Nurses’ ability to accurately differentiate between IAD and pressure ulcers was improved significantly when results of the intervention group were compared to those of control subjects (70.7% vs 35.6%, P < .001).23 While the findings of this study provide evidence that PUCLAS is effective for differentiation of IAD versus pressure ulcers, the tool has not been widely disseminated in the United States. Instead, the only tool available in the United States for improving accuracy in wound classification is the NEOCS (N. E. One Can Stage, NE Solutionz, LLC, Las Vegas, Nevada). The effects of this tool were evaluated in a single pilot study that enrolled 101 clinicians who were asked to classify 10 wound photos accompanied by brief case descriptions.24 Young and colleagues24 reported that the NEOCS, combined with a 5-minute scripted education intervention, increased accuracy in pressure ulcer staging by 37.7%. The NEOCS is not yet widely available and its contribution to differentiating pressure ulcers from IAD has not been thoroughly evaluated.

### Implications for Research and Practice

These observations clearly illustrate that differential diagnosis of pressure ulcers, IAD, ITD, and mixed-etiology wounds has tremendous significance for the clinician. The consensus panel, therefore, strongly supports utilization of the PUCLAS tool or a comparable instrument to guide the clinician in differential assessment. Consistently accurate differential assessment requires agreement among clinicians regarding the pathology and presentation of pressure ulcers, IAD, ITD, and mixed lesions, and current data indicate that obtaining consensus on these issues will be a major challenge. Results of studies based in the United States and Europe1,4,9,10,25 consistently reveal that accurate classification remains a challenge. A consensus session sponsored by the WOCN Society revealed that inclusion of partial-thickness lesions in the NPUAP staging system for pressure ulcers contributes significantly to confusion among clinicians.25 Based on these findings, consensus panel members recommend that the WOCN Society and NPUAP collaborate on a consensus statement regarding guidelines and tools for differential assessment of pressure ulcers, IAD, ITD, and mixed etiology lesions.

### Product Selection and Classification

Effective prevention or management of IAD requires the appropriate use of incontinence care products, which requires the clinician to be knowledgeable regarding the various products and the indications, contraindications, and guidelines for their use. Clinicians have access to a robust range of products, variously labeled as cleansers, moisturizers, moisture barriers, skin protectants, moisture barrier pastes, and antifungals. The variety of available products indicates the availability of a product for almost all of the skin care problems commonly encountered by clinicians seeking to prevent and manage IAD. However, this variety may render it difficult for the bedside nurse to select the optimal product for a given patient. This challenge is exacerbated by a lack of consistency in product names and absence of a grading scale designed to aid clinicians when selecting products based on severity of IAD, irritant source, and presence of complications. For example, patients with dry, flaky, and rough-textured skin, those with macerated and overhydrated skin, persons with denuded skin, or patients with candidiasis require different products. The patient with very dry rough skin is best managed with a highly effective moisturizer that contains both emollients and humectants.26 Such a product would be inappropriate for a patient with macerated overhydrated skin. In this case, the clinician should select a nonocclusive emollient that softens the skin; the addition of a humectant is contraindicated in this case because it attracts further moisture to the area, exacerbating rather than alleviating maceration. Emollients and humectants are also not indicated for the patient with damaged denuded skin; this person requires a skin protectant that adheres to the moist damaged skin, and provides absorption of moisture. Finally, the patient with candidiasis requires a product with an effective antifungal agent. Selection of the best product in this case must be combined with the optimal delivery vehicle for the antifungal,
either a powder, cream, or ointment, depending on the presence of factors discussed earlier.

Consensus panel members identified 4 primary problems related to product labeling. Skin care products are classified and regulated by the US Food and Drug Administration based on the following 3 categories: (1) prescription products, such as topical antifungal preparations; (2) over-the-counter drugs such as zinc oxide protectant pastes; and (3) cosmetic products, including many of the moisturizing agents. The rules for labeling and the order in which ingredients are listed vary based on category. For example, inactive ingredients in over-the-counter drugs must be listed alphabetically, while the ingredients in cosmetic products must be listed in descending order of predominance.27 This makes direct product comparisons difficult. While 2 products appear similar based on the list of inactive ingredients, the relative amounts of these ingredients may significantly differ owing to the Food and Drug Administration classification and its effect on product labeling. In addition, many clinicians select skin care products based on the category listed on the front of the tube (eg, moisturizer, moisture barrier, etc) rather than individual ingredients. Product labels provide broad categories, but they may not provide sufficient information for clinical decision making. For example, to many clinicians, the term moisturizer means that the product adds moisture (water) to the skin, and they reason that such products are unnecessary or even inappropriate for an incontinent patient with overhydrated skin. However, the term moisturizer describes products that provide oils or dimethicone to replace lost lipids and slow transepidermal water loss.28,29 Clinicians may not understand the importance of replacing lost intercellular lipids when the skin is overhydrated. This confusion is increased because moisturizers may contain emollients, humectants, or both. Consensus panel members noted that many clinicians may be unaware of the difference between emollients and humectants, because these terms are primarily used by dermatologists and manufacturers rather than by nurses who typically deliver this care.

Similarly, the product category skin protectant (sometimes labeled moisture barriers) provides general guidance but does not substitute for consideration of individual ingredients. Some moisture barriers are occlusive and therefore contraindicated for overhydrated skin, while others (such as zinc oxide paste) are somewhat astringent and contraindicated for dry skin. Skin protectants also vary in the magnitude of protection from exposure to irritants, but we have inadequate evidence to rank these products based on their barrier function while preventing maceration of underlying skin. In addition, we have inadequate evidence to determine the effect of the concentration of active ingredients. For example, dimethicone is classified as a nonocclusive emollient and skin protectant, but some products contain 1% dimethicone, while others contain 3% or 5% dimethicone.

Because of these deficits in knowledge and clinical evidence, it is not surprising that product selection remains a challenge for clinicians when preventing and managing IAD. Failure to recognize IAD as a specific clinical diagnosis, combined with absence of clear guidelines for management, may lead to ineffective or inappropriate application of a variety of topical agents. This confusion is reflected in recommendations from multiple blogs and Web sites promoting a variety of questionable and unsubstantiated claims concerning the prevention and management of IAD or diaper dermatitis.30-32

General Recommendations

The consensus panel concurs that the solution to the challenges associated with the appropriate use of skin care products should be addressed by changes in product labeling and caregiver education. The panel recommends that industry leaders work together to standardize terminology and product classification. There is precedence for this approach; approximately 10 years ago, the NPUAP convened a task force charged with standardizing the language and criteria used to describe support surfaces such as overlays, mattresses, and chair cushions.33 Their work has revolutionized the way in which healthcare facilities evaluate and make product decisions related to support surfaces. More recently, the National Association for Continence has convened a task force to identify and define key performance characteristics for absorbent products.34 The panel believes that such an initiative could be equally beneficial in the arena of incontinence-related skin products.

The consensus panel recommends creation of standard definitions and performance characteristics for each skin care product category, including a pH-balanced no-rinse cleanser, emollient moisturizers, humectant moisturizers, moisture barrier/skin protectant, skin barrier paste, and antifungal skin protectant. When applicable, members further recommend that products list the concentration of key active ingredients (eg, dimethicone 3%) and pH range (eg, 5.5-6.0) on product labels.

Consensus panel members also advocate creation of educational materials that list commonly used ingredients in each category of products. It would be most beneficial to clinicians if it clearly indicated the primary purpose of each category and individual ingredient. For example, the document should indicate that a humectant (hydrating) moisturizer is indicated for treatment of rough dry scaly skin (xerosis) while an emollient (softening) moisturizer is indicated for maintenance of an intact skin barrier. Ideally, panel members recommend that these recommendations are added to individual product labels. In addition, the panel encourages the WOCN Society to consider publication of clinical guidelines for the use of various products that WOC nurses could use to educate their staff. The panel also asks that industry partners consider establishing a rating scale for selected products, much like the SPF factor...
used to indicate the level of protection provided by a specific sunscreen product. For example, a moisture barrier that has been proven resistant to liquid stool and repetitive cleansing episodes might be rated as “5” on a scale of 1 to 5. A rating scale might also be used to indicate the relative efficacy of various humectant moisturizers or astringent “paste” products. The panel acknowledges that promulgation of such a rating scale will require development of objective testing measures and individual product testing. In addition to the general recommendations listed earlier, specific recommendations pertaining to product categories are listed in Table 2.

**Skin cleansers**

Soap and water cleansing using a washcloth and bath basin are associated with multiple infection control issues as well as increased risk of skin damage. Studies indicate that no-rinse cleansers are just as effective as soap and water in reducing bacterial counts on the skin, and clinical consensus now supports no-rinse nonionic “pH-balanced” cleansers and soft disposable washcloths as a preferred approach to cleansing following an incontinent episode. However, the meaning of the term “pH-balanced” is ambiguous; it is meant to imply that the product has a pH consistent with the acid mantle of healthy skin (5.5), but some clinicians interpret the term as indicating a neutral pH (7.0) and others are unsure of the term’s meaning. Therefore, consensus panel members suggest a standardized definition of pH-balanced, coupled with a label that states the pH range of that product.

While the use of pH-balanced cleansers and soft washcloths is clearly preferable to soap and water cleansing, panel members acknowledged limitations to this approach. Specifically the clinician must first cleanse the skin and then must apply a protectant product, which requires an additional product and cost. Consensus panel members also noted that while cleansing is consistently provided in clinical practice, application of moisturizers or a skin protectant product is not consistent, possibly due to lack of knowledge, access to appropriate products, or lack of time. Therefore, the panel recommends the use of a disposable cloth impregnated with both acidic no-rinse cleansers and with a protectant such as dimethicone. This recommendation is consistent with Institute for Healthcare Improvement guidelines for pressure ulcer prevention that advocate the use of a disposable cloth with cleansers and moisturizers when caring for patients with urinary or fecal incontinence. This approach is also consistent with a Belgian study comparing the incidence of IAD among patients managed with soap and water cleansing and those managed with the impregnated disposable cloth containing both cleansers and protectants. In this study, the incidence among the soap and water group was 27.1% as compared to 8.1% in the treatment group ($P = .003$).

**Moisturizers**

Products labeled as moisturizers typically contain emollients, which are designed to promote moisture barrier function by replacing intercellular lipids and slowing water loss from the skin. The water content of healthy epidermis is approximately 10%; when it falls below this level, the skin becomes rough and flaky, rendering it more vulnerable to friction and penetration by irritants such as stool and/or urine. Moisturizers are available as “stand-alone” products, but they are also incorporated as ingredients in most perineal and incontinence cleansers and disposable cleansing wipes. Since studies indicate that stand-alone moisturizers may not be used consistently, the panel recommends the use of products that combine a cleanser and a moisturizer-based moisturizer.

Moisturizers may also contain humectants, which are designed to treat extremely dry skin by attracting and holding water within the skin cells. High concentrations of humectants are not appropriate for hyperhydrated skin; thus, the panel members recommend clear labeling of the level of humectant (hydrating) moisturizers to prevent inappropriate use.

**Skin protectants**

Skin protectants, also referred to as moisture barriers or occlusive moisturizers, provide a protective film that protects the skin against penetration by chemical irritants and pathogens contained in stool and urine. These combination products are available either as stand-alone products or as an ingredient in disposable cleansing wipes. Evidence suggests that a disposable wipe that combines a cleanser, moisturizing agent, and skin protectant is more effective for prevention of IAD than a skin care regimen combining neutral soap and water. Therefore, the Consensus Panel recommends use of combination cleansing-moisturizing-protectant wipes for prevention of IAD when feasible. Because barrier products vary significantly in the level of protection provided (based on the ingredients), the panel recommends that the industry consider labeling that indicates degree of efficacy/protection.

**Implications for Education**

Education regarding prevention and management of IAD is a high priority; enhanced knowledge is key to accurate differential assessment of IAD and to implementation of appropriate preventive care and management protocols, including the appropriate use of available products. Thus, it is important to consider the current level of knowledge and education related to IAD, barriers to IAD care that must be overcome, aspects of IAD prevention and management that represent “essential information,” and effective strategies for providing the needed information.

While there are no available studies specifically addressing nurses’ knowledge related to IAD, observations that both staff and wound care nurses frequently
### TABLE 2.

**Prevention and Treatment Incontinence-Associated Dermatitis (IAD) via a Defined Skin Care Regimen Product Selection**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>SORT Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A consistently applied, defined, or structured skin care regimen is recommended for prevention and treatment of IAD.</td>
<td>A</td>
</tr>
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</table>

#### Product Selection

- Skin care products used for prevention or treatment of IAD should be selected based on consideration of individual ingredients in addition to consideration of broad product categories such as cleanser, moisturizer, or skin protectant.  
- Select a pH-balanced skin cleanser (one whose pH range approximates the acid mantle of healthy skin).  
- No rinse skin cleansers are preferred over towel drying.  
- Gentle cleansing is preferred over scrubbing techniques; use a soft cloth to minimize friction damage.  
- Routine use of a moisturizer is recommended to replace intercellular lipids and promote moisture barrier function of the skin.  
- A moisturizer or combination product with a high concentration of humectants is not recommended for hyperhydrated skin.  
- A moisturizing product or combination product with an emollient moisturizer is recommended to prevent IAD in intact skin.  
- A product that combines a cleanser and emollient-based moisturizer ensures application of both products in a single step.  
- A skin protectant or disposable cloth that combines a cleanser, emollient-based moisturizer, and skin protectant is recommended for prevention of IAD in persons with urinary or fecal incontinence and for treatment of IAD, especially when the skin is denuded.  
- Commercially available skin protectants vary in their ability to protect the skin from irritants, prevent maceration, and maintain skin health. Additional research is needed to establish a benchmark for measuring various skin protectants’ ability to block exposure to a specific irritant, maintain hydration of underlying skin, and prevent maceration.

#### Timing

- Cleansing should occur as soon as possible following an episode of incontinence to limit contact with urine and stool.  
- Timely cleansing, moisturizing, and application of a skin protectant are especially important following an episode of fecal incontinence.

#### Treatment

- Treatment of IAD includes consistent application of a defined skin care regimen based on principles of cleansing, moisturizing, and application of a skin protectant similar to those advocated for prevention of IAD.  
- Antifungal products should be used only when a cutaneous fungal rash is present; they are not recommended for routine treatment of IAD.  
- Steroidal-based topical anti-inflammatory products should not be used for routine treatment of IAD.  
- Topical antimicrobials should not be used for the routine treatment of IAD.  
- Patients who do not respond to treatment within 2 weeks should be referred for additional evaluation.  
- Atypical presentations of IAD should be referred for additional evaluation and treatment.

#### Supporting interventions for prevention and treatment

- When used correctly, absorptive or containment products may aid in the prevention of IAD.  
- In selected cases, urine or stool may be transiently diverted from the skin via an indwelling device such as a urinary catheter or indwelling fecal diversion system to restore or maintain skin integrity.  
- Referral to a continence specialist should be considered for assessment and treatment of the underlying incontinence.

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*aStrength of Recommendation (SORT) grades are based on the following taxonomy*:  
A: recommendation based on consistent, good-quality patient-oriented evidence evaluating clinical outcomes, symptom improvement, impact on quality of life, and costs.  
B: recommendation based on inconsistent or limited-quality patient-oriented evidence.  
C: recommendation based on consensus among experts, disease-oriented evidence, or case series studies.
misclassify IAD as pressure ulcers and the confusion regarding appropriate use of available products reflect a clinically relevant knowledge deficit.9-10 While incontinence management is included in most nursing texts, the focus on prevention and management of IAD is usually limited and frequently subsumed under pressure ulcer prevention. This is somewhat understandable since most education and focus on preventive skin care has been concentrated on pressure ulcers; IAD has sometimes been treated as a much lesser problem. However, there is increasing evidence that macerated skin and IAD significantly increase the risk for pressure ulcer development.45-47 In addition, IAD can be painful. Thus, we need to broaden clinicians’ focus on prevention to include all types of skin damage, including IAD.

For both professional and lay caregivers, incontinence is frequently a taboo subject, associated with embarrassment and disgust; this is particularly true of fecal incontinence. Thus, most caregivers try to minimize the time spent providing or focusing on management of incontinence; Consensus panel members speculate that this may contribute to the dearth of research and education related to IAD. Consensus panel members based in the Europe and the United Kingdom observed that this avoidance behavior extends to specialty nurses; they note that nurses specializing in both stoma management and incontinence care prefer to focus on stoma care.

When considering care of the incontinent individual, many caregivers focus primarily on containment (a caregiver concern) and voice little awareness of the issues related to skin protection until breakdown has already occurred. Even at that point, many caregivers are unaware that IAD is painful and that each incontinent and cleansing episode is associated with further pain and with embarrassment. Thus, a very critical aspect of caregiver education is to sensitize them to the impact of incontinence and IAD on the patient. Statistics can be used to convey the prevalence and significance of the problem, but it is also essential to educate caregivers more about the impact of IAD on comfort and dignity.46

When planning an educational intervention, Consensus panel members recognize the need to identify essential information that forms a framework for presentations, handouts, and protocols. Unfortunately, a literature search retrieved no studies that identified essential knowledge related to prevention and management of IAD. As a result, panel members’ recommendations are based on our collective experience as clinicians and educators. The consensus panel recognizes that clinical practice patterns and availability of continence care experts vary from country to country and from setting to setting. Thus, the panel has identified educational content that we consider to be essential for all levels of caregivers, and a second level of content that is critical for continence care experts or for the clinical leaders in a setting where there is no continence expert (Box 2).

The continence expert or clinical nursing leader obviously must be knowledgeable in all of these areas; however, this clinician must also be skilled in the differential assessment of pressure ulcers, IAD, and mixed etiology lesions. In addition, the clinical expert/leader needs an in-depth understanding of the various products used for IAD prevention and management (in order to make appropriate product decisions for the agency, and also as a basis for developing guidance documents and protocols to be used by the bedside caregivers).

Although few studies focusing on IAD education were identified, Consensus panel members concur that a primary goal of education is to promote the integration of current best evidence into practice. Several studies have demonstrated that clearly defined evidence-based guidelines and algorithms are effective in promoting appropriate clinical decision-making for a wide variety of clinical conditions.49-51 Beeckman and colleagues have demonstrated the efficacy of the PUCLAS tool in improving accuracy in IAD assessment. Haslinger-Baumann and colleagues52 report similar findings in the area of IAD prevention and management; they developed a practice guideline based on a literature review and used this guideline as a basis for educating staff and advancing practice in both the acute care and long-term care settings.

A promising tool for educating staff and guiding practice is the IAD-IT (Incontinence Associated Dermatitis Intervention Tool).53 This tool was designed by Junkin53 to promote accuracy in assessment and management; the tool provides a pictorial guide that allows clinicians to “match” their patients’ clinical presentation to photographs depicting “early IAD,” “moderate IAD,” “severe IAD,” and “fungal appearing rash” (Figure 1). The tool then provides guidance to the clinician as to appropriate management. The panel believes that such a tool has the potential to assist clinicians to translate “evidence-based guidelines” into actual practice. Initial studies have been
# Incontinence-Associated Dermatitis Intervention Tool (IADIT)

## Skin Care for Incontinent Persons

<table>
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<th>Definition</th>
<th>Intervention</th>
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| **HIGH-RISK** | Skin is not erythematous or warmer than nearby skin but may show scars or color changes from previous IAD episodes and/or healed pressure ulcer(s). Person not able to adequately care for self or communicate need and is inconsistent of liquid stool at least 3 times in 24 hours.  

1. Use a disposable barrier cloth containing cleanser, moisturizer, and protectant. 

2. If barrier clothes not available, use absorbent diaper (6.5 or lower), 

not soap (is too alkaline); clean gently soap for a minute or two—no scrubbing; and apply a protectant (ix: dimethicone, liquid skin barrier or petrolatum). 

3. If briefs or underpads are used, allow skin to be exposed to air. 

4. Maintain the cause of incontinence: a) Determine why the person is incontinent. Check for urinary tract infection; b) Consider timed voiding or a bladder or bowel program; c) Refer to incontinence specialist if no success. |

**EARLY IAD** | Skin exposed to stool and/or urine is dry, intact, and not blistered, but it is pink or red with diffuse (not sharply defined), often irregular borders. In darker skin tones, it might be more difficult to visualize color changes (white, yellow, very dark red/purple) and palpation may be more useful. Palpation may reveal a warmer temperature compared to skin not exposed. People with adequate sensation and the ability to communicate may complain of burning, stinging, or other pain. 

1. Include treatments from box above plus: 

5. Consider applying a zinc oxide-based product for weepy or bleeding areas 3 times a day and whenever stinging occurs. 

6. Apply the ointment to a non-adherent dressing (such as anorectal dressing for chest, Telfa for flat areas, or ABD pad for larger areas) and gently place on injured skin to avoid rubbing. Do not use tape or other adhesive dressings. 

7. If using zinc oxide paste, do not scrub the paste completely off with the next cleaning. Gently soak stool off and then apply new paste covered dressing to area. 

8. If denuded areas remain to be healed after inflammation is reduced, consider BTC ointment (balsam of peru, tussipia, castor oil) but remember balsam of peru is pro-inflammatory. 

9. Consult WOCN if available. |

**MODERATE IAD** | Affected skin is bright or angry red – in darker skin tones, it may appear white, yellow, or very dark red/purple. Skin usually appears shiny and moist with weeping or pinpoint areas of bleeding. Raised areas or small blisters may be noted. Small areas of skin loss (dime size) if any. 

This is painful whether or not the person can communicate the pain. 

1. Include treatments from box above plus: 

5. Consider applying a zinc oxide-based product for weepy or bleeding areas 3 times a day and whenever stinging occurs. 

6. Apply the ointment to a non-adherent dressing (such as anorectal dressing for chest, Telfa for flat areas, or ABD pad for larger areas) and gently place on injured skin to avoid rubbing. Do not use tape or other adhesive dressings. 

7. If using zinc oxide paste, do not scrub the paste completely off with the next cleaning. Gently soak stool off and then apply new paste covered dressing to area. 

8. If denuded areas remain to be healed after inflammation is reduced, consider BTC ointment (balsam of peru, tussipia, castor oil) but remember balsam of peru is pro-inflammatory. 

9. Consult WOCN if available. |

**SEVERE IAD** | Affected skin is red with areas of denudement (partial-thickness skin loss) and oozing/blooding. In dark-skinned persons, the skin tones may be white, yellow, or very dark red/purple. Skin layers may be stripped off as the oozing protein is sticky and adheres to any dry surface. 

1. Include treatments from box above plus: 

10. Position the person supine BID to expose affected skin to air. 

11. Consider treatments to reduce moisture: low air loss mattress/overlay, more frequent turning, antiseptics such as Domeboro soaks. 

12. Consider the air flow type underpads (without plastic backing). |

**FUNGAL-APPEARING RASH** | This may occur in addition to any level of IAD skin injury. Usually spots are noted near edges of red areas (white, yellow, or very dark red/purple areas in dark-skinned patients) that may appear as pimples or just flat red (white or yellow) spots. Person may report itching which may be intense. 

Ask primary care provider to order an anti-fungal powder or ointment. 

Avoid creams in the case of IAD because they add moisture to a moisture damaged area (main ingredient is water). In order to avoid resistant fungus, use zinc oxide and exposure to air as the first intervention for fungal-appearance rashes. If this is not successful after a few days, or if the person is severely immunocompromised, then proceed with the following: 

1. If using powder, lightly dust powder to affected areas. Seal with ointment or liquid skin barrier to prevent caking. 

2. Continue the treatments based on the level of IAD. 

3. Assess for thrush (oral fungal infection) and ask for treatment if present. 

4. For women with fungal rash, ask health care provider to evaluate for vaginal fungal infection and ask for treatment if needed. 

5. Assess skin folds, including under breasts, under penis, and in groin. 

6. If no improvement, culture area for possible bacterial infection. |

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**FIGURE 1.** Incontinence-associated dermatitis intervention tool.
done in Europe, demonstrating reliability of this tool, and further study is underway. The Consensus panel recommends additional testing among US clinicians and increased utilization of the tool in educational programs regarding prevention and management of IAD.

Effective staff education requires innovative strategies as well as clinically relevant tools; in many settings, it is unrealistic to expect significant numbers of staff nurses to attend a lecture-based educational event. Fortunately, findings of several studies indicate that eLearning strategies are equally effective and are actually preferred by some subsets of learners. eLearning programs that utilize active application of content to case study scenarios may be particularly effective for clinical conditions such as IAD.

**Cost**

We have limited data regarding the cost of various protocols for prevention and management of IAD. However, the annual estimated cost for skin conditions related to incontinence in the United States was $136.3 million in 1995, so it is clear that IAD is a costly condition. Panel members agree that a focus on prevention of IAD is indicated, from both an economic and quality-of-care standpoint. Palese and Carniel reported on the impact of a multidimensional quality improvement program involving both product modifications and intensive staff education on the incidence of IAD and the cost of care in a long-term care facility in Italy. The study involved 63 patients with incontinence, all of whom had IAD at baseline. Following a data collection phase, the authors introduced a new line of absorbent products that were designed to minimize hyperhydration of the skin, and a structured skin care program that incorporated a pH-balanced no-rinse cleanser and moisture barrier creams. In addition, continence nurse advisors provided a 3.5-hour educational program for the first-line caregivers (nursing assistants); they also provided input as to the best absorbent product for each patient and strategies for prevention and management of IAD and met with the nursing assistants weekly to discuss continence care issues. The incidence of IAD decreased from 100% at baseline to 31.7% following introduction of the new skin care program and absorbent products; the addition of education and consultation provided by the continence nurse advisors resulted in a further reduction (from 31.7% to 3.1%). The estimated annual cost of care was reduced by almost 50% (from £653.35 to £354.05 per resident). Eigsti reported on a similar approach to quality improvement in the United States. Nurses in a critical care unit used evidence-based protocols for IAD prevention along with intensive staff education. Eigsti reported improved clinical outcomes and reductions in nursing time required for incontinence care. These studies underscore the positive impact of evidence-based protocols coupled with intensive staff education.

Two US studies compared the cost of soap and water cleansing versus the use of a pH-balanced, no-rinse cleanser and found that the no-rinse product saved an average of 9 minutes per episode, resulting in a significant reduction in staff time and labor costs. In addition, recent evidence supports the use of pH-balanced no-rinse cleansers as being preferable to soap and water for prevention of IAD.

A limited number of studies have demonstrated both cost benefits and improved clinical outcomes related to simplified protocols with fewer steps and product decisions. Bale and colleagues evaluated savings in product costs and labor when a structured 2-step skin care protocol was compared to a nonstructured protocol and demonstrated both a statistically significant reduction in IAD incidence and associated costs. Warshaw and colleagues compared a 2-step skin care procedure (cleansing with either soap and water or an incontinence cleanser followed by application of a protective barrier) to a 1-step procedure, using a cleanser-protectant combination product. The 1-step procedure was associated with a reduction in nursing time and product costs as well as a reduction in skin pain and erythema. Clever and colleagues demonstrated similar outcomes; they found an 89% reduction in incidence of skin breakdown and an estimated annual savings of $3700 with the use of a one-step skin protection program (Comfort Shield, Barrier Cream Cloths, Sage Products, Cary, Illinois), as opposed to a “multistep” intervention program. Several studies have addressed the economic and clinical efficacy of a prevention protocol incorporating the use of a spray acrylate clear barrier film applied 3 times weekly (Cavilon, 3M, St Paul, Minnesota) as the moisture barrier, as opposed to petrolatum or zinc oxide–based ointments applied after each incontinent episode. The barrier film was found to be as clinically effective and more cost-effective in all studies, due in part to the significant difference in frequency of application.

While more studies are needed in the area of cost-effective IAD care, it seems evident that clearly defined protocols that minimize steps and time involved are both clinically effective and cost-effective. Additional research should focus on the comparative efficacy and cost of 1-step and 2-step systems for both prevention and treatment of IAD.

**Summary**

IAD is recognized as a clinical entity that is distinct from pressure ulcers and other forms of moisture-associated skin damage. Current evidence strongly suggests that a defined or structured skin care program is beneficial for prevention and management of IAD. Nevertheless, the existing evidence base remains sparse, and Consensus panel members identified a number of unresolved issues related to the assessment, prevention, and management of IAD. They include problems with differential assessment of IAD...
versus pressure ulcers, challenges related to appropriate product utilization, a lack of effective education for all levels of caregivers, and the need for care protocols that are cost-effective as well as clinically appropriate. The Consensus panel recommends a conference jointly sponsored by the WOCN Society and the NPUAP to develop consensus regarding parameters for differential assessment; wide dissemination and utilization of the PUCLAS tool or a similar instrument to guide differential assessment; clear labeling of continence care products to include product category, indications for use, and concentration of active ingredients; increased education for all caregivers that includes sensitization to the impact of IAD as well as current guidelines for prevention and management; use of a photographic tool such as the IAD-IT to guide appropriate management of IAD; increased research on the cost-effectiveness of various protocols for prevention and management of IAD; and a focus on simple protocols (1-step or 2-step) that provide both cost savings and time savings.

References


