The disappearance of NRL-allergy in Germany and Europe

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Hevea brasiliensis
Urticaria
Why is this called urticaria?
Urtica dioica = Stinging nettle
Lung function of a nurse with type-I allergy
Natural rubber latex allergy
Prevalence in the “General Population“:

- 1987: 0.8%
- 1990/93: 0.8-1.1%
- 1995-9: 3.5%
- 1999 AB: 6.1%
- 2000: 1.4%
- 2001: 18.6%
Prevalence in „Health Care Workers“

- 1987: 7.4%
- 1996: 11.6%
- 1997: 14.1%
- 1998: 14%
- 1999: 16.7%
- 2000: 9.2%
Suspected Occupational Asthma

- Acute care hospitals
- Dentists' offices
- All HCW's
NRL-Allergy Time to Symptoms

Start of work between:

92/93
90/91
88/89
86/87

Duration to symptoms [months]

First symptoms
Occupational asthma

Greek text: Αλλεργία Χλιν Ιμμονολ 2002 Αυγ;110: 318–23
Measurements

Sampler
Identifying the Cause

• Measurement of NLR in the air

• Evaluation of NRL sensitization in Health Care Workers

• Result: We found only sensitizations in rooms with detectable NRL allergens!!!
Implementing Secondary Prevention

• St. Franziskus Hospital in Münster
• Evaluation of NRL sensitization in Health Care Workers
• Switch to powderfree NRL or non-NRL gloves
• Measurement of allergens in the air and antibodies in affected HCWs.
Prevention

- **Primary (population approach):**
  - Use only powder-free gloves and other materials.

- **Secondary (high risk approach):**
  - Latex-free materials for sensitized/allergic HCWs
  - Use only powder-free gloves and other materials.
Keep in mind:
The powder is only the carrier and not the allergen.
NRL-Allergy Time to Symptoms

Start of work between:

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Reasons

- High demand lower quality
- No transport denaturation during shipment because new plants close to plantations
- Defense proteins
Worst case scenario assumption: Release per glove = 98.7 mg powder
Worst case scenario assumption:
Release per glove = 98.7 mg powder
Occupational asthma

Year

Cases
0 50 100 150 200 250 300 350 400 450

-83.9% -88.5%

% occupationally caused

decided cases

occupationally caused

% occupationally caused

Occupational dermatitis

- decided cases
- occupationally caused
- % occupationally caused

Cases

% 


0 100 200 300 400 500 600 700 800 900 1000

% 

-81.6% -83.0%

Year

9 Αλλεργης Χλιν Ιμμυνολ. 2004 Αυγ;114(2):347–
Prevention

• Primary (population approach):
  – Use only powder-free NRL gloves and other materials.

• Secondary (high risk approach):
  – Latex-free materials for sensitized/allergic HCWs
  – Use only powder-free NRL gloves and other materials.
Newly suspected cases in acute care hospitals in Germany

• Skin allergy 1998 – 2005
  89 % reduction

• Occupational asthma 1997 - 2005
  95 % reduction
Reason for the decrease?

• Is it the powder/inhalation route?
• or reduction of allergen content?
• Is the „powder free approach“ just a proxy?
• Sensitisation via skin contact?
Our answer:

The NRL allergy epidemic is over and the success was reached by using this approach:
Before exposure

$FEV_1: 2.9 \text{ L} = 100\%$

$sR_t : .77 \text{ kPa}\cdot\text{s} = 100\%$
Control: Cornstarch ADP 30 min.

FEV$_1$: 2.9 L = 100%
sR$_t$ : .88 kPa*s = 115%
30 min 10 pair powderfree NRL-gloves

FEV$_1$: 2.9 L = 100%

sR$_t$: .9 kPa*s = 116 %
20 min 1 pair powdered NRL-gloves

FEV$_1$: 2.3 L = 79%
sR$_t$: 1.5 kPa*s = 196%
Powder-free made her smile
Any questions?