Strategi for undersøgelse for Type 4 allergi

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DDS Efteruddannelseskursus

Munkebjerg

19.1.2018

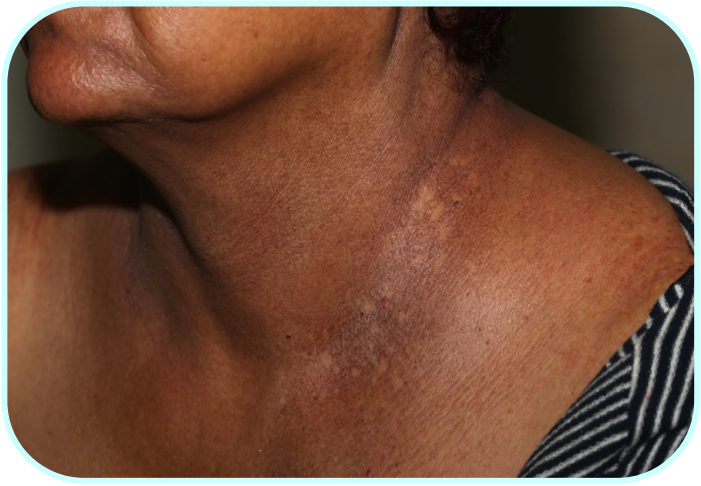
4 steps to diagnose allergic contact dermatitis

search for clues in a systematic manner

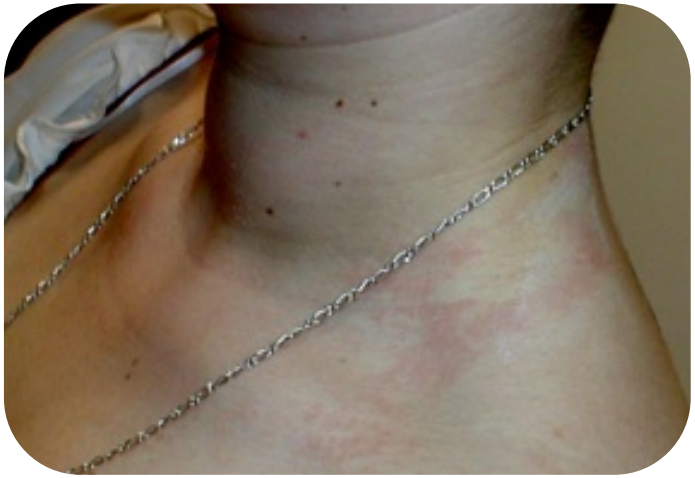
- **Elimination**: Eliminate (or include) differential diagnoses
- **Perception**: Review the different scenarios of the pre-patch test diagnosis
- **Detection**: Select the allergens to be tested – baseline + selected allergens + working materials + topical products
- **Deduction**: Establish the diagnosis of ACD by associating positive tests with history, clinical picture and exposure

John McFadden, London

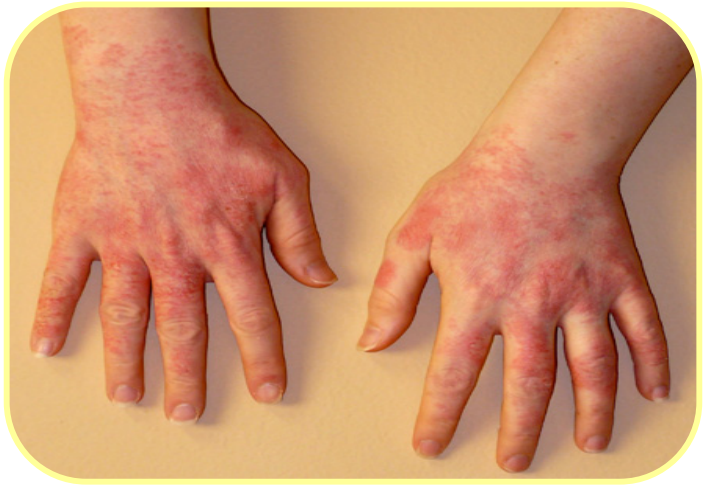
Many cases are obvious from the history



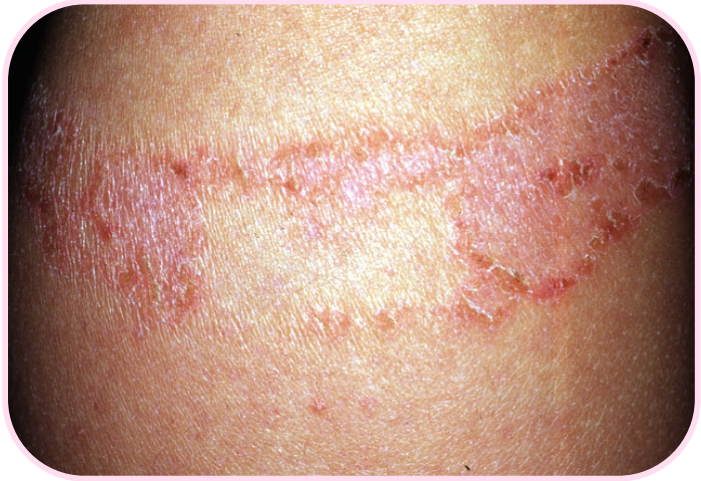
fragrance



(nickel,cobalt



glove dermatitis
(rubber chemicals,chromate)



sticking plaster
(colophonium)

Allergic contact dermatitis is subtle.

Positive patch test	Positive history
Hair dyes	50%
Fragrances	25%
Preservatives	?<25%

Ho SG, *et al.* Br J Dermatol 2005;153(2):364-7.

Perception - Pre-patch test history

- Should have a wide scope to check for exposure to a wide range of allergens
- It requires time, interest and knowledge of previous case literature – subscribe to Contact Dermatitis, read textbooks

Clinical Presentation of Contact Allergy

- direct exposure
- mimicking or exacerbation of endogenous eczema
- multifactorial dermatitis
- by proxy
- mimicking angioedema
- airborne contact dermatitis
- photo-induced contact dermatitis
- discoid eczema
- systemic contact dermatitis
- non-eczematous contact dermatitis
- contact urticaria
- protein contact dermatitis
- respiratory/ mucosal symptoms
- oral contact dermatitis
- erythroderma/ exfoliative dermatitis
- extracutaneous manifestations
- minor forms of presentation

= **17 categories!**

Proposed ICDRG Classification of the Clinical Presentation of Contact Allergy

DERMATITIS, Vol 27 ■ No 5 ■ September/October, 2016

Perception - Pre-patch test history

- ACD diagnosis highly suspected
- Competing diagnoses
- Diagnosis unclear
  - Recheck history and examination
  - Check for possibility that treatment might affect clinical appearence
  - Consider differential diagnoses again
  - Exclude dermatitis artefacta
  - Consider biopsy, microbiology and blood tests
- Plan for extensive testing

Pre-patch test history

a) Location and temporal nature of rash

- Where did the dermatitis originate?
- Where did the dermatitis spread to?
- When did the dermatitis first start?
- Is the dermatitis single event, continuous or intermittent?
- Does the dermatitis get better away from work?
- What has been the response to treatment?
- Search for aggravating/triggering/associated factors
- Previous dermatitis

Pre-patch test history

Exposure to potential allergens.

- Must have a **wide scope!**

because there are

1) multiple allergens- **9** groups of allergens in the standard series alone,
2) >**10** different modes of exposure to allergens in daily life,
3) **6** different routes of exposure

Exposure to different allergens

Allergens included in the standard series

metals

fragrances

preservatives

rubber

plants

resins

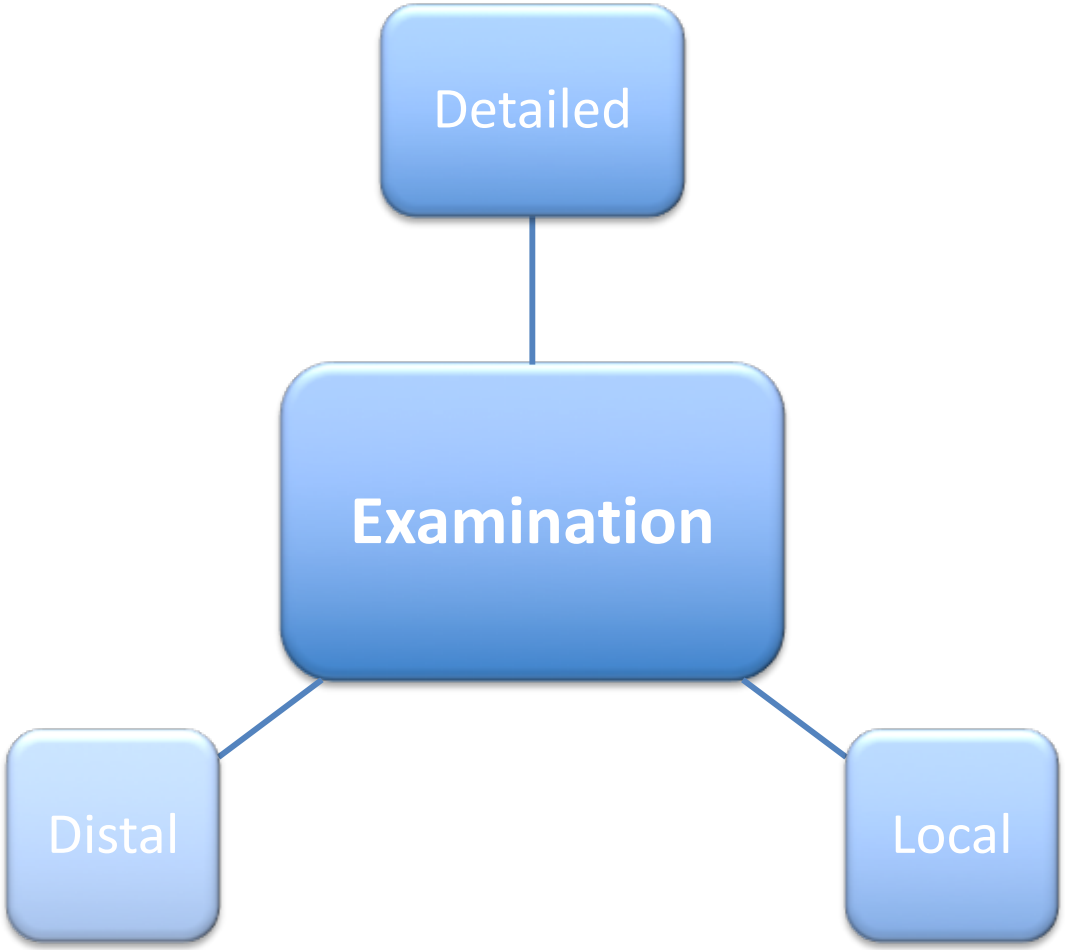
medicaments

hair dye

lanolin

Exposure to different allergens

Examination



Photos on the patient´s smartphone?

Detection

European Society of Contact Dermatitis guideline for diagnostic patch testing – recommendations on best practice

Jeanne D. Johansen[1], Kristiina Aalto-Korte[2], Tove Agner[3], Klaus E. Andersen[4], Andreas Bircher[5], Magnus Bruze[6], Alicia Cannavó[7], Ana Giménez-Arnau[8], Margarida Gonçalo[9], An Goossens[10], Swen M. John[11], Carola Lidén[12], Magnus Lindberg[13], Vera Mahler[14], Mihály Matura[15], Thomas Rustemeyer[16], Jørgen Serup[3], Radoslaw Spiewak[17], Jacob P. Thyssen[1], Martine Vigan[18], Ian R. White[19], Mark Wilkinson[20] and Wolfgang Uter[21]

Contact Dermatitis, **73**, 195–221

- Minimum baseline series (European baseline series)

+

- Selected allergens depending on history and exposure analysis

+

- Working materials and own topical products

To increase patch test sensitivity- be pro-active!- test to patients' samples

On filter paper in Finn chamber

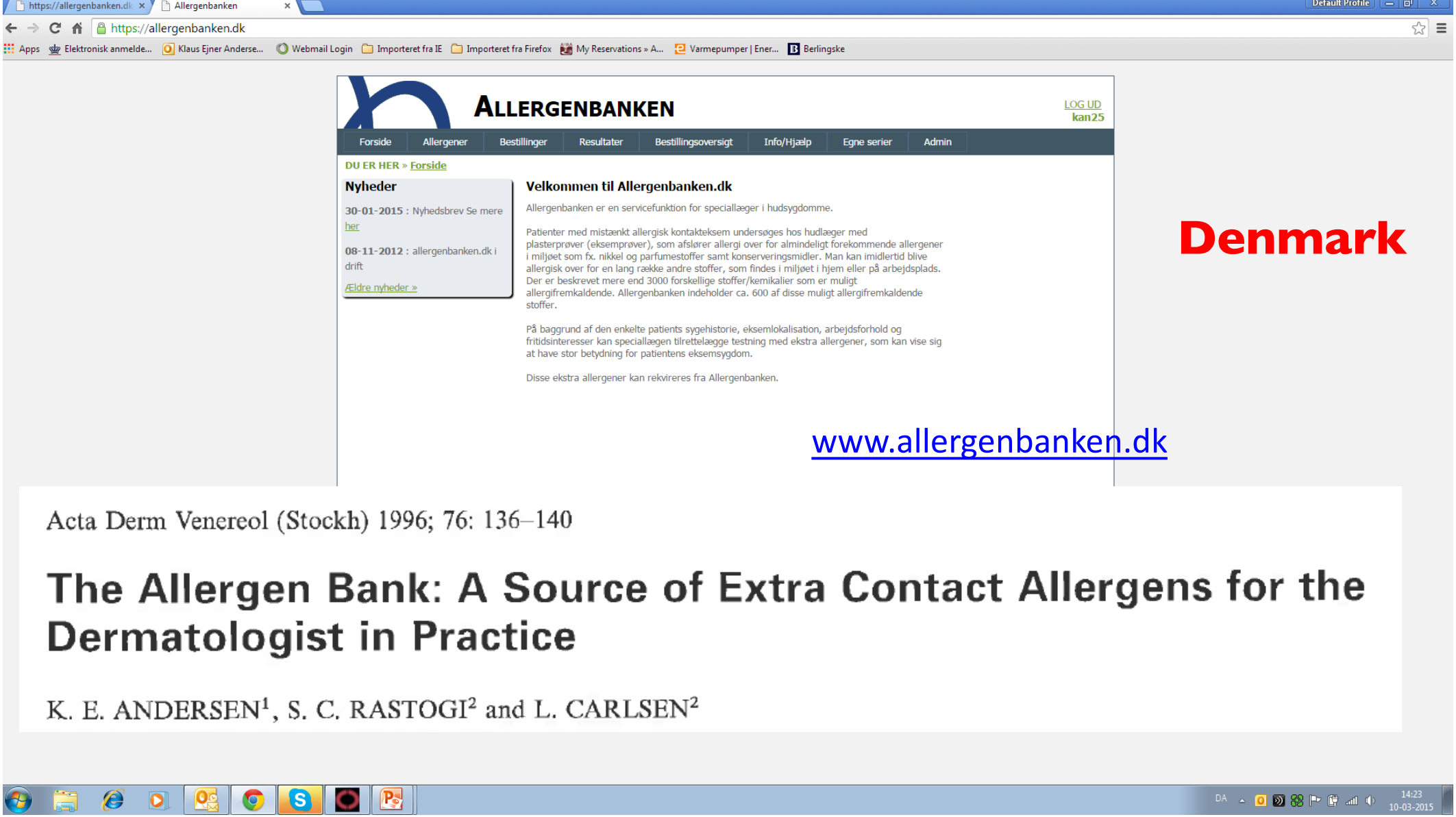
Shavings in pet-12mm chamber

Soak in water 20 minutes
Before application

Dilute 1% pet.

Seasonal variation in
Leaf allergen


Allergenbanken
Allergenbanken
Hudafdelingen I
Tlf. 6541 2708
Fax 6611 3943
Odense Universitetshospital
5000 Odense C



Denmark

www.allergenbanken.dk

Acta Derm Venereol (Stockh) 1996; 76: 136–140

The Allergen Bank: A Source of Extra Contact Allergens for the Dermatologist in Practice

K. E. ANDERSEN[1], S. C. RASTOGI[2] and L. CARLSEN[2]

https://www.smartpracticeallergenbank.com/Apps/WebObjects/SPAllergenBank.woa/wa/default **USA**

http://www.occderm.asn.au/CareersAdvice.html **Australia**

The Allergen Bank

Advantages

- Extra allergens available
- Saves time for the patient
- Improved diagnosis of contact allergy?
- Effect on prognosis?/legal compensation?
- Detection of “new” allergens?

- It makes diagnostic patch testing more rewarding!
- Quality control of patch test activity
- Research tool

Patch test reading is very important

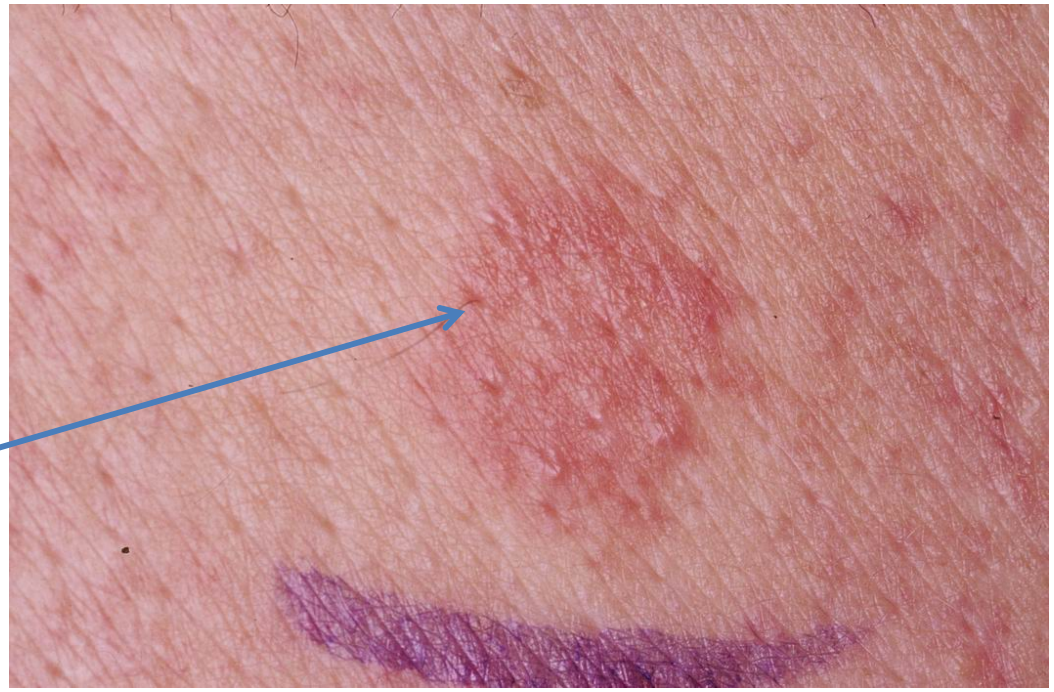
Table 4. Recording of patch test reactions according to the International Contact Dermatitis Research Group (ICDRG) [36]

?+	Doubtful reaction; faint erythema only
+	Weak positive reaction; erythema, infiltration, possibly papules
++	Strong positive reaction; erythema, infiltration, papules, vesicles
+++	Extreme positive reaction; intense erythema and infiltration and coalescing vesicles
–	Negative reaction
IR	Irritant reactions of different types
NT	Not tested

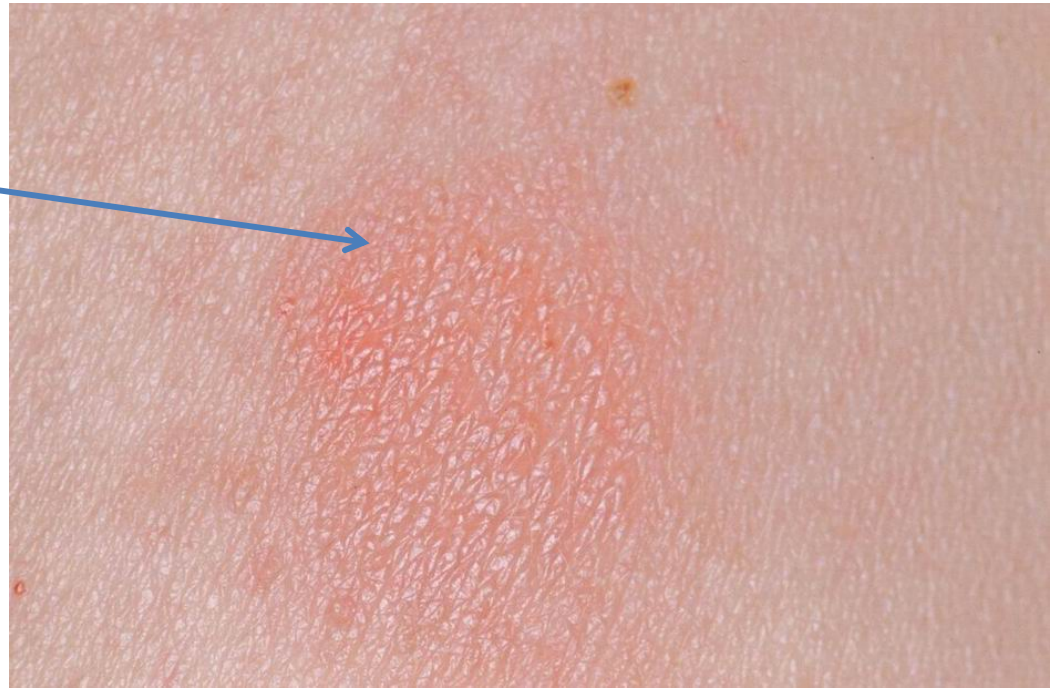
Scoring of reactions

- The borderline cases are a challenge
- Is it ?+ or +

- + or ?+ 8% fragrance mix



- + or ?+ 4% cutting oil



- This differentiation is crucial because you tend to focus on + reactions and disregard ?+ reactions

- Interindividual variation between dermatologists

Outcome of a second patch test reading of TRUE Tests® on D6/7

Jakob Torp Madsen and Klaus Ejner Andersen

Contact Dermatitis, **68**, 94–97

Table 1. Number of delayed positive patch test reactions in 9997 consecutively tested eczema patients with a negative or doubtful D3/4 reaction

	n (%)
D3–, D6/7+	286 (4.4)
D3?+, D6/7+	595 (9.1)
Number of delayed positive reactions	881 (13.5)
Total number of positive reactions	6509

Neomycin, steroids, lanolin, formaldehyde releaser, (nickel)

False positive patch tests

- Too high concentration
- Impurities –contaminated test substance
- Irritant vehicle
- Too high dose
- Uneven distribution of test material in petrolatum
- Position of allergens on the back – cross reactivity
- Active eczema on other parts of the body
- Tape reaction

False negative patch tests

- Too low concentration
- Allergen not bioavailable (retention in vehicle)
- Too low dose of allergen
- Occlusion not sufficient
- Loosening of tape
- No late reading
- UV or corticosteroid exposure
- Immunosuppressive treatment
- Allergen inactive or evaporized
- ”Compound allergy” :positive to product but negative to ingredients

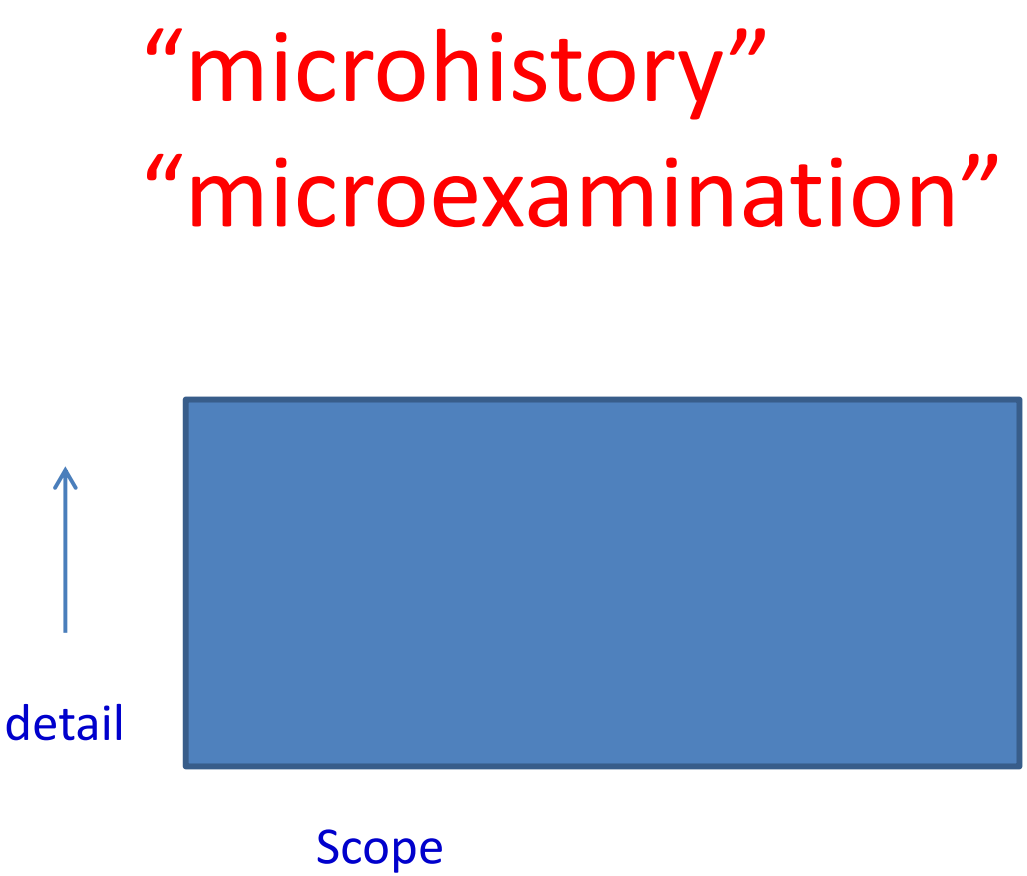
Patch test interpretation

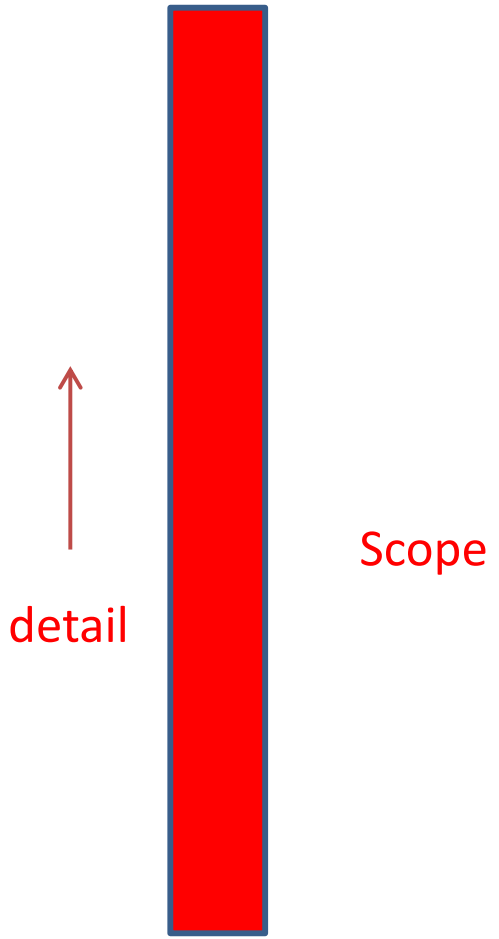
Interpretation of reactions

- Relevance
  - Certain
  - Possible
  - Unknown
- Confirm result by
  - Repeated test
  - Use-test or ROAT

pre-patch test “scoping” history and examination vs post-patch test history and examination

“microhistory”
“microexamination”



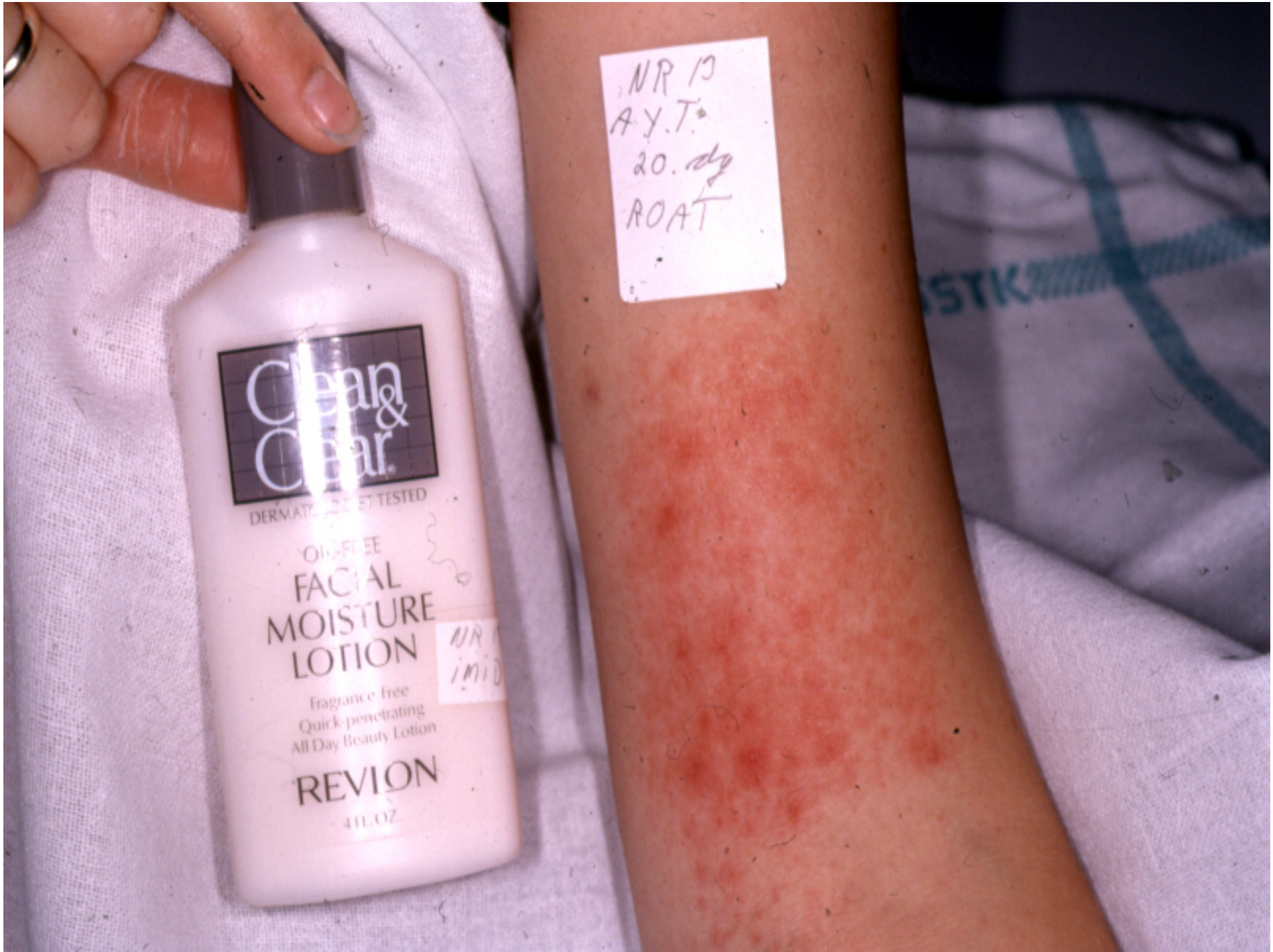


Post-patch test history should have a very narrow scope, focussing on exposure to the allergen in question to correlate in detail the nature of dermatitis

In selected cases - i.e. Patients with occupational dermatitis – legal cases - it may be very useful to repeat patch test with suspected allergens that gave doubtful reactions at the first test.
This is a valuable tool to substantiate your conclusion and to verify the diagnosis.

With suspected topical products – a Repeated Open Application Test (ROAT) is very useful:
Apply the product twice daily to volar aspect of the forearm for up to 7 days (or longer) – and look for development of dermatitis

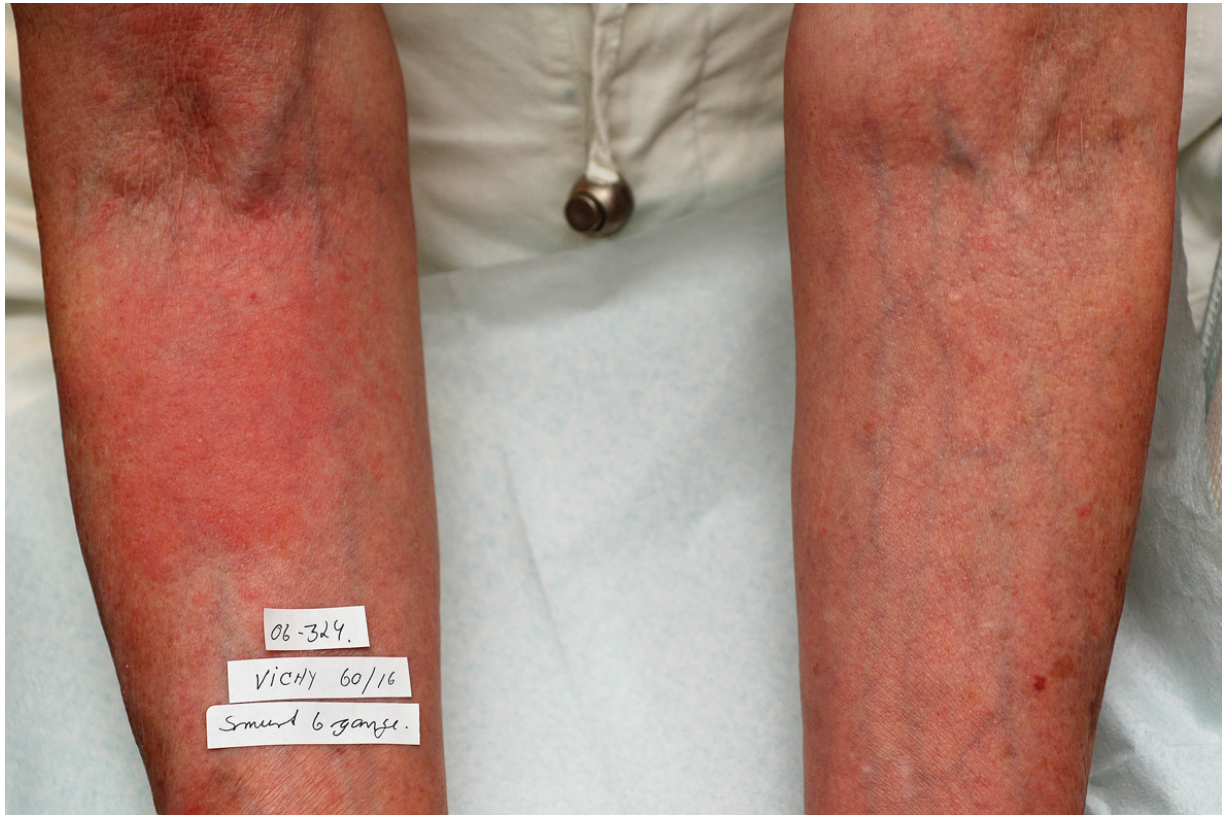
Posivite ROAT after 20 days



Positive ROAT after 2-3 days with product used

INGREDIENTS: • AQUA • OCTOCRYLENE • CYCLOPENTASILOXANE • GLYCERIN • PROPYLENE GLYCOL • ALCOHOL DENAT. • TITANIUM DIOXIDE • DROMETRIZOLE TRISILOXANE • BUTYL METHOXYDIBENZOYLMETHANE • ISOPROPYL PALMITATE • TEREPHTHALYLIDENE DICAMPHOR SULFONIC ACID • TRIETHANOLAMINE • STEARIC ACID • STEARYL HEPTANOATE • PVP/EICOSENE COPOLYMER • DIMETHICONE • ACRYLATES/ C10-30 ALKYL ACRYLATE CROSSPOLYMER • ALUMINUM HYDROXIDE • ARGININE PCA • DISODIUM EDTA • GLYCERYL STEARATE • GLYCINE SOJA • OCTOXYGLYCERIN • PEG-100 STEARATE • STEARYL ALCOHOL • STEARYL CAPRYLATE • TOCOPHEROL • XANTHAN GUM.
Code F.I.L. : C11048/1.

Distribution réservée
aux dépositaires agréés VICHY



Association between atopic dermatitis and contact sensitization: A systematic review and meta-analysis

Carsten R. Hamann, MD,[a] Dathan Hamann, MD,[b] Alexander Egeberg, MD, PhD,[a] Jeanne D. Johansen, MD, PhD,[a,c] Jonathan Silverberg, MD, PhD, MPH,[d] and Jacob P. Thyssen, MD, PhD[a,c]
Hellerup, Denmark; Columbus, Ohio; and Chicago, Illinois

(J Am Acad Dermatol 2017;77:70-8.)

- This meta-analysis showed no significant association between atopic dermatitis and contact sensitization. However, contact sensitization was increased in individuals with atopic dermatitis in general population studies.

- Individuals with atopic dermatitis have similar rates of contact sensitization as individuals without, and clinicians should consider patch testing when allergic contact dermatitis is suspected.

Contact allergy in children with atopic dermatitis: a systematic review*

A.B. Simonsen,[1,2] J.D. Johansen,[2] M. Deleuran,[1] C.G. Mortz[3] and M. Sommerlund[1]

British Journal of Dermatology (2017) 177, pp395–405

What does this study add?

- Contact allergy is a significant problem in children with atopic dermatitis and should always be considered in cases of recalcitrant atopic dermatitis.
- Children with atopic dermatitis may have unacknowledged contact allergies contributing to their skin symptoms.
- Children with atopic dermatitis seem to be at greater risk of sensitization to certain allergens, especially components of skincare products.

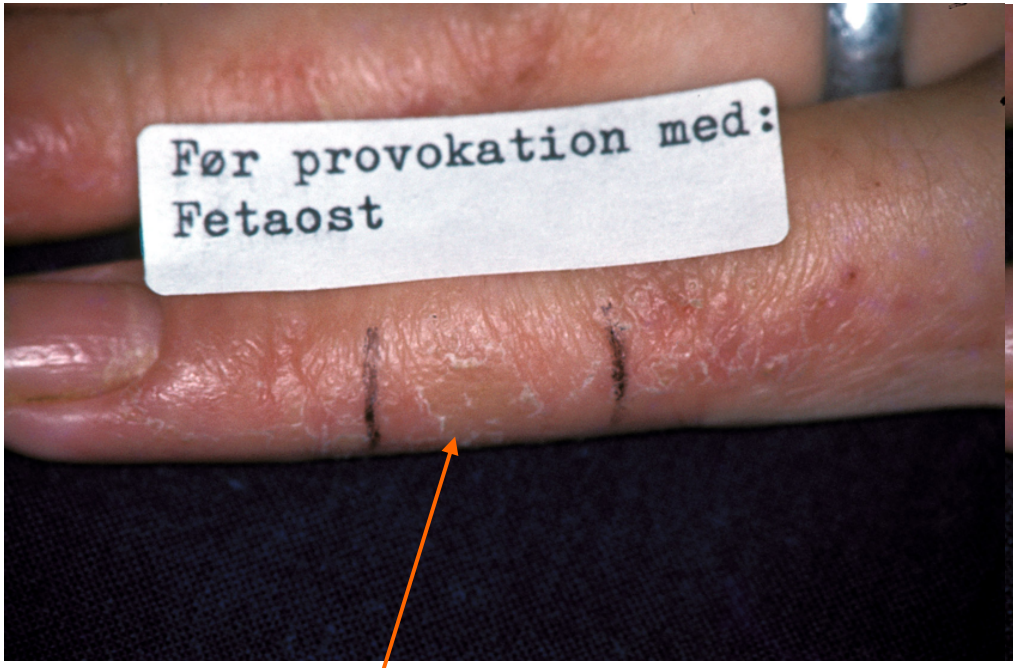
Protein contact dermatitis

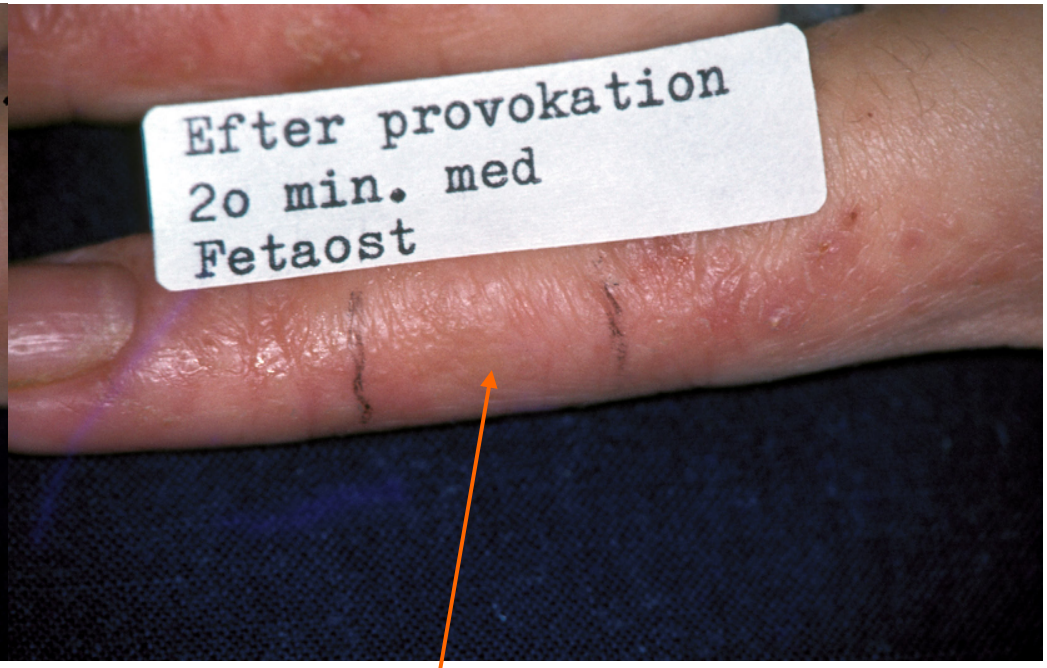
Hand eczema patients with immediate symptoms when the skin is exposed to certain food proteins

- May cause eczema or aggravate eczema?
- May cause vesicles within 30 min.
- Tests not standardized
- Immunological and non-immunological
- Atopics and non-atopics

Hjorth, Roed Petersen, Contact Dermatitis 1976; 2: 28

Protein contact dermatitis in chef with history of aggravation of HE after contact with feta cheese





Before topical provocation with cheese

Wheals after 20 min. Topical provocation with cheese

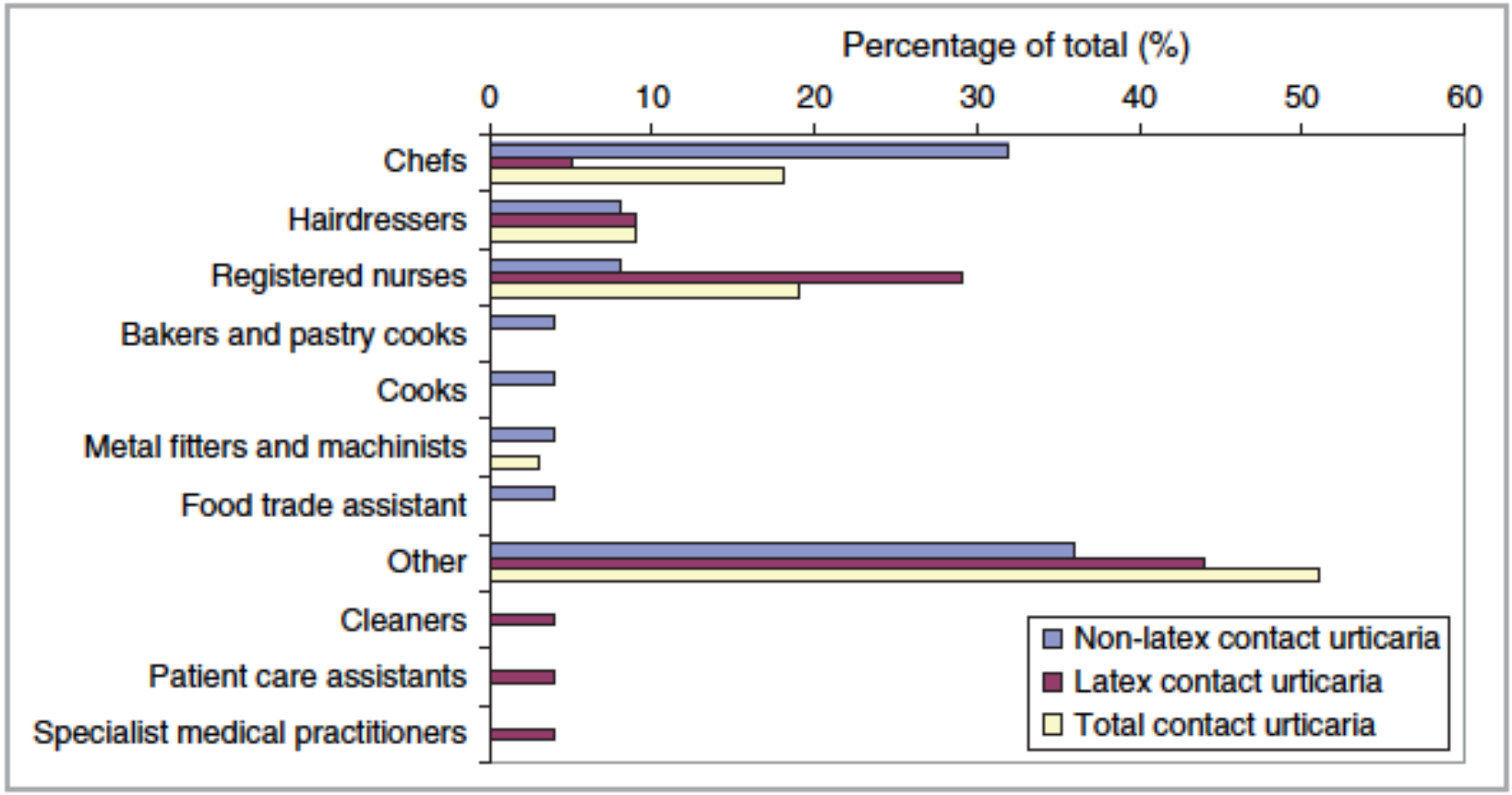
Immunologic or non-immunologic?

Occupational contact urticaria: Australian data

J.D.L. Williams,* A.Y.L. Lee,* M.C. Matheson,† K.E. Frowen,* A.M. Noonan* and R.L. Nixon*‡

British Journal of Dermatology 2008 **159,** pp125–131

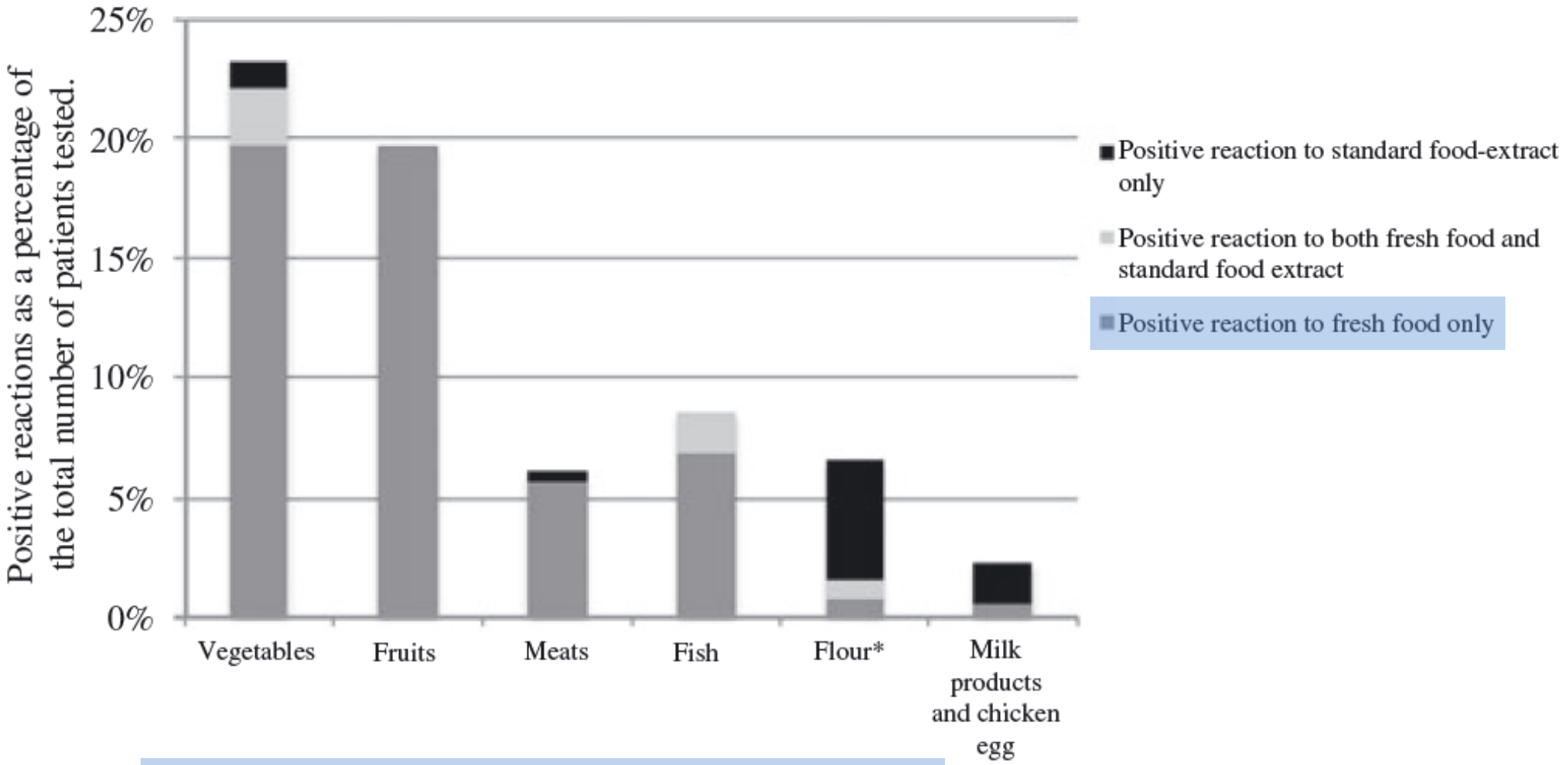
8.3% of all patients with occupational skin disease had protein contact dermatitis/ occupational CU and atopic dermatitis patients were at particular risk



Occupational food-related hand dermatoses seen over a 10-year period

Lotte Vester, Jacob P. Thyssen, Torkil Menné and Jeanne Duus Johansen

2012 *Contact Dermatitis*, **66**, 264–270



Prick-prick test with fresh foods is recommended

Consequences of occupational food-related hand dermatoses with a focus on protein contact dermatitis

Lotte Vester, Jacob P. Thyssen, Torkil Menné and Jeanne D. Johansen

2012 *Contact Dermatitis*, **67**, 328–333

85/178 (49%) were atopic dermatitis patients and those with protein contact dermatitis had worse prognosis

Table 2. The distribution of diagnoses

Diagnosis	% (no.) n = 178
Protein contact dermatitis	28.1 (50)
Other occupational food-related hand dermatoses	
Irritant contact dermatitis	63.5 (113)
Non-immunological contact urticaria	3.9 (7)
Allergic contact dermatitis	1.7 (3)
Immunological contact urticaria	0.6 (1)
Multiple diagnoses	0.6 (1)
Non-classifiable	1.7 (3)

Specialist statement
”Speciallægeerklæringer”

- Look for special questions in the referral letter from ”Arbejdsskadestyrelsen”

- Include in your statement
  - The material used as background, previous records from various sources
  - Social status – education, occupations, jobs etc.
  - Family history
  - Previous diseases – particular skin disorders – atopic dermatitis

  - Current disease: when and where did it start, how has it developed, effect of time off work, effect of treatment, any predisposing diseases (atopic dermatitis)

  - Suspected cause: describe work procedure, exposure for allergens and irritants, length of exposure

  - Consequences: sick-leave, loss of income, change of job

  - Objective examination in detail – nail changes etc.

  - Patch testing – describe in detail, full baseline? – TRUE test alone is not sufficient!! Number of readings, extra allergens etc.

Specialist statement
”Speciallægeerklæringer”

- **Comments:** dermatitis risk in the profession, other cases from the same company? Your evaluation of the person´s situation – is it plausibe that he/she can continue in the job or not

- **Conclusion:**
- Diagnosis
- Relationship between dermatitis and profession/job
- Possible to continue in job or is rehabilitation recommended
- Medical and social prognosis

Diagnostic patch testing is so far the only – and a very useful biologic test to diagnose contact allergy and allergic contact dermatitis

- Use it when indicated
- Select patch test material with care
- Standardize the technique
- Scoring and interpretation!!!

- You cannot standardize patients
- It is a challenge to ”standardize” how dermatologists use the bioasay
- You can standardize what you apply to the back