

CARS

Coalition for At-Risk Skin



**New Consensus Statements
for At-Risk Skin**

Welcome to your Coalition for At-Risk Skin (CARS) — guide

This workbook is designed to provide an understanding of at-risk skin and how to help prevent future skin damage.

It includes 21 consensus statements agreed upon by a group of experts from across the continuum of care.

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Meet the Experts

Co-Chairs

Melissa Morgan, MSN, RN, CWCN — Senior Director of Training, Clinical Implementations & Wound Care, Scion Health/Kindred Hospitals

Catherine Milne, APRN, MSN, ANP/ACNS-BC, CWOCN-AP — Co-Owner of Connecticut Clinical Nursing Associates

Members

Edna Atwater, BSN, RN — Consultant, Duke University Department of Dermatology

Martha R. Kelso, RN, LNC, HBOT — Chief Executive Officer of Wound Care Plus, LLC

Diane L. Krasner, PhD RN FAAN FAWC MAPWCA — Wound & Skin Care Consultant

Joanne M. Labiak, MSN, CRNP, CWOCN, CWS, DAPWCA — Owner of Certified Wound Care Specialists, LLC

Jeanine Maguire, MPT, CWS — Vice President, Skin Health and Wound Management Integrations, Genesis HealthCare

Noreen Heer Nicol, PhD, RN, FNP, NEA-BC — Associate Professor Emerita, former Associate Dean of Academic Programs, University of Colorado, College of Nursing, Anschutz Medical Campus

Monica Timko-Progar, BSN, RN, ET, CWS, FACCWS — Corporate Sr. Director of Wound Care Practice for Amedisys Home Health and Hospice Care

Facilitator

Tom Clopp, BSEd, MEd — National Market Sales Director — Skin Health for Medline Industries, LP

Introduction

Preventative skin care, which includes cleansing, moisturization and protection of the skin, is extremely important for all individuals and especially those that are at risk for skin breakdown.¹

- » Limited data and recommendations are available for certain skin conditions.²
- » Overall, there is a lack of guidance and evidence-based recommendations to address the needs of at-risk skin.

Preventative skin care, which includes cleansing, moisturization and protection of the skin, is extremely important for all individuals and especially those that are at risk for skin breakdown.¹ Limited data and recommendations are available for certain skin conditions.² Overall, there is a lack of guidance and evidence-based recommendations to address the needs of at-risk skin.

To address these issues, **a panel of nine skin health experts, the Coalition for At-Risk Skin (CARS)**, was assembled. Panel members represent different specialties, care settings and experience. Additional panel members and a review board will be selected in the future to reflect greater diversity.

A working session of the panel took place on November 11, 2021, in Charlotte, North Carolina, with several members attending virtually. **Goals of the session included addressing the current status of skin care and defining at-risk skin.** Discussions included existing strategies for at-risk skin care, including preventative skin care measures, types of skin care products, their ingredients and intended uses. The panel members also reviewed organizational approaches and educational resources related to at-risk skin practices.

Prior to the meeting CARS members reviewed current literature related to the topic. Members submitted an aggregate of 24 consensus statements for review by the entire group. Seven out of nine votes (80%) were required to approve each consensus statement. During the session, each statement was reviewed independently. 100% consensus was reached by all nine panel members. Three of the 24 original statements were deemed not to qualify as consensus statements and the information was incorporated into the upcoming publication. **The expert panel unanimously approved 21 consensus statements during the working session. The 21 evidence based consensus statements were broken down into 7 categories.**

This document highlights the current challenges in caring for the at-risk skin population and recommendations of the expert panel. A journal supplement titled: **“At-Risk Skin: 21 Consensus Statements from the Coalition for At-Risk Skin (CARS)”** is in development and will be published. Future work of CARS will include, but is not limited to, the development of educational tools, programs, resources and additional recommendations.

Definition of At-Risk Skin

1 **At-risk skin is defined as** the potential for impaired barrier function of the skin due to associated intrinsic or extrinsic risk factors, conditions and co-morbidities.

Risk factors associated with at-risk skin*

<input type="checkbox"/> Advancing age > 65 years	<input type="checkbox"/> Lack of quality sleep
<input type="checkbox"/> Anticoagulant use	<input type="checkbox"/> Malnutrition and dehydration
<input type="checkbox"/> Atopic dermatitis	<input type="checkbox"/> Mobility
<input type="checkbox"/> Cognitive impairment	<input type="checkbox"/> Moisture-Associated Skin Damage (MASD)
<input type="checkbox"/> Dependent/assistance needed for activities of daily living	<input type="checkbox"/> Open wounds or fistulae with drainage
<input type="checkbox"/> Drug/alcohol/tobacco use	<input type="checkbox"/> Physical stress
<input type="checkbox"/> Eczema	<input type="checkbox"/> Polypharmacy
<input type="checkbox"/> Emotional stress	<input type="checkbox"/> Sequella of medical and/or surgery treatments
<input type="checkbox"/> Endocrine disease (e.g., Diabetes or Thyroid disorders)	<input type="checkbox"/> Social determinants (affordability, accessibility, literacy, etc.)
<input type="checkbox"/> Frequent handwashing/sanitization	<input type="checkbox"/> Ultraviolet light or radiation exposure
<input type="checkbox"/> Genetic and inherited conditions	<input type="checkbox"/> Underlying systemic disease (vascular, cancer, diabetes, etc.)
<input type="checkbox"/> History of or current topical or systemic steroid use	<input type="checkbox"/> Use of a medical device in contact with the skin
<input type="checkbox"/> Immunocompromised or malabsorption disease or allergy	<input type="checkbox"/> Use of personal protective equipment (gloves, masks, and other types of PPE)
<input type="checkbox"/> Incontinence	<input type="checkbox"/> Xerosis
<input type="checkbox"/> Incontinence Associated Dermatitis	*This list may not be inclusive of all risk factors associated with at-risk skin.

Practice considerations for skin health and at-risk skin

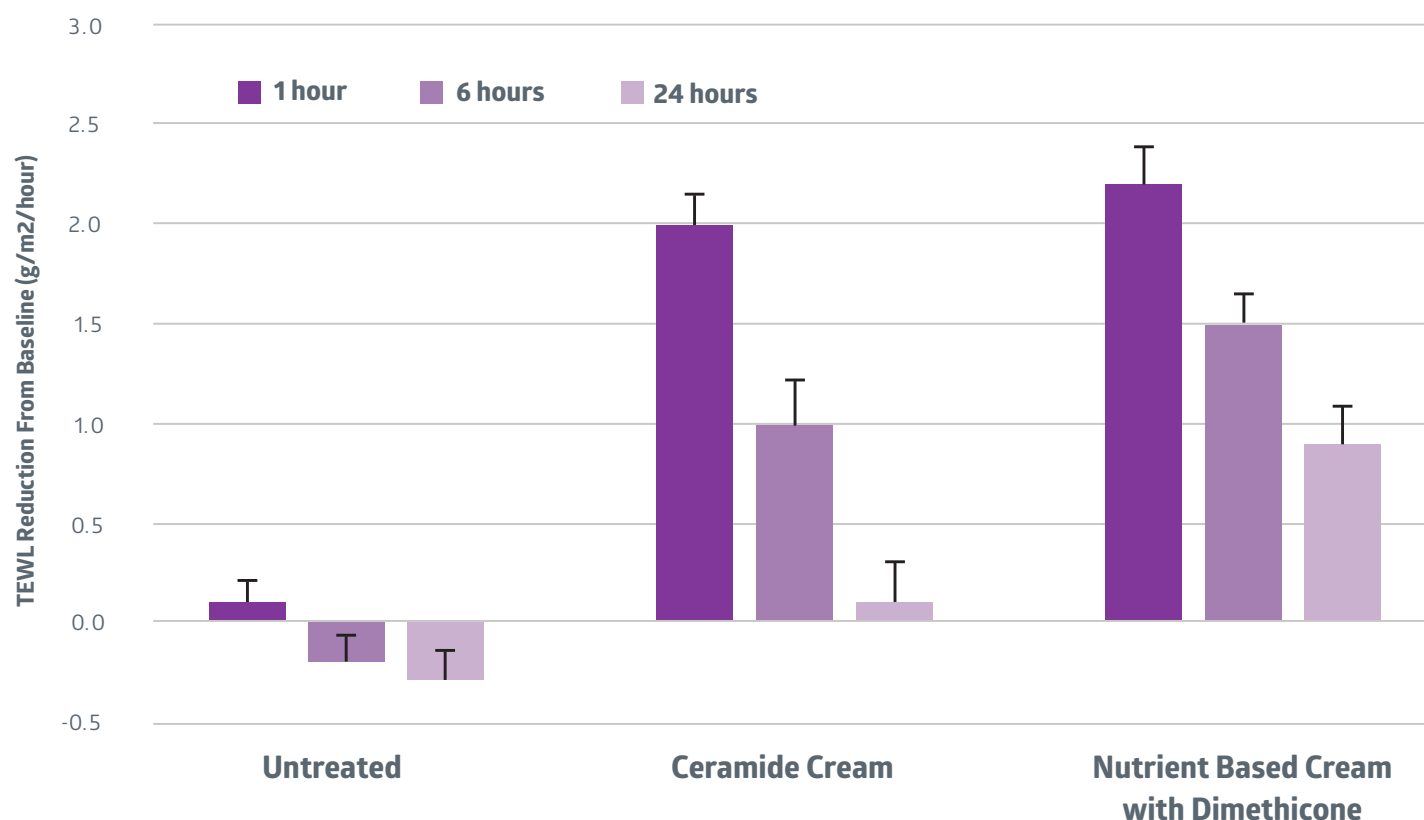
- ② All persons should have an evaluation to determine if they have at-risk skin.
 - ③ Persons identified with at-risk skin should have initial comprehensive and ongoing assessments to develop care strategies that include prevention and risk mitigation.
 - ④ Persons with at-risk skin should have individualized care strategies aimed at the maintenance or improvement of skin barrier function and/or the prevention of skin alterations.
 - ⑤ Persons who develop impaired skin barrier function should have ongoing skin assessments and interventions aimed at restoration of skin barrier function and/or prevention of further decline.
 - ⑥ Skin care strategies should be personalized based on product properties and ingredients.
-

Moisturizers and their role in skin health

- ⑦ The properties, ingredients, utilization and intended use of skincare products impact their efficacy. This includes moisturizers and skin barriers.
- ⑧ Many skincare products fall under the US Federal Food and Cosmetic Act of 1938. Product claims should be evaluated carefully before selection as therapeutic claims may not be clinically validated or relevant.
- ⑨ For individuals with at-risk skin, creams or ointments are preferred to improve skin barrier function by decreasing transepidermal water loss (TEWL). Lotions may be drying and therefore may not achieve the desired effect.

Transepidermal water loss (TEWL) occurs when water passes from the dermis through the epidermis and evaporates from the skin's surface. The more TEWL increases, the more the skin's barrier function is weakened. Different types of moisturizers prevent TEWL from occurring better than others. Ingredients such as oils, petrolatum and silicones help prevent TEWL.

TEWL Comparison of Two Skincare Moisturizers to Untreated Skin at 1, 6, and 24 hours



A study of independent investigators evaluated the TEWL reduction of two different skincare products (a ceramide cream and nutrient based cream with dimethicone) applied to the skin of 20 participants. The TEWL from untreated skin was used as a baseline to compare the TEWL for both skincare products at 1, 6, and 24 hours using standardized methods.

As shown in the figure, both skincare products significantly reduced TEWL levels ($p < 0.05$) compared to the untreated control. Compared to the TEWL at one hour, the nutrient based cream showed a 59% TEWL reduction and the ceramide cream showed a 95% reduction at 24 hours. Both creams have 24 hour hydration claims. A higher %reduction in TEWL indicates that the skin has experienced a greater loss in moisturization.



Comparison of different vehicles of moisturizers — consider this chart for at-risk skin

VEHICLE	Consistency	Water/Lipid Content	Advantages for At-Risk Skin	Disadvantages for At-Risk Skin
LOTION	<ul style="list-style-type: none"> · Light and non -greasy 	<ul style="list-style-type: none"> · High concentration of water 	<ul style="list-style-type: none"> · May have a role in end-of-life skin care 	<ul style="list-style-type: none"> · Increased TEWL · May contain more dehydrating ingredients
CREAM	<ul style="list-style-type: none"> · Viscous and non-greasy 	<ul style="list-style-type: none"> · Similar parts oil and water 	<ul style="list-style-type: none"> · Spreads easily · Creams with quality ingredients can decrease TEWL · Aesthetically pleasing 	<ul style="list-style-type: none"> · Washes off easily · Creams without medical grade silicones may not prevent TEWL as well as ointment
OINTMENT	<ul style="list-style-type: none"> · Thick and greasy 	<ul style="list-style-type: none"> · 8 parts oil to 2 parts water 	<ul style="list-style-type: none"> · Can hold moisture into the skin for prolonged periods of time · Can protect open skin 	<ul style="list-style-type: none"> · More difficult to spread · Can stain clothing · Feels greasy · Non-compliance of application

Therapeutic Ingredients Guide

THERAPEUTIC PROPERTIES	QUALITY INGREDIENTS
· Skin Protectant	<ul style="list-style-type: none"> · Dimethicone · Zinc Oxide · Petrolatum · Kaolin · Colloidal Oatmeal
· Antioxidant	<ul style="list-style-type: none"> · Hydroxyacetophenone · Glycyrrhizic Acid and Derivatives
· Anti-Inflammatory	<ul style="list-style-type: none"> · Colloidal Oatmeal · Beta-Glucan · Oat Extracts · Chamomile Extracts · Glycyrrhizic Acid and Derivatives
· Essential Barrier Lipids	<ul style="list-style-type: none"> · Ceramides · Phospholipids · Urea
· Emollient	<ul style="list-style-type: none"> · Plant Oils · Fatty Acids · Fatty Alcohols · Squalane · Caprylic/Capric Triglyceride
Humectant / Skin Conditioning	<ul style="list-style-type: none"> · Glycerin · Propanediol · Allantoin · Lactic Acid · Urea · Sodium Hyaluronate / Hyaluronic Acid
· Natural Moisturizing Factor	<ul style="list-style-type: none"> · Lactic Acid · Urea · Sodium Hyaluronate / Hyaluronic Acid · Hydrolyzed Soy Protein · Soy Amino Acids
· pH buffers	<ul style="list-style-type: none"> · Citric Acid
· Protein & Protein Rejuvenators	<ul style="list-style-type: none"> · Keratin · Collagen · Hydrolyzed Soy Protein · Soy Amino Acids · Arginine · Glycine
· Occlusives	<ul style="list-style-type: none"> · Petrolatum · Dimethicone · Zinc Oxide · Kaolin

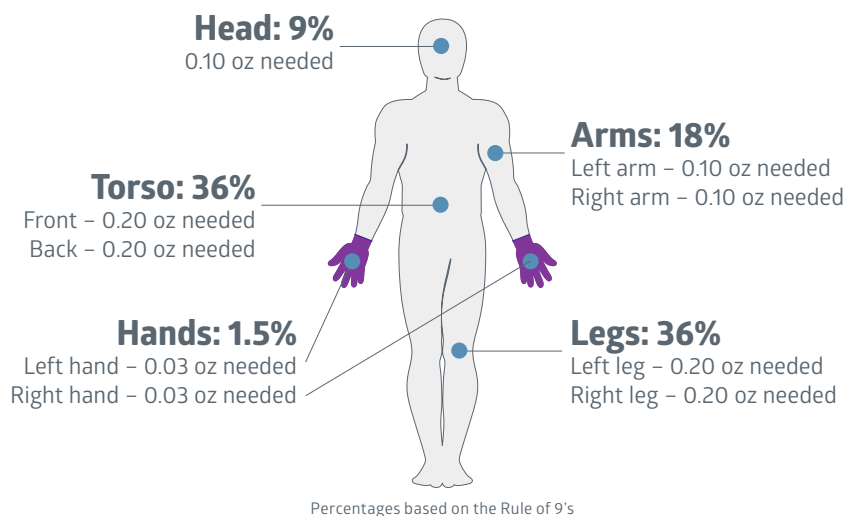
See the Sources Section for references.

Beware of carbomer ingredients in moisturizers. They work as a thickener that may make a product appear more like a cream although it may not effectively decrease TEWL

Practice considerations for moisturizers and skin barriers

- 10 For individuals with at-risk skin, a moisturizer should be applied daily at a minimum and always after bathing. Twice daily moisturization has been demonstrated to show additional benefits.
- 11 The approximate amount needed for a single application of moisturizer to the entire standard sized adult body is 30 grams or 1 ounce.
- 12 Skin barrier products are recommended when moisture, microclimate, friction, and shear are contributing factors to at-risk skin.
- 13 Skin barrier ingredients and individual risk factors, comorbidities, and conditions may vary and therefore impact selection and frequency of application.
- 14 Moisturizers and skin barrier products may have a positive impact on reducing medical device-related pressure injury (MDRPI) and medical adhesive-related skin injury (MARSI). More study is warranted.

RECOMMENDED PRODUCT AMOUNTS BY BODY AREA PER APPLICATION



An unpublished 2019 analysis of moisturizer purchasing patterns for 20 nursing home groups consisting of a total of 23,590,802 patient days established.

The consensus recommendation is that moisturizer should be applied twice per day. From this analysis, the average amount purchased would allow 0.045 oz of moisturizer per patient per application, slightly less than the amount needed to treat both hands and wrists of an average individual.

This shortfall of moisturizer per patient per day highlights the general lack of awareness of patient moisturization as demonstrated by this analysis.

Everyday items that are approximately one ounce



An average travel size toothpaste



An entire medicine cup



4 packs of ketchup



3 coffee creamers



2 tablespoons

Special population considerations to promote skin health

- 15 Persons who use personal protective equipment (PPE) and/or perform hand hygiene may experience at-risk skin and require preventative skin care.
- 16 Persons at end of life may experience unavoidable skin changes. Individualized, palliative interventions are recommended to provide comfort and mitigate risks of impaired skin barrier function.

Organization perspectives or considerations

- 17 Organizations should use comprehensive skin health guidelines with a focus on at-risk skin to improve clinical and operational outcomes. These may reduce negative financial, regulatory, and legal consequences.
- 18 Organizations seeking best practice can mitigate risk of at-risk skin through provision and promotion of a quality standardized formulary with access to non-formulary products if individual needs dictate.
- 19 Organizations seeking best practice should educate staff, individuals, families, and caregivers on indications, contraindications, application, and frequency of skincare product use to mitigate at-risk skin.
- 20 Organizations should commit to ongoing performance improvement strategies related to at-risk skin.



- 21 **Skin Health is important for everyone**
Everyone should be empowered to perform or receive care to promote optimal skin health.

Recommendations

- Persons with at-risk skin will have improved outcomes and enhanced quality of life when individualized skin care strategies with moisturizers and/or skin barriers are used in appropriate quantities.
- The CARS Panel recommends moisturizing with one ounce of quality moisturizer (creams preferred) twice daily.
- Special attention to populations vulnerable for at-risk skin (population health) is a patient/resident safety issue.
- Everyone should be empowered to perform or receive care to promote optimal skin health.

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21 New Consensus Statements for At-Risk Skin

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13. Skin barrier ingredients and individual risk factors, comorbidities, and conditions may vary and therefore impact selection and frequency of application.
14. **Moisturizers and skin barrier products may have a positive impact on reducing medical device-related pressure injury (MDRPI) and medical adhesive-related skin injury (MARSII).** More study is warranted.

Special population considerations to promote skin health

15. Persons who use personal protective equipment (PPE) and/or perform hand hygiene may experience at-risk skin and require preventative skin care.
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