

# Consensus statement on the management of chronic hand eczema

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## Summary

The management of chronic hand eczema is often inadequate. There are currently no evidence-based guidelines specifically for the management of chronic hand eczema, and evidence for established treatments for hand eczema is not of sufficient quality to guide clinical practice. This consensus statement, based on a review of published data and clinical practice in both primary and secondary care, is intended to guide the management of chronic hand eczema. It describes the epidemiology and pathogenesis of hand eczema, its diagnosis and its effect on patients' quality of life. Management strategies include a skin education programme, lifestyle changes, and the use of emollients, barriers and soap substitutes. Topical drug therapy includes topical steroids and calcineurin inhibitors. Treatment with psoralen ultraviolet A and systemic therapies may then be appropriate, although there is no strong evidence of efficacy. Alitretinoin has been shown to be effective in a randomized controlled trial, and is currently the only treatment specifically licensed for the treatment of hand eczema. Recommendations for management are summarized in a treatment algorithm.

## Introduction

There are currently no evidence-based guidelines specifically for the management of chronic hand eczema.

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A guideline for the care of contact dermatitis has been prepared that includes the management of dermatitis<sup>1</sup> at all potentially affected sites; these are associated with different morbidity and approaches to treatment compared with eczema affecting the hands, although many of the treatment principles apply to both conditions. Evidence for established treatments for hand eczema is not of sufficient quality to guide clinical practice,<sup>2</sup> and it has been reported that, despite a wide choice of therapeutic options, the management of chronic hand eczema is often inadequate.<sup>3</sup>

This paper represents a consensus of views from a panel of dermatologists and a general practitioner (GP) with a special interest in dermatology. The panel discussed published data and clinical practice in both primary and secondary care to guide the management of chronic hand eczema. This was not a systematic review, as there are insufficient good-quality studies for critical review.

## Chronic hand eczema

The hands are a common site of dermatitis because they are often exposed to irritants and allergens. Irritant dermatitis is more common than allergic dermatitis. It is tempting to seek a single cause for chronic hand eczema, but the cause is usually a combination of various interacting factors that cannot be viewed in isolation. The effects of these factors may be cumulative and exacerbated by water, humidity, dryness, friction and cold.

Chronic hand eczema is more common in women than in men.<sup>4</sup> The commonest causative factors, which can often be cofactors, are irritants (including wet work), contact allergens, immediate-type allergens and endogenous factors (e.g., atopy, psoriasis or a sub-clinical barrier deficit).

The role of these factors varies between individuals, and their relative importance can be difficult to determine. There is no widely used evidence-based algorithm to support investigation, and clinicians tend to rely on their experience in identifying likely causes from the patient's history. The pattern and morphology of the eruption is helpful, but the differential diagnosis should include psoriasis (bearing in mind that psoriasis of the hands may be atypical), microvesicular hand dermatitis, and fungal infection.

In the EPIDERM/Occupational Physicians Reporting Activity (OPRA) voluntary surveillance schemes, the hands were the site affected in 80% of cases of occupational skin disease reported by occupational physicians and consultant dermatologists.<sup>5</sup> These data should be interpreted cautiously because patients referred to a dermatologist are more likely than those in primary care to be reported to the scheme, and younger people with occupational hand eczema may change jobs rather than seek medical help. This latter point would force up the rates. Hand eczema is common in people exposed to wet work or frictional irritancy (e.g. farming, forestry, fishing),<sup>6</sup> particularly among people who are atopic.<sup>7</sup> Occupation is strongly associated with exposure to particular irritants and allergens, although these associations are not specific (Table S1).

Possible allergens can be identified by patch testing (see below), but the results should be interpreted in the context of the patient's history. The occurrence of a reaction to a specific allergen does not necessarily mean it is important in a specific case, and allergens may be present in both the work and domestic environments. Tests for allergy could include a skin-prick test to identify type I (immediate, IgE-mediated) hypersensitivity and measurement of antibodies to house dust mite,

latex and other relevant allergens or total immunoglobulin E, which can be of help in recognizing atopy. Patients often need repeated consultations for testing and assessment and there is a risk of poor continuity of care if too many different health professionals are involved.

## Prevalence and incidence

Hand eczema is common and affects all age groups, although for different reasons at different ages. Studies in Sweden suggest that the self-reported prevalence of hand eczema declined from approximately 12% in 1983 to 10% in 1996. This change was attributed to a decline in employment in high-risk occupations. A 2006 survey in Denmark reported a prevalence of 14%.<sup>8</sup> Estimates of the incidence, again in Scandinavian studies, range from 5.53 to 8.8 per 1000 person-years.<sup>9</sup>

These studies confirmed the importance of known risk factors in younger adults (< 30 years), but suggested that the link was less strong in older adults, perhaps due to the chronicity of their condition. A history of hand eczema in childhood was also identified as a further risk factor. The incidence of hand eczema in children is high, and the prevalence is reported to be approximately 7% at 12–16 years of age and 10% at 16–19 years. Early-onset eczema may be associated with atopy, and the increase in older teenagers may be due to them beginning employment. It is estimated that one-third of hand eczema cases occur before the age of 20 years. Clinical experience shows that patients may not develop symptoms for some time after initial exposure to allergens or irritants.

Available evidence indicates that many people treat their chronic hand eczema themselves. Surveys in Sweden and Denmark<sup>8</sup> suggest that up to two-thirds of respondents had consulted a GP, and 44% had been referred to a dermatologist. In all, 23% of respondents rated their hand eczema as moderate or severe and, of those not seen by a dermatologist, approximately one-quarter had moderate to severe eczema.<sup>8</sup>

## Quality of life

Chronic hand eczema includes a wide spectrum of disease severity. Attempts to quantify its effect on quality of life have been complicated by the lack of an adequate definition, and differences in social and employment conditions between the various countries in which data have been obtained. Extrapolation from European and US studies to the UK is therefore difficult.

### Quality-of-life instruments

Objective measures of the severity of hand dermatitis<sup>10,11</sup> have not been validated against disability, perhaps because of the psychological component of hand eczema. Particular aspects of the condition are rated differently by patients and doctors, and there is little correlation between ratings of disease severity by physicians and patients.<sup>12</sup> Quality-of-life instruments can be adapted for use in people with hand eczema, but generic instruments such as the Short Form-36 may be preferable to disease-specific tools such as the Dermatology Life Quality Index (DLQI) because they offer superior assessment of mental health.<sup>12</sup> However, these instruments only indirectly measure the effect of hand eczema on employment.

### Quality of life

Given these reservations, chronic hand eczema has been shown to adversely affect quality of life and employment. A study of 416 patients with hand eczema recruited from European patch test clinics found that quality of life (measured by the DLQI) correlated with disease severity (measured by the Hand Eczema Severity Index),<sup>13</sup> but the validity of this finding is not supported by the fact that there was no difference in quality of life between men and women, although disease severity was significantly worse in men.

### Occupational significance

US national statistics suggest that 15% of people with contact dermatitis have limitation of activity due to hand involvement. A US survey found that people with chronic hand eczema report worse quality of life and impaired activity and work performance compared with those without hand eczema.<sup>14</sup> In Denmark, follow-up after 10 years in a cohort of 274 people with hand eczema found that 12.4% had taken sick leave and 8.5% had changed jobs.<sup>15</sup>

### Health resource use

There is no adequate evidence of the effect of hand eczema on resource utilization in the UK. The available data suggest that, although some people are severely affected, overall the condition does not have a substantial economic effect in this country. In part, this may be because many of those affected do not seek medical help because established treatments are relatively ineffective.

### Diagnosis

An accurate diagnosis of hand eczema leads to better management. Historically, misdiagnosis has been common, partly due to the lack of an adequate system for classification. The diagnostic criteria include the pathogenesis (irritant, allergic, endogenous, mixed) and the distribution of the lesions. In one study of 263 women with hand eczema, four patterns of distribution were identified: palmar (44%), generalized (22%), fingers only (19%) and dorsal (15%).<sup>16</sup>

Patterns of lesions and symptoms that superficially resemble hand eczema are listed in Table 1. Dermatological disorders affecting the hand to be considered in the differential diagnosis are irritant contact dermatitis, allergic contact dermatitis, endogenous (cryptogenic) eczema, psoriasis/pustulosis, fungal infection, keratoderma, lichen planus, granuloma annulare and infection/infestation. The pathogenesis of hand eczema is more informative than the pattern of lesions and symptoms.<sup>16</sup> The pattern may therefore suggest the diagnosis, but patch testing, considered in the context of the patient's history, is essential for patients with chronic hand eczema referred to a dermatologist. Patch testing with a standard series of allergens will often identify allergens to which the patient is allergic, and avoidance often leads to great improvement in their hand eczema. Patients with hand eczema not responding to topical steroids and good skin care should be referred for patch testing.<sup>1</sup>

**Table 1** Signs and symptoms of superficially similar lesions of the hand.

Psoriasis	Tinea manuum	Hyperkeratotic hand eczema
Not usually itchy	Can be itchy	Itchy
Painful fissuring	Sometimes fissuring	Painful fissuring
Dry, silvery scale	Usually dry, scaly	Vesicular, scaly
Well-defined lesions	Active edge on back of hand	More diffuse lesions
Nail and knuckle involvement	Nails often involved	Nails can be involved
Köbner phenomenon	No Köbner phenomenon	No Köbner phenomenon
Can be symmetrical	Asymmetrical	Usually symmetrical

**Table 2** Proposed classification of hand eczema.<sup>17</sup>

Type	Demographics	Medical history	Most common clinical signs	Most common locations	Definition
ACD	Predominance of men	Relevant contact allergy; highest HECSI	Erythema, scaling, infiltration	Finger, palm, fingertip	Relevant contact allergy
ACD + ICD		Relevant contact allergy and relevant irritant exposure	Erythema, scaling, infiltration	Finger, fingertip/palm	Relevant contact sensitization and relevant irritant exposure
ICD	Most common diagnosis for women	Relevant irritant exposure; lowest HECSI	Erythema, scaling, infiltration	Finger, fingertip/palm	Relevant irritant exposure
AHE (endogenous)	Affects young age groups	AD	Infiltration, erythema, scaling	Finger, palm	Atopic skin disease
AHE + ICD		AD and relevant irritant exposure	Erythema, scaling	Finger, dorsal hand	Atopic skin disease and relevant irritant exposure
Vesicular (endogenous)	Predominance of men		Vesicles, erythema, scaling	Palm, finger	Vesicular morphology and no relevant contact sensitisation, no relevant irritant exposure, no atopic disease
Hyperkeratotic (endogenous)	Affects older age groups	High HECSI	Infiltration, fissures, scaling	Palm, finger	Hyperkeratotic morphology in the palms and no relevant contact sensitisation, no relevant irritant exposure, no atopic disease

ACD, allergic contact dermatitis; AD, atopic dermatitis; AHE, atopic hand eczema; HECSI, Hand Eczema Severity Index; ICD, irritant contact dermatitis.

A new classification of hand eczema has recently been proposed for use in clinical practice and research applications.<sup>17</sup> Based on an analysis of patients attending European patch testing centres, it defines seven subgroups according to demographics, medical history and lesion morphology (Table 2, Fig. 1). In many cases, there is an underlying endogenous predisposition even when irritant (or allergic) factors seem to predominate.

### Management strategies for chronic hand eczema

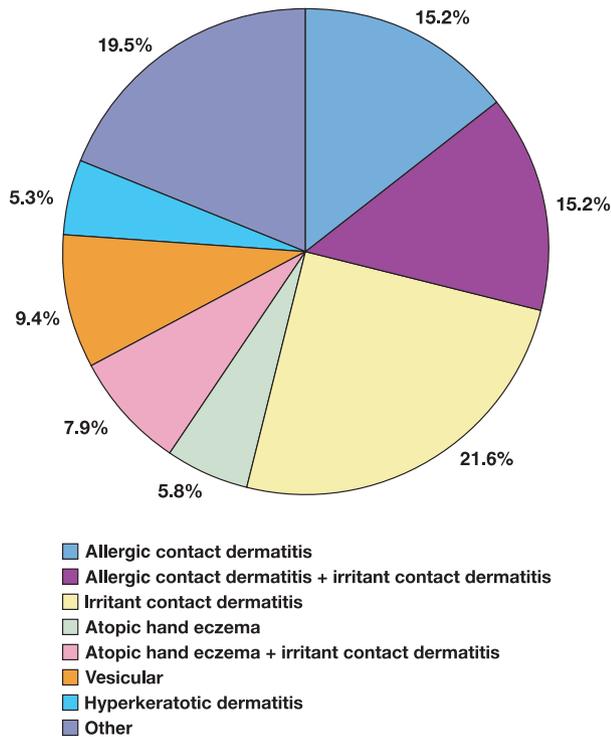
A wide range of approaches is available for the management of chronic hand eczema (Table 3). There is a poor evidence base to support the use of lifestyle changes, and a lack of direct comparative trials of treatments for hand eczema. The efficacy of available treatments cannot be directly compared because differences in the eligibility and exclusion criteria for published trials have resulted in the recruitment of different patient populations. An algorithm for the management of chronic hand eczema is shown in Fig. 2.

### Non-pharmacological interventions

Lifestyle change is recommended for all patients. This involves avoidance of identified allergens and irritants, substituting alternatives where possible, use of hand protection, and avoidance of wet work and mechanical irritation (Table S2). A skin-protection programme should be tailored to individual need; this should include education about hand eczema with the aim of giving the patient realistic expectations of treatment outcomes (e.g. it is not curable). Cases associated with occupational exposure should be notified to the Health and Safety Executive (in the UK). Management should include not only the patient but the family too, taking into account psychological issues, occupation, and the history of the condition and its treatment.

### Topical treatments

After emollients, barriers and soap substitutes, the topical treatment of choice is a topical steroid. These agents are very effective in the short term, but they inhibit repair of the stratum corneum and may interfere with recovery in the long term. There is evidence of



**Figure 1** Frequency distribution of proposed subdiagnoses with hand eczema.<sup>17</sup>

efficacy for long-term intermittent monotherapy with mometasone furoate cream;<sup>18</sup> the risk of recurrence is reduced by a very potent steroid (clobetasol propionate) compared with a moderately potent preparation.<sup>19</sup>

The disadvantages of topical steroids include adverse effects (AEs) (such as skin atrophy), tachyphylaxis and adrenal suppression after systemic absorption. Anecdotal experience suggests that intermittent dosing may reduce the risk of AEs. Clinical experience suggests that

alternating a topical steroid with a topical calcineurin inhibitor may reduce AEs, although the long-term safety of this approach is unknown.

The topical calcineurin inhibitors tacrolimus and pimecrolimus are licensed for the treatment of atopic dermatitis when topical steroids have failed or not been tolerated (and, in the case of pimecrolimus, when a steroid is inappropriate, such as on the face or neck). Tacrolimus has been shown to be as effective as mometasone furoate,<sup>20</sup> whereas pimecrolimus appears to be equivalent to a mildly potent topical steroid. AEs include transient stinging, flushing with alcohol and skin infection; despite concerns about the long-term effects of immunomodulation, observational data suggest that these agents are not associated with lymphoma.

Other topical agents include the retinoid bexarotene; a gel formulation is licensed in the USA for the treatment of lymphoma. It is expensive, but has been shown to improve severe chronic hand eczema. AEs include irritation, stinging or burning, and flare of dermatitis.<sup>21</sup>

Wet-wrap dressings may also be effective.<sup>22</sup> Other treatments include Grenz rays,<sup>23</sup> and options evaluated for pompholyx include radiotherapy, botulinum toxin<sup>24</sup> and iontophoresis.<sup>25</sup>

**Phototherapy**

Small trials have shown that ultraviolet (UV)B may improve chronic hand eczema over a period of 10 weeks, but topical psoralen UVA (PUVA) is superior.<sup>26</sup> Topical PUVA is widely used to treat hand eczema, but this is based more on familiarity and clinical experience than on evidence. Most dermatologists would use topical PUVA rather than systemic PUVA

**Table 3** Treatment options for chronic hand eczema.

Skin-protection programme	Topical therapies	Systemic therapies	Photo(chemo) therapy
Education	Emollients	Corticosteroids	UVB
Avoidance and substitution	Barriers	Ciclosporin	PUVA
Protection	Topical steroids	Azathioprine	UVA1
	Topical calcineurin inhibitors (tacrolimus, pimecrolimus)	Mycophenolate mofetil	
	Miscellaneous (bexarotene gel, wet wraps, radiotherapy, Grenz ray, botulinum toxin, iontophoresis)	Acitretin	
		Alitretinoin	
		Others (IFN- $\gamma$ , IVIg, infliximab, Chinese herbs)	

IFN, interferon; IVIg, intravenous immunoglobulin; PUVA, psoralen ultraviolet A; UV, ultraviolet.

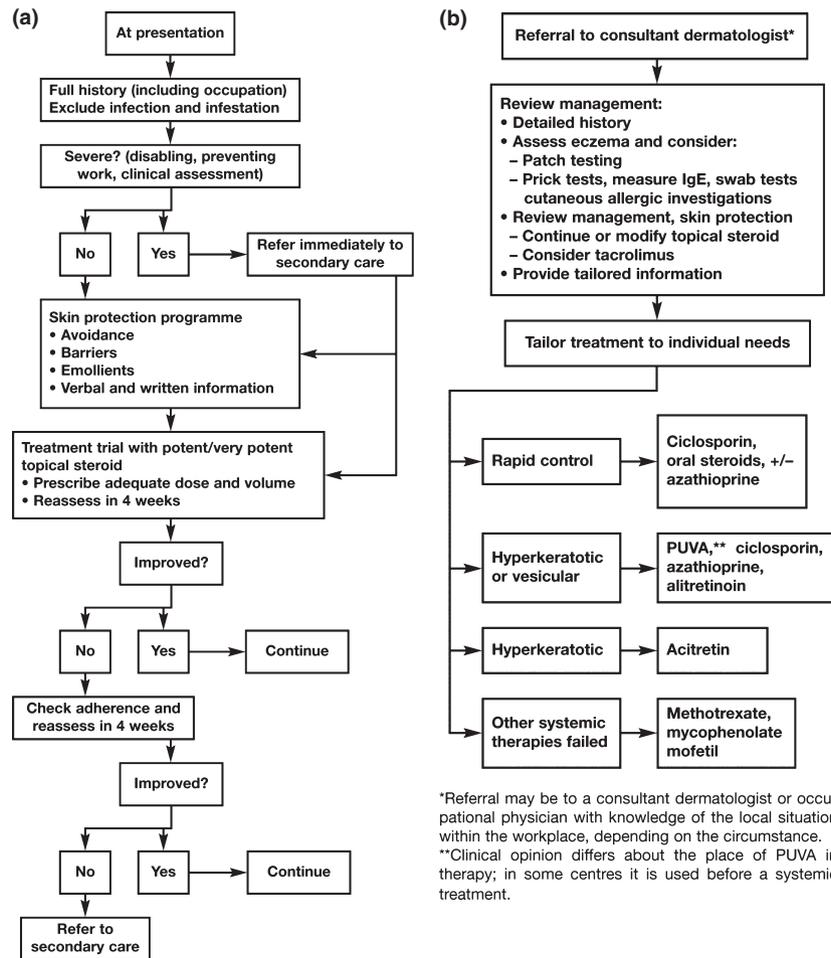


Figure 2 Algorithm for the management of chronic hand eczema in (a) primary and (b) secondary care.

as it likely to be safer. UVA1 may also be effective, although provision of this in the UK is very limited.

### Systemic therapies

The systemic therapies most widely used in the treatment of chronic hand eczema are summarized in Table 4.<sup>27–30</sup> Most are not licensed for the treatment of hand eczema, and lack strong evidence of efficacy. The exception is the oral retinoid alitretinoin, which is specifically approved for the treatment of adults with hand eczema unresponsive to topical steroids, and is supported by evidence from a large randomized trial.<sup>30</sup> However, clinical experience with alitretinoin is limited. Alitretinoin has recently been reviewed by the UK National Institute for Health and Clinical Excellence (NICE), and the final approval determination (FAO) recommends the drug as a treatment option for adults

with severe chronic hand eczema that has not responded to potent topical corticosteroids; if the person has severe disease, as defined by the Physician's Global Assessment (PGA) and a DLQI score of  $\geq 15$  (<http://www.nice.org.uk>).

In 1032 patients with severe refractory hand eczema, 48% of those treated with alitretinoin were clear or almost clear within 12–24 weeks compared with 17% assigned to placebo. The commonest AE was headache, reported by 11% and 20% of patients at doses of 10 and 30 mg/day compared with 6% using placebo. The response was more marked in patients with hyperkeratotic hand eczema (49% at 30 mg/day; 28% at 10 mg/day) than in those with vesicular disease (33% and 23%, respectively).<sup>30</sup> Alitretinoin is contraindicated during pregnancy, and women of childbearing potential must be enrolled in a pregnancy-prevention programme.

**Table 4** Systemic therapies for chronic hand eczema.

Systemic treatment	Comment	Disadvantages
Corticosteroids	Not licensed. Few convincing studies in hand eczema and most in children	Adrenal suppression, upper gastrointestinal symptoms, hypertension, increased risk of diabetes and osteoporosis
Azathioprine	Not licensed. No specific evidence in hand eczema, although effective in AD	Hepatotoxicity, bone marrow suppression, increased toxicity in patients with thiopurine methyltransferase deficiency
Ciclosporin	Not licensed. Has been shown to offer equivalent efficacy to betamethasone dipropionate; <sup>27</sup> 12 months' remission achieved at a dose of 3 mg/kg	Nephrotoxicity, hypertension, adverse effects on skin
Mycophenolate mofetil	Not licensed. No data specifically for hand eczema, but can be effective in AD <sup>28</sup>	Adverse gastrointestinal effects
Acitretin	Not licensed. Small trial found efficacy in hyperkeratotic dermatitis of the palms <sup>29</sup>	Hepatotoxicity, xerosis. Must be avoided during pregnancy
Alitretinoin	Licensed for adults who have severe chronic hand eczema that is unresponsive to treatment with potent topical corticosteroids. Large randomized trial found 48% of patients clear or almost clear compared with placebo <sup>30</sup>	Headache. Must be avoided during pregnancy
Others (IFN- $\gamma$ , IVIg, infliximab, Chinese herbs)	Little evidence; data either conflicting or show little efficacy	

AD, atopic dermatitis; IFN, interferon; IVIg, intravenous immunoglobulin; UV, ultraviolet.

### Referral from primary care

A careful history should be taken and alternative diagnoses excluded, particularly fungal disease. Patients should be provided with verbal and written information about general hand care and prescribed appropriate emollients. A full-strength potent topical steroid ointment should be applied, usually overnight and under cotton gloves, for a reasonable trial period (perhaps for 4 weeks). If there is no progress or if relapse occurs, referral for further assessment and treatment may be needed. In the meantime, short bursts of treatment with a superpotent topical steroid may be given for a few days a week.

GPs should refer patients to a dermatologist or an occupational physician; some trades unions have considerable experience in dealing with industrial irritants and allergens. For initial patch testing or uncertain diagnosis, a dermatologist referral is needed, but once this is established then, unless specialist treatment is necessary, ongoing care may be provided by a GP (either with or without a special interest in the condition) or a nurse. Legal and employment matters are best dealt with by an occupational physician, and a trades union may be helpful if a general problem affects more than one individual.

GPs should take into account the delay between referral and the consultation when considering treatment duration. In some cases, early referral could help a patient stay in employment. Often a patient will have

struggled with such a disability for some time and may have reached a crisis point when they first consult. It is therefore important to assess progress from primary care treatment promptly, so that patients whose hand eczema has not improved sufficiently can be reassessed and further help sought.

Financially motivated downward pressure on referrals to secondary care by primary-care trusts is an uncomfortable reality in some regions, but can be appropriate where the primary-care diagnosis or treatment is inadequate and there is an effective intermediate service to fulfil that role. GPs must have the right, however, to refer to the specialist directly or by a fast-track mechanism if the patient does not gain early remission of their hand eczema due to lack of knowledge or inadequate facilities.

### Recommendations for the management of chronic hand eczema

- 1 Hand eczema of > 6 months' duration should be considered chronic hand eczema.
- 2 Initial management should include a full history, exclusion of infection (tinea) and infestation (scabies), and advice on a skin-protection programme (e.g., protecting the hands with gloves and/or barrier creams and avoiding likely irritants and allergens).
  - (i) The quality of laboratory support to identify fungal infection varies locally, and this should be taken

into account when considering the differential diagnosis.

- (ii) Advice should be supported by written information. Examples are available from the National Eczema Society (<http://www.eczema.org>), the Skin Care Campaign (<http://www.skincarecampaign.org>) and the British Association of Dermatologists (<http://www.bad.org.uk>).
- 3** Initial treatment in primary care should include a trial of treatment with regular emollients and a trial of a potent and very potent topical steroid.
- (i) The treatment trial should last a few weeks; it is not possible to be specific about the optimum duration of treatment, but if the patient improves during the first 4 weeks the response should be reassessed after a further 4 weeks.
  - (ii) Patients with very severe chronic hand eczema should be referred immediately, but treatment should not be delayed pending an appointment.
  - (iii) If the response to initial treatment is poor, check adherence to the treatment regimen.
- 4** Patients who do not have a satisfactory response to initial treatment should be referred to a dermatologist using locally agreed criteria.
- 5** Referred patients should have their management reviewed.
- (i) This should include patient education (to achieve realistic expectations from treatment); detailed tailored information; a detailed history and assessment of hand eczema; and assessment of treatment prescribed, the response to it and adherence.
  - (ii) Initial topical steroid treatment may be continued or modified.
  - (iii) Initial investigations should include patch testing and, as appropriate, prick testing, swabs, serum IgE and specific IgE tests, and cutaneous allergic investigations.
- 6** In the absence of adequate evidence from comparative randomized trials, systemic treatment should be tailored to the needs of individual patients.
- (i) Patients should be offered a choice of treatments, but this may be limited by the options available locally and the need for transport.
  - (ii) PUVA may be considered first for hyperkeratotic hand eczema, although its effectiveness is limited. It is relatively safe.
  - (iii) Systemic therapies include ciclosporin and azathioprine. Alitretinoin is a new option licensed for severe chronic hand eczema and showing good clearance rates in a clinical trial that included patients with all forms of hand eczema.

(iv) Oral steroids can be considered when rapid control is needed.

(v) Acitretin can be considered for patients with hyperkeratotic hand eczema.

(vi) Options after other systemic therapies have failed include methotrexate and mycophenolate mofetil.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article.

**Table S1.** Common irritants and allergens in various occupations.

**Table S2.** Hand-care advice for patients with chronic hand eczema.

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