

**Hand Dermatitis**  
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David E Cohen has declared the following financial interests:  
 Consultant and Honorarium:  
 • Ferrisite Laboratories,  
 • Allerga  
 • Medimetriks,  
 • Cutanea,  
 • Ferrer,  
 • Cegreus,  
 • Dermavant  
 • FSJ  
 • FSI (FSI receives industry sponsorship from AbbVie, Amgen, Bausch and Lomb, Bristol Myers Squibb, Celgene Dermavant, Dermira, Jaroson, Kyowa Hakko Kiro, LEO, Lilly, Novartis, Ortho Dermatologics, Pfizer, Sanofi Genzyme, Sun Pharma, UCB, Valeant)

• Stock or stock options: Dermira, Medimetriks, Brickell Biotech, Kadmon  
 • Board of Directors: Dermira, Kadmon

**I will discuss non-FDA approved patch test allergens**

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**Hand Dermatitis**

- General population prevalence is 5% to 10%
- workers, exposed to wet work and frequent hand washing
- Atopic dermatitis (AD) is recognized as the top risk factor Causes:
- **Exogenous: Irritant, Allergic Contact Dermatitis, Systemic contact**
- Endogenous: Psoriasis, Dyshidrosis, Atopic Dermatitis, Nummular
- **ID**
- **HYBRID**
- Spectrum for eczematous disease is Vesicular and eroded to hyperkeratotic and fissured
- Hand Psoriasis may have higher rates of allergic contact dermatitis.

1. J Occup Environ Health. 2016 Jun; 23:1-10. Epub 2016 Jun 1. doi: 10.1080/10914445.2016.1144455. [Epub ahead of print].  
2. Contact Dermatitis. 2014 Jun; 70(1):44-55. doi: 10.1111/cod.12177. [Epub ahead of print].  
3. J Occup Environ Health. 2016 Jun; 23:1-10. Epub 2016 Jun 1. doi: 10.1080/10914445.2016.1144455. [Epub ahead of print].  
4. Contact Dermatitis. 2014 Jun; 70(1):44-55. doi: 10.1111/cod.12177. [Epub ahead of print].  
5. Contact Dermatitis. 2014 Jun; 70(1):44-55. doi: 10.1111/cod.12177. [Epub ahead of print].  
6. Contact Dermatitis. 2014 Jun; 70(1):44-55. doi: 10.1111/cod.12177. [Epub ahead of print].

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Characteristic	Primary n (%)	Total of Up to 3 Lesions, n (%)	Final diagnosis n=5076	n=5897
Characteristics	n=5898	n=5897	Average	2166 (36.7)
Hand	1290 (22.0)	1440 (25.7)	Other dermatitis	305 (5.2)
Scalped generalized	965 (17.8)	1256 (22.3)	Atopic dermatitis	89 (1.5)
Face	848 (15.8)	1320 (23.7)	Other dermatitis	47 (0.8)
Eye/lids	835 (14.9)	466 (8.0)	Psoriasis	462 (7.9)
Trunk	307 (5.8)	681 (12.8)	Nummular dermatitis	47 (0.8)
Legs	274 (4.9)	358 (6.5)	Seborrheic dermatitis	38 (0.7)
Arms	283 (4.9)	728 (13.2)	Prurigo	31 (0.5)
Scalp	292 (5.1)	377 (6.7)	Paronychia	31 (0.5)
Feet	292 (5.1)	526 (9.1)	Contact dermatitis	31 (0.5)
Foot	129 (2.2)	375 (6.5)	Stasis dermatitis	19 (0.3)

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**Mixed Diagnoses**



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**Types of psoriatic palmoplantar disease**



Image courtesy of A. Reich  
 Farley E, et al. J Am Acad Dermatol. 2005; 60(5):1024-31

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**Predictive factors of self-reported hand eczema in adult Danes**

- 5 year follow-up study in the general population, aged 18-72 years (N = 2270)
- 'Never', 'incident', 'non-persistent', or 'persistent'
- atopic dermatitis (AD) was associated with both persistent (odds ratio (OR) = 9.0, 95% confidence interval (CI) 5.6-14.4) and incident hand eczema (OR = 3.0; CI 1.7-5.2)
- contact sensitization (23 allergens without nickel) was also associated with persistent hand eczema (OR = 2.5; CI 1.2-5.0), independently of an atopic phenotype.
- fragrances and isothiazolinones

Br J Dermatol. 2016 Feb 13. doi: 10.1111/bjd.14476. [Epub ahead of print]

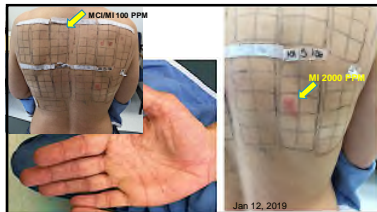
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**Occupational Dermatitis in Health Care Workers Evaluated for Suspected Allergic Contact Dermatitis**

- 685 HCWs assessed - 81.0% diagnosed with Oc Skin Dis.
- Irritant contact dermatitis (ICD) 79.1%
- Allergic contact dermatitis (ACD) 49.7%.
- rubber glove chemicals (thiuram mix and tetraethylthiuram disulfide),
- preservatives (formaldehyde, formaldehyde releasers, and isothiazolinones),
- excipients in hand cleansers.

Contact Dermatitis. 2016 Oct; 75(4):213-22.

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### Occupational Contact Dermatitis in Mechanics and Repairers Referred for Patch Testing

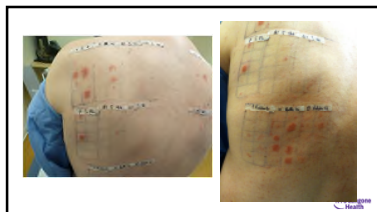
- 691 mechanics/repairers patch tested.
  - Male sex (93.5%)
  - Hand involvement (59.5%)
- Occupationally relatedness
  - Vehicle and mobile equipment mechanics/repairers (52.7%)
  - Mechanics/repairers (41.4%)
  - Electrical/electronic equipment mechanics/repairers (21.3%).
- Carba mix, thiuram mix, and MCMI - most common relevant allergens
- Gloves, automotive vehicles, solvents, oils, lubricants, and fuels were the most common sources of responsible allergens.

Dermatitis. 2017 Jan/Feb;28(1):47-57.

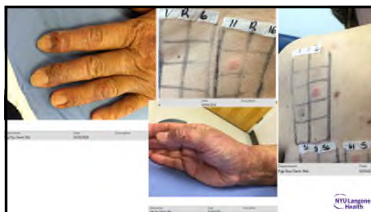
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### Medical and Surgical Gloves

- Five main families of accelerants are used in rubber-derived gloves: thiurams, dithiocarbamates (CM), benzothiazoles, guanides, and thioureas.
- Carbamates were used in 90.5% of gloves, whereas thiurams were used in 5.8%.

Accelerator-Free Surgical Gloves						
Company	Product (Material)	TH	CM	BNZ	DT	SPG
Amcol Healthcare LLC	GAMMED Non-Latex Nonsterile Surgical Glove	No	No	No	No	No
Medline Industries, Inc.	GAMMED Non-Latex Sterile Synthetic Sterile Surgical Glove	No	No	No	No	No
Medline Health Care USA LLC	DuraGrip Glove Powder-Free Nonsterile Surgical Glove	No	No	No	No	No
	Bugel HandCare Nonsterile Surgical Glove	No	No	No	No	No

Dermatitis: March/April 2018 - Volume 29 - Issue 2 - p 66-76

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### Contact Dermatitis from cleansers

- Skin cleanser allergy was associated with high frequencies of **hand and arm dermatitis**.
- More than 50 allergens were associated with SCs including
  - quaternium-15 (11.2%), cocamidopropyl betaine (9.5%), methylchloroisothiazolinone/methylisothiazolinone (8.4%), coconut diethanolamide (7.9%), fragrance mix 1 (7.7%), Myroxylon persea (5.9%)

2017 Dec 18; doi: 10.1097/J.Eur.Acad.Dermatol.Venereol.2017.10.001  
 J Eur Acad Dermatol Venereol. 2017 Jan 19; doi: 10.1111/jdv.14423  
 JAMA Dermatol. 2017 Feb 22; doi: 10.1001/jamadermatol.  
 Dermatitis. 2016 Oct 21.

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### Alkyl Glucoside (3<sup>rd</sup> 1.7%) 2017 Allergen of the Year

- Nonionic surfactants
  - They have emulsifying, cleansing, and foaming properties.
  - Plant-derived with complete biodegradability.
    - mainly from palm or coconut oil.
  - decyl, lauryl, cetearyl and, coco glucoside, and are closely related to other surfactants.
- widely used in shampoos, liquid cleansers, and shower gels, but also in leave-on products that include moisturizers, deodorants, and sunscreens.

Dermatitis. 2017 Jan/Feb;28(1):3-4.

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### Systemic contact dermatitis (SCD)

- Cutaneous reaction from systemic exposure to an allergen in a sensitized person often refractory to conventional therapies.
  - oral, intravenous, intramuscular, inhalational, transmucosal, or transcutaneous
  - Attributable to drugs and foods
- Often to common sensitizers
  - nickel, balsam of Peru, trace metals, propylene glycol, urushiol, and Compositae Plants (chamomile, Echinacea), Corticosteroids.

Cuts 2019 Dec;104(6):337-340.  
 Clinical Reviews in Allergy & Immunology (2019) 56:9-18  
 Curr Allergy Asthma Rep. 2014 Oct;14(10):463.

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### Clinical manifestations: Systemic Contact Dermatitis

- Presentations:
  - Baboon syndrome
  - Exacerbations of sites of previous exposure sites
  - **dyshidrotic hand eczema**
  - flexural dermatitis
  - exanthematous rash
  - erythroderma
  - vasculitis-like lesions
- appears within hours to 2 days after systemic exposure

Dermatitis. 2015 Sep-Oct;26(5):235-8.  
 Am J Clin Dermatol 2011; 12 (3)

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### Nickel Pyramid

Soybeans, boiled approx. 1 cup: 895 mcg	Lentils, 1/2 c cooked: 61 mcg
Cocoa, 1 tablespoon: 147 mcg	Figs, approx. 5: 85 mcg
Cashews, approx. 18 nuts: 143 mcg	Raspberries, approx. 30: 50 mcg
Asparagus, 6 spears: 25 mcg	Lobster, 3 oz: 30 mcg
Pistachios, 47 nuts: 25 mcg	Old Fakes, 20 c: 25 mcg
Vegetables, canned, 1/2 c: 40 mcg	Peanut, 1/2 c: 27 mcg
Bread, whole, 1 slice: 9 mcg	Strawberries, 7 medium: 9 mcg
Care Fakes, 1 cup: 2 mcg	Blackberries, one, 1/2 c: 2 mcg
Apple, 1 med: 5 mcg	Yogurt, 1 c: 3 mcg
Mineral Water, 8 fl oz: 3 mcg	Cheese, 1.5 oz: 3 mcg
Carrot, 5 sticks: 5 mcg	Poultry, 3.5 oz: 5 mcg

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### Topical treatment of Palmar Plantar Dermatoses

- Avoidance of irritants
- **Liberal use of emollients.**
- Topical corticosteroids (usually high potency)
- Vit D analogs in combination with topical steroids.
- Topical calcineurin inhibitors
- Tar, Salicylic acid
- Phototherapy [specific talk on light based therapies]

• Topicals are challenging and most current reports are regarding systemic therapies.

J Dermatology Treat. 2004;15:88-93.

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### Systemic Therapies for Hand/Foot Disease

- Eczema: dupilumab, alitretinoin, **acitretin**, **cyclosporine**, azathioprine,
- Psoriasis: nearly all of the systemic meds reported for plaque disease.

Dermatol Ther. 2019 Jan 28:e12840. doi: 10.1111/dth.12840.  
 J Cutan Med Surg. 2017 Nov;Dec;23(5, suppl):25-125. doi: 10.1177/1203475417735414. Epub 2017 Sep 27.

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### Apremilast in palmoplantar psoriasis

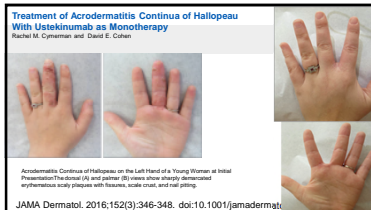
- 100 patients with moderate-to-severe palmoplantar psoriasis
  - apremilast 30 mg bid or placebo for 16 weeks.
  - At Week 16, all patients received apremilast 30 mg bid to Week 32.
- There was no significant difference in the proportion of patients who achieved a PPGA of 0/1 at Week 16
- 32 weeks with apremilast.
  - 24% of patients achieved a PPGA of 0/1.
  - (PPPGA): 75 apremilast: 22%, placebo: 8%; P = 0.049)

J Eur Acad Dermatol Venereol. 2018 Mar;32(3):403-410. doi: 10.1111/jdv.14644

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**Conclusion**


- Hand and foot dermatitis is a heterogeneous group of disorders that result in loss of function.
- Treatment rests in diagnosis and detection of potentially causative or aggravating factors. **Patch testing can be an important tool in the workup of such patients.**
- **Systemic therapy is often necessary to control recalcitrant disease.**
- **There is a need for effective topical therapies.**

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Thank you



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