

# Guidelines

summarising clinical guidelines for primary care

## Recommending emollients for patients with atopic dermatitis or dry skin conditions

**Angelika Razzaque:** Recommendations for prescribing and advising on usage of emollients in dry and chronic skin conditions

**Sangeeta Punjabi:** Diving beyond the surface

## CLINICAL INSIGHT

This supplement has been commissioned and funded by L'Oréal (UK) Limited and developed in partnership with *Guidelines*. L'Oréal (UK) Limited suggested the topic and authors, and carried out full medical approval on all materials to ensure compliance with regulations. The sponsorship fee included honoraria for the authors. The views and opinions of the authors are not necessarily those of L'Oréal (UK) Limited, or of *Guidelines*, its publisher, advisers, or advertisers. No part of this publication may be reproduced in any form without the permission of the publisher.



## Recommendations for prescribing and advising on usage of emollients in dry and chronic skin conditions

Angelika Razzaque, Executive Chair, PCDS

### Introduction

Emollients are medical moisturisers that restore the dysfunctional skin barrier in skin disease.<sup>1</sup> They are the mainstay of continuous management of many chronic skin conditions such as atopic eczema where the barrier function is compromised. Looking back into history, the property to soften the skin (from the Latin verb '*mollire*': to soften)<sup>2</sup> has been utilised dating back as far as ancient Egypt where products such as olive and sesame oil were used.<sup>3</sup> Indeed, plant and animal products such as almond oil, beeswax, lanolin (sheep's fat), and shea butter have been used for a variety of purposes throughout history such as cosmetics and pharmaceutical products.<sup>3,4</sup>

Skin disease is very common and many of these conditions are chronic.<sup>5</sup> A vast range of moisturisers and emollients are available for different skin types and conditions. Most people with dry skin will be satisfied with common moisturisers bought over the counter (OTC). Those that have an underlying chronic skin condition such as atopic dermatitis will sometimes have a protracted journey to find a suitable emollient for their skin, experiencing side effects and reluctance from healthcare professionals to advise and/or prescribe a suitable emollient in appropriate quantities.

This article will look at why it is important that emollients are used by looking at the different types available and their compositions and applications. It will further discuss current NHS England guidance on prescribing, highlighting

the potential impact on patients suffering with chronic skin conditions.

The skin is our largest organ.<sup>6,7</sup> An average adult is estimated to have skin covering approximately two square metres.<sup>7</sup> It has important functions such as protection by providing a barrier function against invasion by microorganisms, dehydration, UV light, and mechanical, thermal, and chemical stresses.<sup>6,7</sup> It provides sensation through receptors that sense pain, touch, pressure, and temperature.<sup>7</sup> Sweat glands, hair, and adipose tissue contained in the skin are important in thermoregulation.<sup>7</sup> Furthermore, it has a metabolic function with vitamin D and triglyceride production in subcutaneous adipose tissue.<sup>7</sup> Lastly, our skin is visible to ourselves and others and, in that, is subject to judgement especially if affected by skin disease. The stigma attached to skin disease and the psychosocial burden is huge; the majority of patients report that their condition affects their emotional and psychological wellbeing.<sup>8</sup> NICE states that the severity of the atopic eczema and quality of life should be taken into account at each consultation, including assessing the impact on everyday activities, sleep, and psychosocial wellbeing.<sup>9</sup>

### The skin barrier

The place of action for emollients is the epidermis, the outer layer of the skin that is continuously being regenerated. The outermost layer of the epidermis is called the stratum corneum and is also referred to as the skin barrier, important for regulating the skin's water content and minimising transepidermal water loss (TEWL), as well

as warding off any intrusion of pathogens and allergens.<sup>10</sup> The stratum corneum consists of tightly packed corneocytes and the intercellular lipid lamellae. Together with sebum, being produced in sebaceous glands seated within the dermis, and the skin's own microbiome, we are faced with a complex structure with its own homeostatic mechanism acting as a highly functioning organ. Skin disease alters this mechanism and emollients are a vital part of combination treatments to restore this function.

## Emollients

Emollients bring a variety of properties to choose from when it comes to optimising treatment. Largely they are oil in water or water in oil-based compositions and are divided into gels, lotions, creams, and ointments according to their oil content and resulting greasiness. Lotions are generally better for hairy or weepy areas but tend to be less moisturising and need more frequent applications. Creams and gels are cosmetically more acceptable than ointments but also need to be more frequently applied. Ointments should be used for very dry skin conditions and for night time applications. They generally have less stabilisers and preservatives, and hence may be less likely to induce contact dermatitis. There is a risk of developing irritant dermatitis with all emollients especially if not applied correctly such as in the direction of hair growth and with gentle strokes rather than being rubbed in. Emollient sprays can be useful for hard to reach areas, pump dispensers avoid contamination, and emollients in tubs should be sampled with a scoop or spoon.

Emollients fill in the spaces between skin flakes, smoothing the skin surface and restoring the ability of the intercellular lipids to absorb, retain, and redistribute water.<sup>11</sup> The components of emollients are largely divided into occlusive, humectant, and emollient substances. Occlusive substances act in a similar way to the intercellular layers of the stratum corneum;<sup>11</sup> examples are

petroleum jelly, paraffin, and lanolin amongst many others. Humectant substances such as glycerin, urea, and lactic acid, amongst others, act like natural moisturising factors in corneocytes.<sup>11</sup> Emollient substances fill in the gaps within the skin and smoothen the surface; examples are dimethicone or isopropyl myristate. Antipruritics such as lauromacrogols or colloidal oatmeal can also be added, as can antimicrobials like chlorhexidine or benzalkonium chloride to broaden the properties of emollients. Other components such as ceramides to improve the lamellar lipid bilayer,<sup>12</sup> nicotinamide as a potential anti-inflammatory,<sup>13</sup> and menthol to cool the skin are also found in emollient preparations.<sup>11</sup> Fragrances, sodium lauryl sulfate (SLS), and parabens should generally be avoided as they are considered irritant.<sup>10,14,15</sup>

In Table 1 some commonly prescribed formulations as well as sophisticated evidence-based emollients are listed. This list is not comprehensive but includes examples of the different types of emollients available and their various advantages and additional features.

## Prescribing/recommending emollients

Patients should be warned when prescribed emollients that there is a risk of slipping or falling on surfaces especially when used in the shower or bath as soap substitute. The Medicine and Healthcare products Regulatory Agency (MHRA) has issued updated advice on the flammability of ALL emollients and particular care needs to be taken when sitting next to open fires or smoking.<sup>16</sup>

Prescribing sufficient quantities of emollients is paramount to good outcomes. The exact amount depends on the size of the person as well as on the frequency of application. For twice daily application an adult requires an average of 500 g per week,<sup>14</sup> and a child requires 250–500 g per week. This would double for 3–4 times daily applications. If the leave-on emollient is also used as a soap substitute this needs a further increase in

# EMOLLIENTS FOR DRY SKIN CONDITIONS

**Table 1: Commonly prescribed formulations and sophisticated evidence-based emollients<sup>[A]</sup>**

Emollient	Formulation	Indication	Advantages	Frequency	Additional features
E45, QV	Lotion	Whole body; Hairy or weepy areas	Cosmetically acceptable, easy to apply	Very often	
Cetraben, Diprobase	Cream	Whole body	Cosmetically acceptable, greasier than lotions	Often	
Adex, Doublebase	Gel	Whole body	Cosmetically acceptable	Twice daily to more frequently	Adex contains nicotinamide (anti-inflammatory)
Epaderm, Hydromol, Zeroderm	Ointment	Whole body except where cosmetically unacceptable	More occlusive as greasier formulation	Twice daily to up to four times daily	
Dermamist, Emollin	Spray	Hard to reach areas	Cosmetically acceptable, easy application	Often	
Dermol, Eczmol	Cream	Infected, difficult to treat eczema	Can be used as soap substitute	Once or twice daily	Chlorhexidine
Aproderm, Aveeno	Cream	Whole body	Cosmetically acceptable, antipruritic	Often	Oatmeal
Balneum plus, E45 itch relief	Cream	Whole body	Cosmetically acceptable, antipruritic	Twice daily	Lauromacrogols
Aquadrate, Calmurid, Flexitol	Cream	Thick scaly areas	Keratolytic	Twice daily	Urea (natural moisturising factor)
Dermacool, Methoderm	Cream	Pruritic skin	Cosmetically acceptable	Twice daily	Menthol (cooling)
CeraVe	Cream	Whole body	Cosmetically acceptable, non-prescription	Once daily	Glycerin, ceramides, and hyaluronic acid (natural moisturising factors)
Lipikar AP+M	Balm	Whole body	Cosmetically acceptable, antipruritic, non-prescription	Twice daily	Nicotinamide (anti-inflammatory), shea butter, supports skin microbiome
Eucerin	Lotion	Whole body	Cosmetically acceptable, non-prescription	Twice Daily	Urea 10%, especially for palms and soles

[A] The list of mentioned products is not comprehensive. Some of the brands can also be available in different formulations such as gels, lotions, creams, and ointments. Some of these emollients are soap substitutes and others are leave-on emollients. Please refer to national and local guidance on emollients.

the overall amount prescribed according to the frequency of washing or bathing.

Some emollients are available on prescription as medicinal products that receive marketing authorisation after rigorous scrutiny of toxicological, pharmacological, clinical, and technical data. Others are licensed as medical devices and do not go through the same process as their primary mode of action is considered physical rather than metabolic, immunological, or pharmacological. Many emollients are available on NHS prescription, however some are classed as borderline substances and need endorsing with the Advisory Committee on Borderline Substances (ACBS).<sup>14</sup> A pre-payment certificate for patients with skin disease may help reduce the burden of cost of living with and managing a chronic skin condition.

Non-prescription emollients can be recommended to patients if prescription emollients have not resulted in a satisfactory response. A recent study showed that a non-prescription emollient, CeraVe cream and lotion, led to a significant increase in skin hydration from a once daily application when compared with an emollient commonly prescribed in the UK.<sup>17</sup> Another study has shown that certain non-prescription emollients can have greater cost-effectiveness than the compared prescription emollients when quality of life and time to flare are taken into consideration.<sup>18</sup>

## Guidance on emollients

There is evidence that emollients have beneficial effects on skin disease such as prolonging time to flare, and reducing the number of flares and the amount of topical steroids needed to reduce eczema severity, however the effect varies.<sup>19</sup> There is limited evidence that emollient use on its own is effective but the effectiveness of active treatment is increased in combination.<sup>19</sup> NICE has issued guidance on emollient prescribing in atopic eczema and clearly states that patient preference and choice has to be taken into consideration.<sup>9</sup>

The NHS England guidance on OTC prescribing, published in 2018, states that '*... patients with mild dry skin can be successfully managed using over the counter products on a long term basis.*'<sup>20</sup> This guidance has been reviewed as patient feedback revealed that in some areas patients' preferred emollients were exchanged for formulary based alternatives or advice was given to purchase all emollients OTC as interpreted from the guidance. A clarification with a directive informing CCGs that patients' preferences should be taken into account when prescribing, as well as acknowledging that emollients form part of the overall management of chronic skin conditions and, therefore, are eligible to be issued on prescription is anticipated in the near future. This expected directive would be in line with the NICE guidance on patient preference.<sup>9</sup> This is a welcome move and should lead to better patient care.

---

## Summary

In summary, emollients are an important part of the management of patients suffering from skin conditions. Patients need to have access to prescribed emollients in the same way they access topical steroids and other treatments for their condition. Consideration should always be given to patient preferences as much as allowing for sufficient amounts to be prescribed inclusive of soap substitutes. Furthermore, non-prescription emollients form a valuable addition to a clinician's armory of effective emollients in the management of chronic skin conditions but also for those suffering from dry skin conditions.

---

## Conflicts of interest

Angelika Razzaque has received honoraria from Almirall, Galderma, Leo, Mylan, and Reckitt Benckiser. She has received an honorarium for her contribution to this supplement.

## References

1. Cork M. The importance of skin barrier function. *J Dermatolog Treat* 2009; **8**: s7–13.
2. Collins Dictionary. *Definition of emollient*. [www.collinsdictionary.com/dictionary/english/emollient](http://www.collinsdictionary.com/dictionary/english/emollient) (accessed 12 November 2020).
3. Encyclopaedia Britannica. *Emollient*. [www.britannica.com/topic/emollient](http://www.britannica.com/topic/emollient) (accessed 12 November 2020).
4. Lin T, Zhong L, Santiago J. Anti-inflammatory and skin barrier repair effects of topical application of some plant oils. *Int J Mol Sci* 2017; **19** (1): 70.
5. Schofield J, Grindlay D, Williams H (2009). *Skin conditions in the UK: a health assessment*. Centre of Evidence-Based Dermatology, University of Nottingham, UK. [www.nottingham.ac.uk/research/groups/cebd/documents/hcnaskinconditionsuk2009.pdf](http://www.nottingham.ac.uk/research/groups/cebd/documents/hcnaskinconditionsuk2009.pdf) (accessed 10 November 2020).
6. Yousef H, Alhadj M, Sharma S. *Anatomy, Skin (Integument), Epidermis*. StatPearls, 2020. [www.ncbi.nlm.nih.gov/books/NBK470464](http://www.ncbi.nlm.nih.gov/books/NBK470464) (accessed 12 November 2020).
7. Peckham M, Knibbs A, Paxton S. *The histology guide: Skin functions and Layers*. [www.histology.leeds.ac.uk/skin/skin\\_layers.php](http://www.histology.leeds.ac.uk/skin/skin_layers.php) (accessed 26 November 2020).
8. All-Party Parliamentary Group on Skin. *Mental health and skin disease*. London: APPGS, 2020. Available at: [www.appgs.co.uk/mental-health-and-skin-disease-report-2020](http://www.appgs.co.uk/mental-health-and-skin-disease-report-2020).
9. NICE. *Atopic eczema in under 12s: diagnosis and management*. Clinical Guideline 57. NICE, 2017 Available at: [www.nice.org.uk/guidance/cg57](http://www.nice.org.uk/guidance/cg57)
10. Moncrieff G, Cork M, Lawton S et al. Use of emollients in dry-skin conditions: consensus statement. *Clin Exp Dermatol* 2013; **38** (3): 231–238.
11. Purnamawati S, Indrastuti N, Danarti R, Saefudin T. The role of moisturisers in addressing various kinds of dermatitis: a review. *Clin Med Res* 2017; **15** (3–4): 75–87.
12. Di Nardo A, Wertz P, Giannetti A, Seidenari S. Ceramide and cholesterol composition of the skin of patients with atopic dermatitis. *Acta Derm Venereol (Stockh)* 1998; **78** (1): 27–30.
13. Bains P et al. Nicotinamide: Mechanism of action and indications in dermatology. *Indian J Dermatol Venereol Leprol.* 2018; **84** (2): 234–237.
14. NICE. *Emollients, atopic eczema*. [cks.nice.org.uk/topics/eczema-atopic/prescribing-information/emollients](https://cks.nice.org.uk/topics/eczema-atopic/prescribing-information/emollients) (accessed 10 November 2020).
15. Matwiejczuk N, Galicka A, Brzóška M. Review of the safety of application of cosmetic products containing parabens. *J Appl Toxicol* 2020; **40** (1): 176–210.
16. Medicines and Healthcare products Regulatory Agency. *Safe use of emollient skin creams to treat dry skin conditions*. [www.gov.uk/guidance/safe-use-of-emollient-skin-creams-to-treat-dry-skin-conditions](http://www.gov.uk/guidance/safe-use-of-emollient-skin-creams-to-treat-dry-skin-conditions) (accessed 29 November 2020).
17. Danby S, Andrew P, Brown K et al. An investigation of the skin barrier restoring effects of a cream and lotion containing ceramides in a multi-vesicular emulsion in people with dry, eczema-prone, skin: The RESTORE study phase 1. *Dermatol Ther (Heidelberg)* 2020; **10** (5): 1031–1041.
18. Cabout E, Eymere S, Launois R et al. Cost effectiveness of emollients in the prevention of relapses in atopic dermatitis. *Clin Cosmet Investig Dermatol* 2020; **13**: 987–996.
19. Van Zuuren E, Fedorowicz Z, Christensen R et al. Emollients and moisturisers for eczema (Review). *Cochrane Database Syst Rev* 2017; **2** (2): CD012119.
20. NHS England. *Conditions for which over the counter items should not routinely be prescribed in primary care: Guidance for CCGs*. NHS Clinical Commissioners, 2018. Available at: [www.england.nhs.uk/publication/conditions-for-which-over-the-counter-items-should-not-routinely-be-prescribed-in-primary-care-guidance-for-ccgs/](http://www.england.nhs.uk/publication/conditions-for-which-over-the-counter-items-should-not-routinely-be-prescribed-in-primary-care-guidance-for-ccgs/)

## Diving beyond the surface

---

Sangeeta Punjabi, Consultant Dermatologist–Clinical Lead,  
London Northwest University Hospitals NHS Trust

---

There is now a greater evidence base as to why all emollients are indeed not the same, raising the key question: does one size fit all? We are indeed spoilt for choice in terms of variety and competitive prices where the basic job of an emollient does not seem to be rocket science. Not surprisingly, most prescription emollients are similar in ingredients attempting to deliver hydration to our defective skin barrier.

The BATHE study concluded no added benefit from using emollient bath additives and stated that further research into the optimal regimens of leave-on emollients and soap substitutes is required.<sup>1</sup> The fundamental message of soap avoidance/substitution remains, lending credibility for the use of leave-on emollients as soap substitutes. Therefore, it is paramount that adequate quantities of emollients are prescribed on repeat prescriptions.

Traditionally, there has been little evidence to suggest that one emollient has better efficacy than another,<sup>2</sup> and this leads to the debate: is the most cost effective option the best choice? The evidence emerging around the sophisticated evidence-based ingredients used in certain emollients and how they deliver their effect is challenging our mindset and revolutionising our thinking to look beyond the surface. In reality, the skin barrier is variable in thickness.<sup>3</sup> For example, it is thinnest on the eyelids, face, and flexures as well as at the extremes of age, such as neonates and elderly, making it more susceptible to damage. Surfactants such as sodium lauryl sulfate (SLS) in aqueous cream can aggravate the barrier damage and are no longer popular as leave-on emollients.<sup>4</sup>

There is compelling evidence from the RESTORE Study by Professor M Cork and colleagues that there are sophisticated emollients with novel delivery mechanisms and ingredients that slowly release lipids into the skin barrier at the appropriate level, leading to significantly increased skin hydration and reduced skin dryness for at least 24 hours.<sup>5</sup> This translates into clinically well moisturised skin with one application.<sup>5</sup> In addition, these emollients improved skin barrier integrity significantly compared to a reference emollient cream commonly prescribed in the UK.<sup>6</sup>

In summary, it is the beginning of a new era in emollient prescribing and recommendations where it is crucial to acknowledge that one size does not fit all. We may live in a false economy of cost savings with basic emollients, however, we cannot ignore the current need for larger quantities with repeat prescriptions, the issues surrounding non-compliance due to high frequency of applications, patient choice, and the resultant repeat flares, which perhaps negates the benefit of cost-effectiveness.

In the future, while we await larger trials to confirm evidence that is emerging, recommending a sophisticated evidence-based emollient where simple emollients have not made a substantial difference is a rational alternative to self-help our patients.

---

### Conflicts of interest

Sangeeta Punjabi has received honoraria from AbbVie, La Roche Posay, Leo, and Thornton & Ross. She has received an honorarium for her contribution to this supplement.

## References

1. Santer M, Ridd M, Francis N et al. Emollient bath additives for the treatment of childhood eczema (BATHE): multicentre pragmatic parallel group randomised controlled trial of clinical and cost effectiveness. *BMJ* 2018; **361**: k1332.
2. Van Zuuren E, Fedorowicz Z, Christensen R et al. Emollients and moisturisers for eczema (Review). *Cochrane Database Syst Rev* 2017; **2** (2): CD012119.
3. Peckham M, Knibbs A, Paxton S. *The histology guide: Skin functions and Layers*. [www.histology.leeds.ac.uk/skin/skin\\_layers.php](http://www.histology.leeds.ac.uk/skin/skin_layers.php) (accessed 26 November 2020).
4. Danby S, Al-Enezi T, Sultan A et al. The effect of aqueous cream BP on the skin barrier in volunteers with a previous history of atopic dermatitis. *Br J Dermatol* 2011; **165** (2): 329–334.
5. Danby S, Andrew P, Brown K et al. An investigation of the skin barrier restoring effects of a cream and lotion containing ceramides in a multi-vesicular emulsion in people with dry, eczema-prone, skin: The RESTORE study phase 1. *Dermatol Ther (Heidelberg)* 2020; **10** (5): 1031–1041.
6. Danby S, Andrew P, Kay L et al. An investigation of the skin barrier restoring effects of a cream containing ceramides in a multi vesicular emulsion in people with dry, eczema-prone, skin: The RESTORE study phase 2. Poster AAD, June 2020.