No conflicts of interest

We will discuss non FDA approved allergens

Objectives

- Brief review of common themes in past outbreaks of allergic contact dermatitis
- Identify emerging allergens
- Detail these allergens
- Identify potential methods to avoid allergic contact dermatitis epidemics


- Reviewed 6 epidemics of allergic contact dermatitis
  - Nickel
  - Chromium
  - Formaldehyde
  - MO/MI
  - Methyldibromo glutaronitrile
  - PPD

How can we identify emerging allergens?

- Occupational
- Consumer
- Database
- Wait and see approach
- Publish
- No easy answer

Common Themes

1. Often first seen in occupational setting
2. Latency period until the epidemic is recognized
3. Long lasting
4. Regulations occur most frequently after public research

- Reviewed all major contact dermatitis journals
- 119 new allergens reported
- 1/3 of the new allergens were in cosmetics
- Other major sources were in the occupational settings as well as rubber/plastic based allergens

**Select allergens**

**Cosmetic ingredients**
- Ascorbyl tetraisopalmitate
- Argania spinosa kernel oil
- *Betula alba* bark extract
- Biosaccharide gum-4
- Calcephalin
- Capryloyl salicylic acid
- Ceteareth-2
- Cetearyl glucoside
- C30-38 Olefin
- Bis-Diglycerly polyacyladipate-2
- Distearyl phthalic acid amide
- Ditrimethylol propane
- 3-O-Ethyl-1-ascorbic acid
- Fructooligosaccharides
- Glucan oligosaccharide
- *Helichrysum italicum*
- Hesperidin methyl chalcone
- Hexyldecanol
- Magnolia officinalis bark extract
- Methoxypropanediol
- Octyldodecyl xylolose
- PEG-7 oleate
- Phenylethyl resorcinol
- Phytantriol
- Phytonadione epoxide
- Polyester-8
- Polyglyceryl-10 laurate
- Polysilicone-15
- Sodium chondroitin sulfate
- Sodium cocompropionate
- Tetrahydromagnolol
- Tinosorb M
- Triceteareth-4-phosphate
- Valiya naryana thailam ayurvedic oil
- Xanthum gum

**Occupational exposure**
- Alprazolam
- Aripiprazole
- Baclofen
- Bisoprolol
- Enalapril
- Esomeprazole
- Lisinopril
- Lorazepam
- Lormetazepam
- Olanzapine
- Perindopril
- Trazadone
- Zolpidem
- Acetochlor
- Caprylylthanolamine
- 4-carboxybenzyl phosphonium.bromide
- 6-chloropyrazin-s-amine
- Cobalt 2-ethylhexonate
- Didecyltrimium bromide
- Dimethyl sulfite
- Hexamethylene 1,6-diisocynate
- Iodooctonitrile
- Ioversol
- N- (3-trifluoromethyl-4-nitrophenyl) phthalimide
- Triphenylguanidine

**Selected Allergens**

- *Betula alba* bark extract
- Calcephalin
- *Helichrysum italicum*
- *Magnolia officinalis* bark extract
- Ioversol

**Betula alba** bark extract

- White birch tree
  - Deciduous tree
  - Native to Europe and Asia
  - Grows further North than any other leafed tree
- Two layers of Bark (inner and outer)
- Outer bark used for construction
  - Canoe, roofing
- Inner bark – rich in tannins/terpenoids
  - Used to oil rope

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Betula alba bark extract

- Mixture of numerous chemical compounds
  - Pentacyclic triterpenes
  - Betulin, betulinic acid
  - Oleanic acid
  - Erythrodiol
  - Glycosides
  - Phenolic compounds

Betula alba bark extract

- Betulinic Acid
  - Anti-inflammatory
  - Antibacterial and antifungal properties
  - Antiviral and antiparasitic properties
  - Antineoplastic
  - Improved wound healing
  - Poor pharmacodynamic properties

Betula alba bark extract

- Botanical
  - Tar like fragrance

The therapeutic properties of birch oil are analgesic, antiseptic, astringent, depurative, disinfectant, diuretic, febrifuge, insecticide and tonic.

Calocephalin

Helichrysum italicum

Magnolia officinalis bark extract
Ioversol


- Significant increase in allergic contact dermatitis rates to
  - Carba mix
  - Disperse Orange 3

Carba Mix

- Carba Mix, 3%

Disperse Orange 3

- Disperse Orange 3, 1%

Conclusions

- Enormous amount of information with imperfect methods to detect emerging allergens
- Occupational cases of contact dermatitis often precede allergic contact dermatitis epidemics
- Reviewed 7 allergens
- Collaborative effort required