Chronic Hand Eczema: Epidemiology, Etiology, and Classification

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Disclosures:

Research investigator and/or scientific advisor to AbbVie, BI, BMS, EPI, Incyte, Leo, UCB, Janssen, Lilly, Novartis, Ortho Dermatologics, Sun, Dermavant, Dermira, Sanofi, Regeneron, Pfizer, and Modmed.

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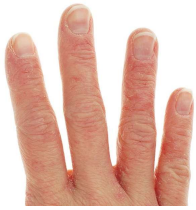
Hand eczema (HE), also known as hand dermatitis, is an inflammatory skin disease of the hands and wrists

Acute hand eczema (AHE): eczema localized to the hands that lasts for less than 3 months and does not occur more than once per year.



Diepgen TL, et al. *J.Deutschen Dermatologischen Gesellschaft*. 2015;13(1):e1-22.

Lynde C et al. Canadian Hand Dermatitis Management Guidelines . Journal of Cutaneous Medicine and Surgery. 2010: 267–284.

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Chronic hand eczema (CHE) can be defined as persistence of hand eczema for **more than 3 months**, or when the condition **reoccurs twice or more often within a 12-month** time frame (European Society Guidelines on Contact Dermatitis)

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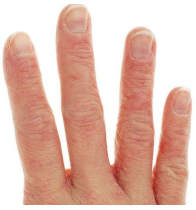

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Epidemiology

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Global Prevalence of Chronic Hand Dermatitis

- General population
  - Point prevalence: 2.7% to 17.5%
  - Lifetime prevalence: 8.4% to 41.8%
- Dermatology clinic population
  - Point prevalence in adults: 5% to 48%
  - Point prevalence in children: 19% to 26%

Point prevalence
Proportion of a population that has the characteristic at the specific time

Lifetime prevalence
Proportion of a population who, at some point in life has ever had the characteristic

Thyssen JP, Hahn-Pederson J, Fitzgerald An, Glanville J, Armstrong AW,. Chronic hand eczema: a systematic review of epidemiology.

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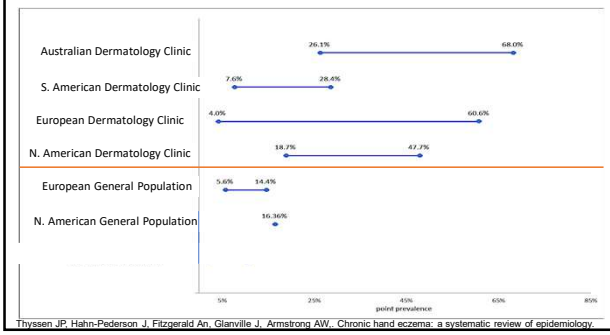
Prevalence among those seen in dermatology clinics and the general population



Thyssen JP, Hahn-Pederson J, Fitzgerald An, Glanville J, Armstrong AW,. Chronic hand eczema: a systematic review of epidemiology.

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Do certain occupations put people more at risk for the development of CHE?

8

Which of the following occupations has the highest lifetime prevalence of CHE in Europe?

Cashier

Baker

Fire fighter

9

Which of the following occupations has the highest lifetime prevalence of CHE in Europe?

Cashier

Baker

Fire fighter

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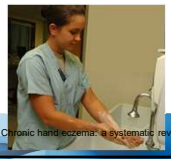
Occupation-related Lifetime Prevalence of CHE in Europe

- Hairdressers: 8% to 44.5%
- Apprentice nurses: 16%
- Manual workers: 16%
- Food handlers (bakery/confectionery): 3.3% to 21%



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Incidence of Chronic Hand Eczema per 1000 PY

Population	Incidence
Hairdressers	Self-reported: 23.8 to 31.5/1000 PY Diagnosed by dermatologist: 5.6/1000 to 211/1000 PY
Butchers, bakers, and kitchen workers/cooks	2.11 to 8.37/1000 PY
Blacksmiths and mechanics	8.0 to 12.0/1000 PY
Dental technicians	8.5/1000 PY
Healthcare workers	0.38 to 8.1/1000 PY
General population	5.5 to 14.8/1000 PY
Cleaners	0.58/1000 PY
Carpenters	0.18/1000 PY
Shop workers or cashiers	0.15/1000 PY

Thyssen JP, Hahn-Pederson J, Fitzgerald An, Glanville J, Armstrong AW,. Chronic hand eczema: a systematic review of epidemiology.

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Risk factors for development of hand dermatitis

- Previous episodes of hand dermatitis
- Atopic dermatitis
- Contact Allergy
- Wet work
- Early onset
  - Median age of onset of 27 years

Hald M, Berg ND, Elberling J, Johansen JD. *Br J Dermatol*. 2008;158(4):773-777.
Diepgen et al. Journal of the German Society of Dermatology. 2015 Jan;13(1):e1-22.

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Classification and Etiology

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Lack of Consensus Regarding CHE Classification and Management at a Global Level

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Classification systems vary

- **Location**
  - Interdigital, fingertips, dorsal, wrists, and palmar
- **Morphology**
  - hyperkeratotic, vesicular, nummular, and fissured
- **Etiology**
  - Exogeneous versus Endogenous (Example: European Society of Contact Dermatitis)
- No current international consensus regarding classification

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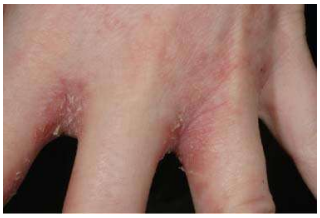
Location-based CHE classification



Interdigital eczema

Pulpitis

Menne T et al.. Contact Dermatitis. 2011;65(1):3-12.

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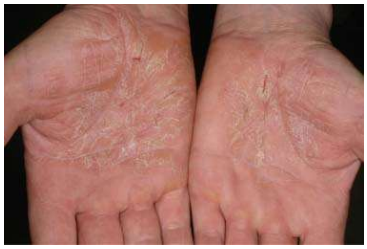
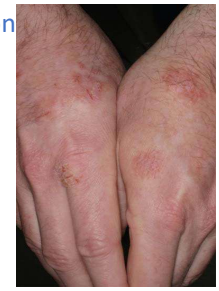
Morphology-based CHE classification



Hyperkeratotic palmar hand eczema



Nummular hand eczema

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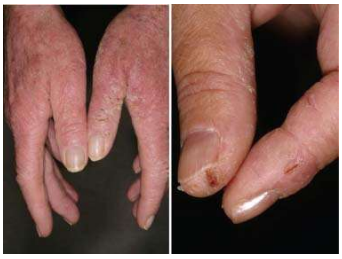
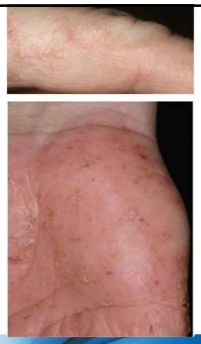


Chronic fissured hand eczema



Recurrent vesicular hand eczema

Menne T et al.. Contact Dermatitis. 2011;65(1):3-12.

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General considerations on classification of hand eczema

- Pattern of dermatitis is often polymorphic, and morphology is not at all related to etiology.
- Acute phase: pruritus, erythema, and vesiculation are predominant
- Chronic phase: scaling, infiltration, fissures, and hyperkeratosis predominant
- Most common subtypes seen across different classifications systems: irritant, allergic, and atopic.
- No generally agreed upon classification for HE.

Diepgen et al. JDDG, 2014

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Example: Canadian hand dermatitis guidelines

3 clinical types:

- Irritant hand dermatitis
  - Location: well-defined borders, confined to areas of exposure
  - Itching typically less intense than with allergic HD
- Allergic hand dermatitis
  - Allergic contact HD: Type IV hypersensitivity (verification with patch test)
  - Protein contact HD: Type I and IV hypersensitivity
- Atopic hand eczema

Lynde C et al. Canadian Hand Dermatitis Management Guidelines . Journal of Cutaneous Medicine and Surgery. 2010: 267–284.

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Classification of Hand Eczema
by the European Society of Contact Dermatitis (ESCD)

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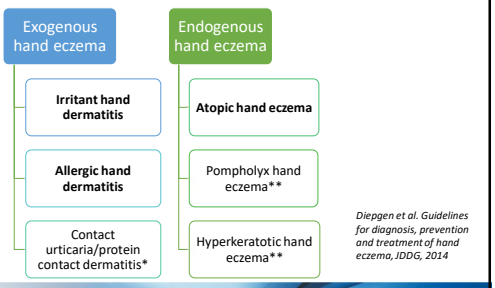
Classification of Hand Eczema (European Society of Contact Dermatitis)



Diepgen et al. Guidelines for diagnosis, prevention and treatment of hand eczema, JDDG, 2014

*Contact urticaria/protein contact dermatitis could be either due to irritant or allergic.
**morphology-based; could also be a presentation of AHE

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Irritant hand dermatitis

Exogeneous

- Due to prolonged or repeated exposure to primary irritants
- Diagnosis based on:
  - (a) a documented exposure to an irritant that is quantitatively likely to cause contact dermatitis, and
  - (b) the absence of relevant contact allergy (no current exposure to allergens to which the patient has reacted positive in patch test, if any)
- Example: wet work
  - wet hands or wearing of gloves for two hours, or more than 20 hand washes daily. Maybe associated with AD.
- Irritant contact dermatitis (ICD) may predispose patients to allergic contact dermatitis (ACD), and combined cases of ICD and ACD are common.

Diepgen et al. Guidelines for diagnosis, prevention and treatment of hand eczema, JDDG, 2014

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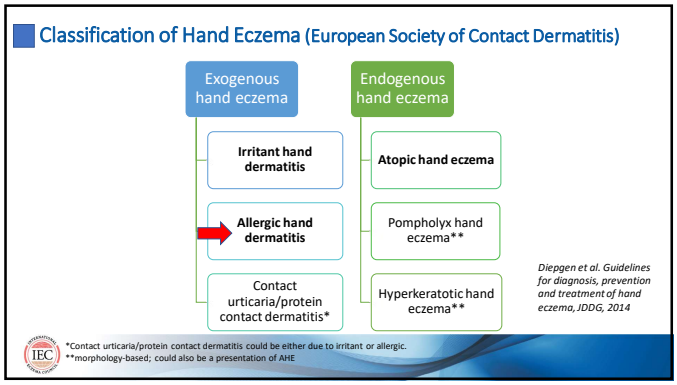

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Allergic Hand Eczema

Exogeneous

- Caused by delayed-type reaction (type IV reaction) as an immunological response to an allergen in a sensitized individual.
- Diagnosis confirmed when there is a +patch test reaction to a topical allergen or a cross-reacting allergen, and a relevant current exposure to this allergen (suspected or proven).
- Early lesions at the sites of allergen contact, but spreading may occur.
- Difficult to distinguish between irritant and allergic HE clinically or histologically.
- ACD may take a more acute course compared to ICD.

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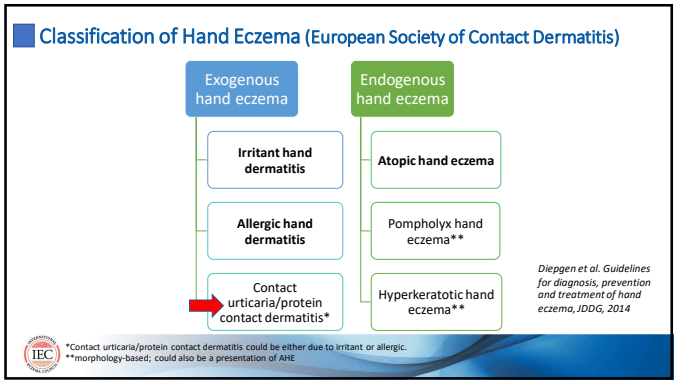

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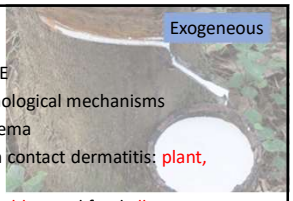
Protein contact dermatitis



Exogeneous

- Rare, distinct form of allergic or irritant HE
- IgE-mediated mechanisms or non-immunological mechanisms
- An initial urticarial phase followed by eczema
- Four groups of proteins can cause protein contact dermatitis: plant, animal, flour, and proteolytic enzymes.
- Most frequent triggers are natural latex rubber and food allergens
- Diagnosis based on exposure to proteins (food, latex and other biological material) and a positive prick test, or proven specific IgE, to suspected items.
- May be a result of combined type I and type IV delayed hypersensitivity reactions.

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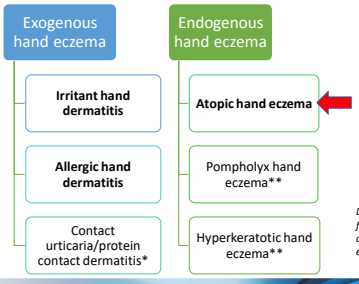
Classification of Hand Eczema (European Society of Contact Dermatitis)



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Endogenous

Atopic Hand Eczema

- Previous or current AD with no documented exposure likely to cause irritant contact dermatitis.
- Mutations in filaggrin are found in increased rates in atopic HE.
- Epidermal barrier in AD predispose to developing ICD.
- The cellular immunity in AD is decreased. Controversy as to whether ACD occurs in a smaller number of patients with AD than in non-atopics.
- Consider patch testing.

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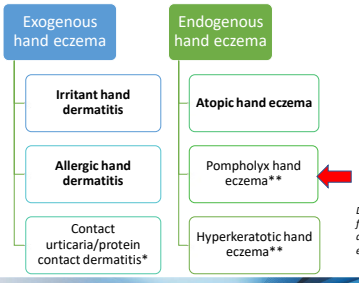
Classification of Hand Eczema (European Society of Contact Dermatitis)



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Pompholyx

Endogenous

- Endogenous form of CHE with vesicular eruptions.
- [Distinguished from the broader term "vesicular HE"—vesicular eruptions of chronic allergic or irritant contact, and endogenous vesicular dermatitis]
- No relevant contact allergy and no documented irritant exposure likely to cause dermatitis.
- Presentation: isolated vesicles on the palms of the hands and sides of the fingers, erythema, and severe pruritus.
- Classically lasts 2-3 weeks, resolves with desquamation
- Recurs following stress, systemic contact dermatitis, dust mites, fungal infection elsewhere, associated with AD and nickel allergy.
- Avoid the term "dyshidrotic" because there is no sweat gland involvement.

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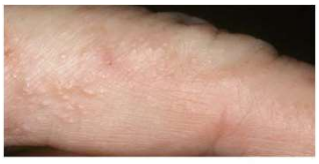
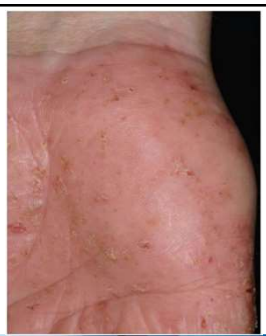
Pompholyx





Menne T et al.. Contact Dermatitis. 2011;65(1):3-12

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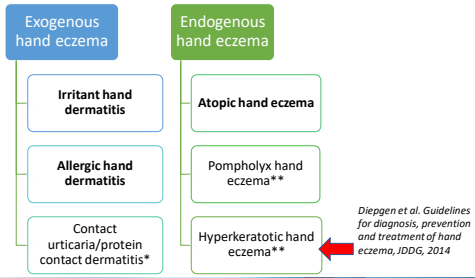
Classification of Hand Eczema (European Society of Contact Dermatitis)



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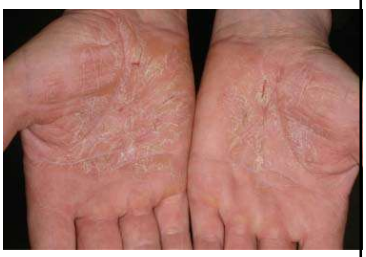
Hyperkeratotic hand eczema

Endogenous

- Chronic eczema with hyperkeratosis in palmar hands, or pulpitis
- No documented irritant exposure
- Causative factor unknown
- Sharply demarcated circumscribed hyperkeratotic and fissured lesions in the middle of the palms. No vesicles



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Consensus statement on ESCD guidelines for CHE

- Methods: An electronic questionnaire regarding the diagnosis and assessment of CHE was completed by IEC councilors (n=45)
- Areas of disagreement
  - Value of skin biopsy
  - Investigating for possible type 1 reactions
  - Conducting a fungal culture
  - Finding no history of relevant allergens and/or irritants
  - Patch testing irrespective of lesion location and morphology
- Agreements highest among respondents from Europe, followed by Asia, and then North America.

Silverberg, Guttman-Yassky, Agner, Bissonnette, Cohen, Simpson, Wollenberg, Thyssen. DERMATITIS, Vol 00 • No 00 • Month, 2020

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Consensus statement on ESCD guidelines for CHE

- Substantial differences in agreement
- Knowledge and practice gaps with respect to CHE exist.
- Future research is needed to inform evidence-based and/or consensus guidelines for CHE.

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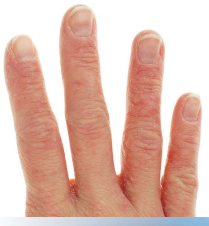
Thank you



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