

# 1 Pathway to Dry Skin Prevention and Treatment

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**Background:** This article presents an evidence-supported clinical pathway for dry skin prevention and treatment.

**Objective:** The development of the pathway involved the following: a literature review was conducted and demonstrated that literature on dry skin is scarce. To compensate for the gap in the available literature, a modified Delphi method was used to collect information on prevention and treatment practice through a panel, which included 10 selected dermatologists who currently provide medical care for dermatology patients in Ontario. An advisor experienced in this therapeutic area guided the process, including a central meeting. Panel members completed a questionnaire regarding their individual practice in caring for these patients and responded to questions on assessment of dry skin etiology, frequency of skin care visits for consultation and follow-up, assessment, and referral to other specialties. The panel members reviewed a summary of all responses and reached a consensus. The result was presented as a clinical pathway.

**Conclusion:** The panel concluded that our current awareness of dry skin and therefore prevention and effective treatment is limited; that identifying dry skin and its clinical issues requires tools such as clinical pathways, which may improve patient outcomes; and that additional research on dry skin etiology, prevention, and treatment is necessary.

**Renseignements de base:** Dans le présent document, nous décrivons un parcours clinique avec preuves à l'appui pour prévenir et traiter la peau sèche.

**Objectif:** La mise au point du parcours a nécessité les étapes suivantes: une analyse documentaire a permis de conclure que la littérature sur la peau sèche était peu abondante. Pour combler cette lacune documentaire, nous avons utilisé une méthode Delphi modifiée en vue de recueillir l'information sur les méthodes de prévention et de traitement par le truchement d'un groupe d'experts composé de 10 dermatologues dûment sélectionnés, lesquels prodiguent actuellement des soins médicaux à des patients atteints de maladies de la peau en Ontario. Un conseiller jouissant d'une expérience dans ce domaine thérapeutique, a guidé le processus, y compris lors d'une réunion centrale. Les membres du groupe ont rempli un questionnaire sur leurs méthodes personnelles de prestation des soins à ces patients et ont répondu à des questions sur l'évaluation de l'étiologie de la peau sèche, la fréquence des visites de soins de la peau quant aux consultations et suivi, à l'évaluation, et à l'aiguillage vers d'autres spécialités. Les membres du groupe ont passé en revue un sommaire de toutes les réponses et en sont arrivés à un consensus. Le résultat a été présenté sous forme de parcours clinique.

**Conclusion:** Les membres du groupe ont conclu que notre niveau de sensibilisation à la peau sèche et donc à sa prévention et à son traitement efficace est limité; que le diagnostic de la peau sèche et de ses enjeux cliniques nécessite des outils comme les parcours cliniques qui peuvent améliorer les résultats pour les patients; et que des recherches supplémentaires sur l'étiologie de la peau sèche, sa prévention, et son traitement, sont nécessaires.

3 SKIN IS PRONE TO INJURY owing to both internal and external insults, especially in the frail and elderly population.<sup>1,2</sup> Epidermis that lacks moisture or sebum

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presents as dry skin, which is often characterized by a pattern of fine lines, scaling, and itching.<sup>3-5</sup> Dry skin is a common condition that affects about 75% of those 64 years and older.<sup>1-6</sup>

3 Evidence-based medicine or health care is patient care based on evidence derived from the best available studies and/or clinical practice. The approach is valuable for the development of clinical guidelines such as clinical pathways. Literature on dry skin prevention and treatment is 4scarce. To compensate for the gap in the available literature, we synthesized the evidence base on dry skin prevention and treatment with balanced expert opinion to

develop recommendations for dry skin prevention and treatment measures.

### Role of the Panel

An expert panel was established to formulate an evidence-supported clinical pathway for dry skin prevention and treatment based on a consensus statement. The panel consisted of 10 nationally recognized dermatologists who practice in Ontario in medical dermatology, including an advisor with an international clinical and scientific background in this field. The group included Dr. L. Guenther (chairperson-dermatologist); Dr. C.W. Lynde, Dr. B. Barankin, Dr. E. Goldstein, Dr. S.P. Skotnicki-Grant, Dr. S.N. Gupta, Dr. K. Lee Choi, Dr. N. Rosen, Dr. L. Shapiro, Dr. K. Sloan, and Dr. A. Andriessen (advisor).

The panel population is representative of the health care providers likely to assess and treat patients with severe dry skin. The care described by the panel may be better than typical dry skin care because panel members treat a high proportion of patients with severe dry skin and are well trained in this area. However, selecting a panel composed of opinion leaders was deemed appropriate to ensure that a high quality of care is enabled.

### Procedure

A systematic literature review was carried out (Table 1 and Figure 1). The results showed that, in general, dry skin often develops in the elderly and those who are exposed to external factors, such as dry, cold, or low-humidity climates, and those with specific diseases. The goal of therapy may be to decrease the risk of development of dry skin and to improve skin condition more quickly than can be achieved in other circumstances.

After this review, a modified Delphi method was used to collect further information on prevention and treatment practice. Panel members completed a questionnaire regarding their individual practice in caring for patients with a tendency for dry skin and those with dry skin and responded to questions on assessment of dry skin etiology, frequency of skin care visits for consultation and follow-up, assessment, and referral to other specialties.

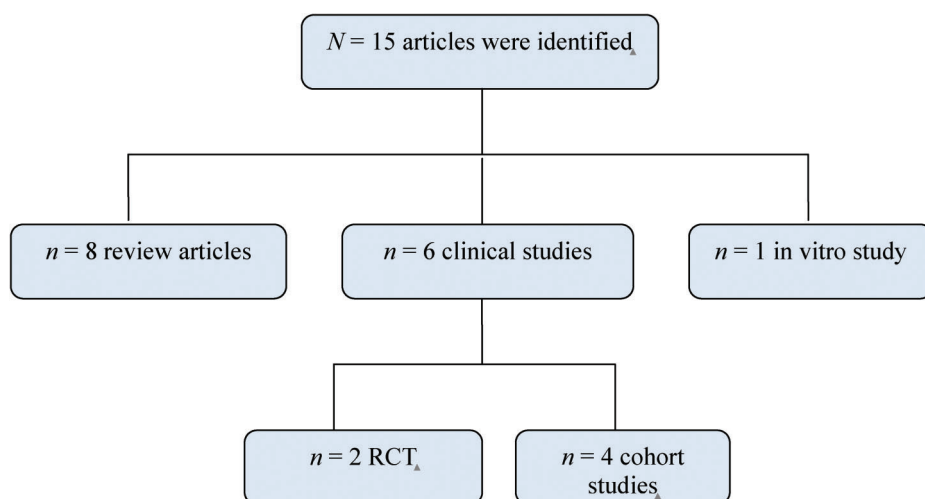
The panel convened on August 21, 2009, in Toronto, supported by an unrestricted educational grant (Stiefel Canada Inc.) to define prevention and treatment measures. Before the meeting took place, the document and statements were initially reviewed by the panel members. The advisor guided the meeting, where the panel members reviewed a summary of all responses, reached a consensus as to the meaning of each question, and then provided a final response about their prevention and treatment of

**Table 1.** Databases Included in the Search\*

Database	Details
Cochrane database	<i>Cochrane Dermatology</i> <a href="http://www.doctor411network.com/Alabama/Cochrane-dermatology.html">http://www.doctor411network.com/Alabama/Cochrane-dermatology.html</a>
MEDSCAPE	<a href="http://www.medscape.com/home">http://www.medscape.com/home</a>
MEDLINE	<i>PubMed</i> ; <a href="http://www.pubmed.de/data/nlm.link.html">http://www.pubmed.de/data/nlm.link.html</a>
EMBASE	<i>Excerpta Medica DataBase</i> ; in DIMDI database
CINAHL	<i>Cumulative Index to Nursing and Allied Health Literature</i> ; <a href="http://www.cinahl.com/library/journals.htm">http://www.cinahl.com/library/journals.htm</a> <a href="http://www.trcc.commnet.edu/library/guides/.../Cinahl_search_guide.htm">http://www.trcc.commnet.edu/library/guides/.../Cinahl_search_guide.htm</a>
National Library of Medicine (dry skin)	<a href="http://www.nlm.nih.gov/medlineplus/ency/article/003250.htm">http://www.nlm.nih.gov/medlineplus/ency/article/003250.htm</a>
AAD and supported by the AAD	<a href="http://www.aad.org/public/publications/pamphlets/skin_dry.htm">http://www.aad.org/public/publications/pamphlets/skin_dry.htm</a> <a href="http://www.aad.org/public/publications/pamphlets/sun_mature.html">http://www.aad.org/public/publications/pamphlets/sun_mature.html</a> <a href="http://health.yahoo.com/skinconditions.../dry-skin.../healthwise--hw107895.html">health.yahoo.com/skinconditions.../dry-skin.../healthwise--hw107895.html</a> <a href="http://www.cigna.com/healthinfo/hw107895.html">http://www.cigna.com/healthinfo/hw107895.html</a>
ETRS	<i>Wound Repair and Regeneration</i> , publication of WHS, ETRS, JSWH, and AWMA <a href="http://www.etr.org/">http://www.etr.org/</a>
Tissue Viability Society	Glanville Centre, Salisbury District Hospital, Salisbury, UK <a href="http://www.tvs.org.uk">http://www.tvs.org.uk</a>

AAD = American Academy of Dermatology; AWMA = ; DIMDI = ; ETRS = ; JSWH = ; WHS = .

\*A systematic literature review was carried out on dry skin and the treatment of dry skin using the following key words: *dry skin, ichthyoses, xerosis, skin integrity in elderly populations, guidelines on topical treatment of dry skin, emollients, moisturizers, hydration of dry skin, and humectants*. We searched published studies that met the following criteria: publications in English, German, French, or Dutch and studies performed on animal or human subjects as well as laboratory studies and review articles.



**Figure 1.** Types of articles that were identified in the literature review. RCT = randomized, controlled trial.

patients with dry skin. A modified Delphi process was also used to determine the final statements that were applied in the proposed clinical pathway for dry skin prevention and treatment. The final document and statements were edited and reviewed by the panel after the meeting.

### Outcome of Panel Discussions

The panel concluded that our current awareness of dry skin and therefore prevention and effective treatment is limited; that identifying dry skin and its clinical issues requires tools such as clinical pathways, which may improve patient outcomes; and that additional research is necessary. Specific areas requiring research include (1) the identification of critical etiologic and pathophysiologic factors involved in dry skin development and the impact on further damage (in chronic conditions such as chronic venous hypertension), (2) clinical and diagnostic criteria for describing dry skin conditions, and (3) clinical studies evaluating patient outcomes when applying an evidence-informed pathway of dry skin prevention and care. The statements from this consensus document are presented in a clinical pathway and was designed to facilitate the implementation of knowledge-transfer-into-practice techniques for quality patient outcomes. This implementation process should include professional teams concerned with the care of individuals at risk for dry skin or with dry skin.

### Application of the Pathway and Limitations

The pathway to dry skin prevention and treatment is proposed as a platform for optimal skin care. This approach includes therapeutic treatment concepts, does

not address specific conditions such as eczema and psoriasis, and is limited to prevention and treatment of dry skin only. Clinicians may consider treating all of the visible manifestations of dry skin and define an individual pathway for dry skin prevention and treatment. The starting point is a clinical pathway that is supported by peer consensus.

The use of the Delphi technique with health professionals actively involved with continuing medical education and treatment in this area and representing the discipline that provides such care is expected to represent this care. The information contained herein does not necessarily represent the opinions of all panel members or the sponsor.

### Consensus

Consensus was reached on the following:

#### Causes of Dry Skin

Healthy, young vital skin is usually able to maintain sufficient moisture.<sup>1-3</sup> In dry skin, the barrier function may be insufficient owing to a variety of reasons.<sup>1-4,6</sup> Although anyone can develop dry skin, the condition is more prone in the 65-year and older age groups; in those who live in dry, cold, or low-humidity climates; and in those who bathe or shower very frequently. Although most cases of dry skin are caused by environmental exposures, certain diseases can also significantly alter the function and appearance of the skin. Potential causes of dry skin include the following:

- **Weather.** In general, skin is driest in winter, when temperatures and humidity levels plummet. Winter

conditions also tend to make many existing skin conditions worse. But the reverse may be true for desert regions, where temperatures can soar, but humidity levels remain very low.

- *Central heating and air conditioning, wood-burning stoves, space heaters, and fireplaces.* All of these reduce humidity and dry the skin. Winter is a peak time for dry skin owing to the low humidity in ambient air and heating systems that force hot, dry air into the home or workplace.<sup>6</sup> However, air conditioning also induces dry skin because it removes much of the moisture from air. Furthermore, artificial air treatment, frequently used in airplanes, also exposes the skin to dry air, desiccating its upper layers.<sup>6</sup>
- *Tight clothing or compression (eg, for venous insufficiency).* Tight clothing or compression can increase the risk of dry skin and worsen existing dry skin through abrasive friction.<sup>1</sup>
- *Baths, showers, and swimming.* Frequent showering or bathing, especially with hot water, for long periods breaks down the lipid barriers in the skin. Similar changes occur with frequent swimming, particularly in heavily chlorinated pools.<sup>7</sup>
- *Harsh soaps and detergents.* Normal skin has a correct balance of moisture and oils and is slightly acidic at a pH of 4.5 to 5.75. When soaps are used, the pH of the skin may change. Soaps are alkalis of pH 7 to 12, which damage the skin barrier function. Many soaps and detergents strip lipids and water from the skin.<sup>7</sup> Deodorant and antibacterial soaps are usually the most damaging, as are many shampoos, which dry out the scalp.<sup>7</sup> Synthetically produced detergents may be a better option as their pH can be set to the normal skin pH of 5.5.<sup>7</sup>
- *Sun exposure.* Like all types of heat, the sun dries the skin. Yet damage from ultraviolet radiation penetrates far beyond the top layer of skin (epidermis). The most significant damage occurs deep in the dermis, where collagen and elastin fibers break down, leading to deep wrinkles and loose, sagging skin (solar elastosis). Sun-damaged skin may appear dry.<sup>2</sup>
- *Aging.* The occurrence of dry skin is frequent in the elderly.<sup>3,4,6</sup> As we age, the activity in the sebaceous and sweat glands is reduced.<sup>3-6</sup> Generally, sebaceous activity peaks at puberty, remaining high until the age of menopause. There is a gender difference in sebaceous activity with aging. Male sebaceous activity remains robust until the eighth decade, whereas in women, it starts to fall much sooner. Women in their sixties have

only 60% of the sebaceous activity that they had in youth. The decline continues through much of the seventh decade.<sup>3,5</sup>

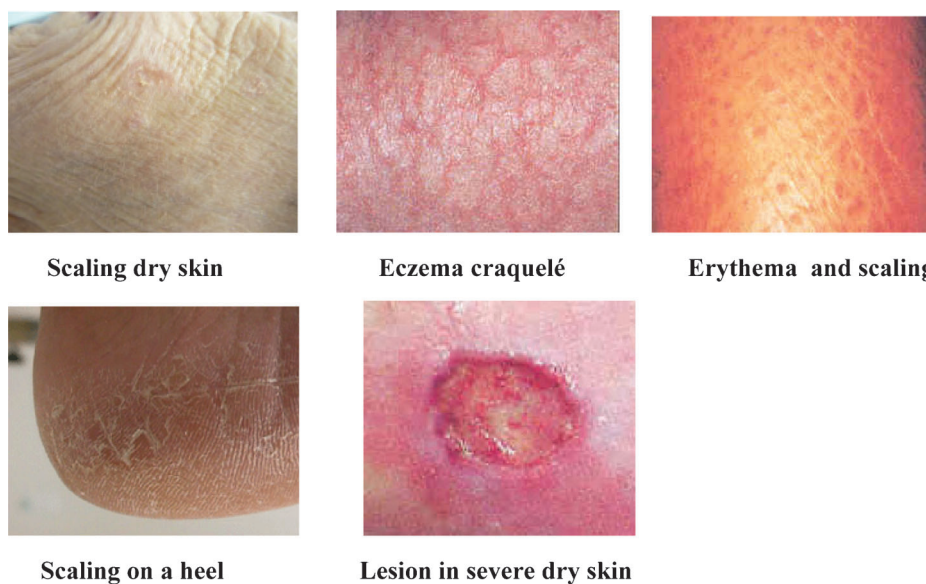
Dry skin is also more common in patients with zinc or essential fatty acid deficiency, end-stage renal disease, hypothyroidism, neurologic disorders that decrease sweating, human immunodeficiency virus (HIV), malignancies, or obstructive biliary disease and in those who have had radiation.<sup>5,6</sup> There are also systemic and primary dermatologic diseases with dry skin and/or itchy skin as a symptom, such as psoriasis, dermatitis, and ichthyosis.<sup>2-4,8</sup> Individuals with diabetes often have autonomic neuropathy, a condition that increases the risk of dry skin. Some medications, such as diuretics and antiandrogens, predispose a patient to dry skin.

Although dry skin is often experienced in the winter, in certain individuals, it may be a lifelong concern.<sup>4</sup> The skin is often driest on the arms, lower legs, and sides of the abdomen; however, this pattern can vary considerably from person to person.

Furthermore, signs and symptoms of dry skin depend on age, health status, ambient humidity, and other environmental factors.<sup>5</sup> A study found that dry, pruritic skin was the most common dermatologic problem seen in nursing homes.<sup>3</sup> There are numerous reasons for this finding. In advanced age, the epithelial and fatty layers of the tissue atrophy and become thinner. In dry and fragile skin conditions, skin and blood vessels are easily damaged and purpura may occur. Vascular response and tissue repair are often delayed.

The skin is more easily torn in response to mechanical trauma, especially shearing forces. It is drier, brittle, and more prone to injury (Figure 2). The number of melanocytes per unit of body surface area decreases, diminishing protection against, for example, sun damage.<sup>1,2,4</sup> There is reduced interlocking of the dermal and epidermal layers, and decreased collagen synthesis may occur.<sup>2,5,9</sup>

Dry skin is thinner: subcutaneous tissue, which is a shock absorber and insulator, is decreased. The loss of protective padding results in an increased risk for both weight-bearing and pressure-prone surfaces to break down.<sup>5,10</sup> In individuals with dry skin, there may be a decreased sensitivity to pain, pressure, shear, and friction.<sup>5,10</sup> A slower or absent inflammatory response and decreased blood flow result in less nutrients and oxygen to the cells. There is a reduced ability to fight invading pathogens and a decrease in the number of Langerhans cells.<sup>5,10</sup> Thermoregulation of the skin decreases as a result of changes in blood capillaries and eccrine sweat glands.<sup>5,10</sup>



**Figure 2.** Examples of signs that may occur in dry skin.

Signs of inflammation, such as redness, heat, and swelling, may be minimal or absent.<sup>10</sup>

Dry skin with a compromised barrier may have a decreased ability to absorb and clear substances, such as medicated creams.<sup>5</sup> The risk of skin breakdown from maceration, especially in skin folds, and chemical contact dermatitis is increased.<sup>5</sup> Topical medication containing alcohol can also dry the skin and should be avoided.<sup>5,10</sup>

### **[11] Presentation of Dry Skin**

Manifestations of dry skin occur along a spectrum, often becoming more severe as the condition persists. Dry skin may have a reticulate, cracked, or crazy-paving appearance (eczema craquelé). It is more likely to appear on the trunk and limbs. The skin feels rough and uneven, and if due to loss of hydration in the epidermis, dryness continues, scaling may worsen, and cracks and fissures appear.<sup>4,6</sup> If fissures are deep enough, there may be pain on weight bearing, for example, on the heel. The edges or rim around the heel or elbows will generally have a thicker area of skin (callus). Some people tend to have naturally dry skin that predisposes them to fissures. As fissures extend, they may deepen and eventually reach the depth of dermal capillaries, causing bleeding.<sup>2,4</sup>

Pruritus may develop as a result of dry skin and may be severe.<sup>3,8,11</sup> Scratching or rubbing to relieve it may result in excoriation, and secondary infection may occur. Pruritus owing to dry skin is to be differentiated from other pruritic conditions, such as contact or atopic dermatitis. A fungal infection may also cause itchy skin.<sup>8</sup>

The experience with dry skin may vary according to the body location. Individuals with dry skin may experience one or more of the following:

- A feeling of skin tightness, especially after showering, bathing, or swimming
- Skin that appears shrunk or dehydrated
- Skin that feels and looks rough rather than smooth
- Itching and pain that sometimes may be intense
- Slight to severe scaling or peeling
- Fine lines, cracks, and/or fissures
- Erythema, inflammation
- Deep fissures that may bleed in severe cases

### **Pathway to Dry Skin Treatment and Prevention**

The proposed pathway has four different levels (Figure 3). Level I looks at assessment of the individual that presents with dry skin. Level II addresses the differential diagnosis and gives definitions of the different presentations of dry skin: tendency for dry skin, mildly dry skin, moderately dry skin, and severely dry skin. Level III looks at the treatment and prevention of dry skin in three different body areas: the trunk, the face, and the hands/feet. Finally, level IV addresses the follow-up.

### **Classification**

The presentation of signs and symptoms is described as a continuum (Table 2). Individuals may have a tendency for dry skin, but at the time of presentation, the skin shows no



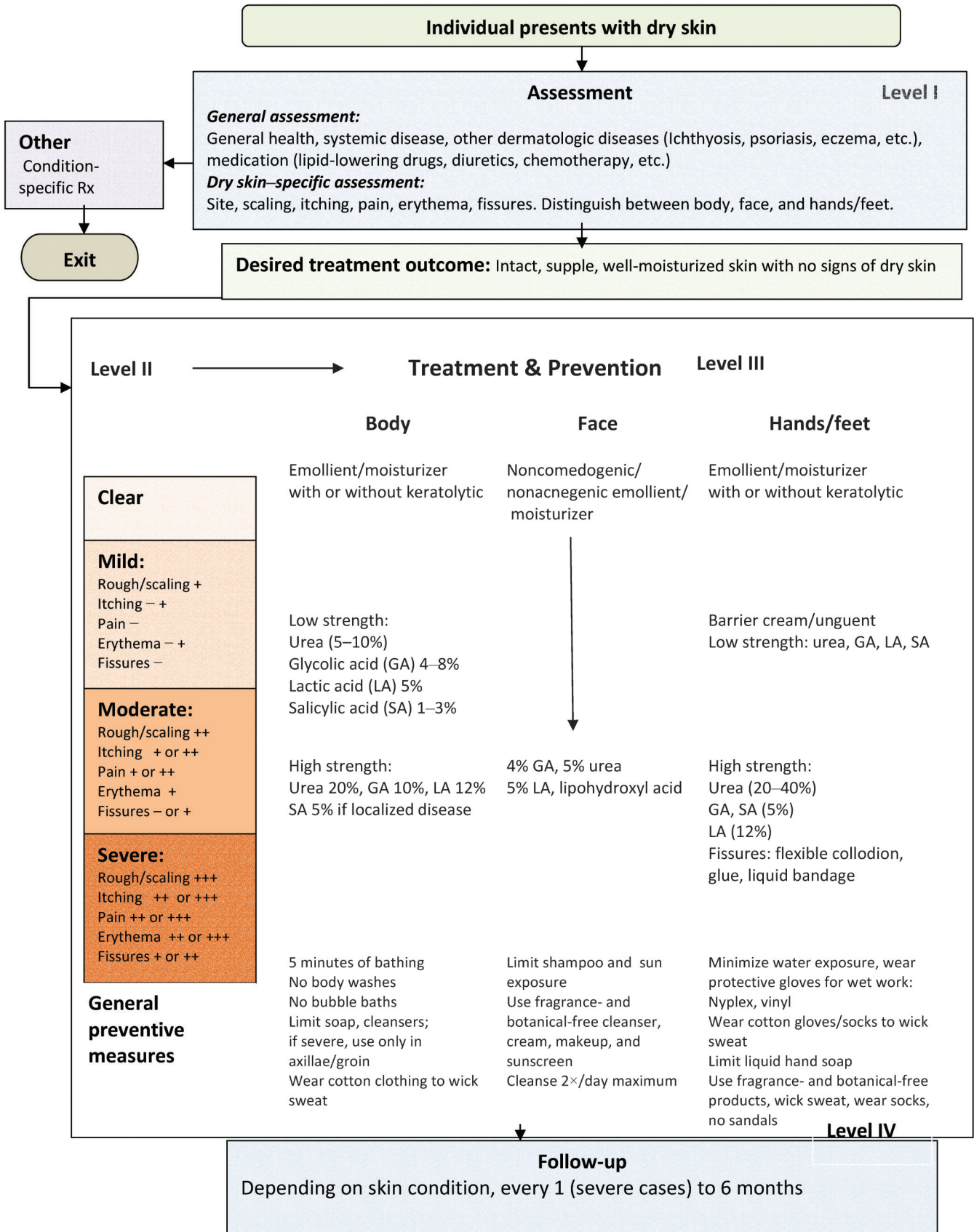


Figure 3. Clinical pathway for dry skin prevention and treatment.

**Table 2.** Classification of Dry Skin

Classification	Signs and Symptoms
Tendency for dry skin	Clear
Mildly dry skin	Rough and/or scaling (+) No or mild itching (– or +) No pain (–) No or minimal erythema (– or +) No fissures (–)
Moderately dry skin	Rough and moderate scaling (++) Mild or moderate itching (+ or ++) Mild or moderate pain (+ or ++) Mild erythema (++) May have fissures (– or +)
Severely dry skin	Rough and severe scaling (+++) Severe itching (+++) Severe pain (+++) At least mild erythema (++) May have fissures (– or + to +++)

– = not present; + = mild; ++ = moderate; +++ = severe.

Itching is defined as moderate if it is present up to 10% of the time and interferes with the ability for daily living. It is defined as severe if it is present most of the time and makes the individual wake up at night. If fissures are present, the score is moderate or severe.

signs and symptoms of dry skin. These individuals may benefit from dry skin prevention.

Mildly dry skin is defined as skin that is rough and shows mild scaling. Itching may be present, as well as mild erythema, with no pain and no fissures.

Moderately dry skin is defined as the presence of moderate scaling, mild or moderate itching, and pain. There may be mild erythema, and fissures may be present.

The skin is defined as severely dry when there is severe scaling, severe itching, severe pain, and at least mild erythema. Fissures may be present and severe.

### Prevention and Treatment of Dry Skin

For the specific approach given for the three defined areas, see Figure 3, level III. The measures proposed below are relevant for all categories of dry skin.

#### Cleansing

For individuals with dry skin, a brief shower or bath (< 10 minutes) is advised.<sup>4</sup> Use cold or lukewarm water; the cooler water temperature dries the skin less than sustained immersion in hot water. Avoid the use of shower gels and washes and apply fragrance-free bath oils cautiously.<sup>4</sup> Although some bath oils may leave a layer of

protective oil on the skin, research has shown that they may also leave a residue of irritating chemicals, exacerbating the problem rather than alleviating it.<sup>7</sup> The surfactants and soaps used in bathing decrease surface skin oils and may adversely affect the skin's proteins.<sup>11</sup> Avoid use of topical antimicrobial cleansers.<sup>7</sup> Fragrance-free and botanical-free cleansers or cleansing bars may be used. However, subjects with severely dry skin should minimize the amount of soap or cleansers they use when showering, for instance, only to the axillae and groin.<sup>7,11</sup>

Proposed general measures for prevention and treatment of dry skin are as follows:

- Use fragrance-free and botanical-free products.
- For washing clothes, the detergent is to be fragrance free; use double rinses and a quarter cup of vinegar or fabric balls instead. Do not use fabric softener or bleach.
- Wear loose cotton or linen clothing, allowing for sweat wicking.
- Consider using vaporizers and cool-air humidifiers.
- General education on dry skin prevention

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For prevention and treatment of dry skin, the following also applies:

- Sweating can worsen dry skin.
- Patting the skin dry is better than rubbing or harsh towel.
- Apply moisturizers and or emollients while the skin is still moist; apply liberally once a day at a minimum and reapply when required.
- When emollients and moisturizers are insufficient, the use of ceramides may be considered
- A barrier cream may be useful for hands and feet.
- When scaling is present, consider a keratolytic such as a urea-based moisturizer, salicylic acid, lactic acid, or glycolic acid for mildly, moderately, and severely dry skin. Consider a higher concentration keratolytic product on hands and feet.
- Avoid topical steroids and/or calcineurin inhibitors in nonpruritic, noninflamed dry skin.
- For reduction of inflammation, a topical steroid or a calcineurin inhibitor is advised, together with a keratolytic, such as urea-based products.

#### Skin Care Products

Individuals with dry skin can choose from a host of products and interventions. After cleansing their skin and drying off with a soft towel, skin care products are applied.

**Emollients** Emollients close fissures by filling spaces around desquamating and attached skin flakes, sealing moisture into the skin through the production of an occlusive barrier.<sup>4,10–13</sup> The net effect is softening of the skin. Ingredients in emollients include mineral oils (eg, liquid paraffin, petrolatum), waxes (eg, lanolin, beeswax, carnauba), long-chain esters, fatty acids, and mono-, di-, and triglycerides.<sup>10–13</sup>

**Moisturizers** Although the term *moisturizer* is often used interchangeably with *emollient*, moisturizers are products that combine a humectant with an emollient.<sup>11,14</sup> Humectants hydrate the stratum corneum through a hygroscopic effect, increasing its elasticity.<sup>9,13,14</sup> Humectant agents include alpha-hydroxy acids, such as lactic acid and glycolic acid, as well as urea, glycerine, propylene glycol, ceramides, and hyaluronic acid.<sup>11,13</sup>

With increased moisture, the skin barrier can be restored.<sup>9,13,15</sup> For protection, mineral oil or silicone-based products may be used. To rehydrate, glycerine, panthenol, hyaluronic acid, propylene glycol, butylene glycol, and urea-containing products are applied. To restore the skin barrier, stearyl alcohol, cetyl alcohol, tocopheryl acetate, and products containing prolipids can be used. They are more effective than simple emollients.<sup>6,9,11</sup> Urea creams may contain different levels of urea for keratolytic and antipruritic action, providing soothing for dry or itchy skin.<sup>6,13</sup> Products containing salicylic acid

are not recommended for large areas of the body owing to the risk of salicylism.

Most products marketed for dry skin employ a combination of ingredients to enhance efficacy in combating dry skin.

For dry skin with fissures, a higher-concentration urea cream or a cream with salicylic acid or lactic acid can be applied to the surrounding skin.

For mildly and moderately itchy skin, pramoxine-, menthol-, or camphor-containing products may be used.<sup>15</sup> When inflammation is not controlled with these measures, consider the use of topical steroids or calcineurin inhibitors.

Consider an oral antihistamine for relief of itch. Avoid topical antihistamines as they can be associated with contact sensitization. Phototherapy may be considered for renal or hepatic patients with itching.

A formulary is proposed together with the clinical pathway for dry skin prevention and treatment that defines products according to category, activity, and ingredients (Table 3).

## Conclusion

Dry skin is common, especially in the aging population. Current awareness of dry skin and therefore prevention and effective treatment is limited. Identifying dry skin and its clinical issues requires may benefit from tools such as clinical pathways.

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**Table 3.** Formulary for the Pathway of Dry Skin Prevention and Treatment

Category	Activity	Ingredients
Cleansing	Removing environmental pollutants and bacteria that cause unacceptable odors and skin infections <sup>1–4</sup>	Synthetically produced detergent cleansers, oil
Emollients	Close fissures by filling spaces around desquamating and attached skin flakes, sealing moisture into the skin through the production of an occlusive barrier <sup>1–6,8, 9,11</sup> ; softening of the skin	Mineral oils (eg, liquid paraffin, petrolatum), waxes (eg, lanolin, beeswax, carnauba), long-chain esters, fatty acids, and mono-, di-, and triglycerides <sup>11</sup>
Moisturizers	Protection and restoring; hydrate the stratum corneum through a hygroscopic effect, increasing its elasticity <sup>1–6</sup> Keratolytic and antipruritic action, providing soothing, nourishing relief for dry/itchy skin <sup>3,8,11</sup>	Combine a humectant with an emollient, eg, alpha-hydroxy acids, such as lactic acid, glycolic acid, and tartaric acid, as well as urea, glycerine, and propylene glycol <sup>11</sup>
Topical steroids and moisturizers	Antiinflammatory and effects of the moisturizer <sup>3,8,11</sup>	Combine a moisturizer, such as urea cream, with topical steroids
Calcineurin inhibitors	Antiinflammatory to be considered only for severe cases; the complex of cyclosporine and cyclophilin inhibits calcineurin <sup>16</sup>	Cyclosporine
Antiitch	Reduce itching	Menthol, camphor, Benadryl, cold wrap
Closing of fissures	Sealing of fissures	Glue, flexible collodion



The proposed evidence-based clinical pathway to dry skin prevention and treatment, which was developed by means of a consensus meeting with dermatologists, may support clinicians to motivate their patients to improve their dry skin condition.

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