

Occupational Contact Dermatitis in Victorian Workers

Dr Tessa Keegel
A/ Prof Tony LaMontagne
A/Prof Rosemary Nixon
Prof Malcolm Sim

Background

Occupational contact dermatitis (OCD) is a skin disease which most often affects the hands.

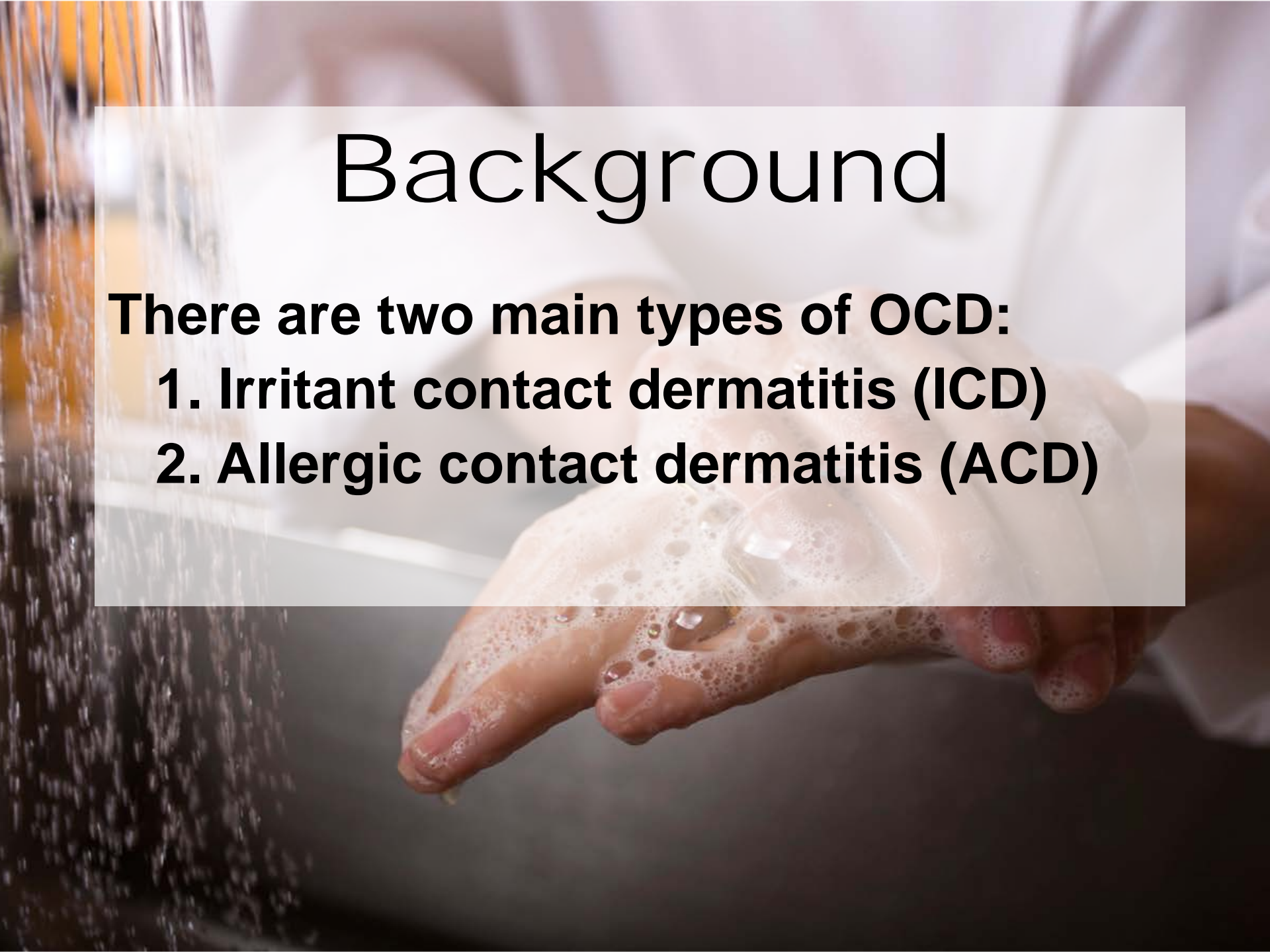
In Australia skin disease was the second most common work-related problem presenting to GPs¹

¹Hendrie and Driscoll 2003

Background

There are two main types of OCD:

- 1. Irritant contact dermatitis (ICD)**
- 2. Allergic contact dermatitis (ACD)**



A close-up photograph of a hand being washed under a stream of water. The hand is covered in white, bubbly soap suds. The water is falling from the top left, creating a blurred, dynamic effect. The background is out of focus, showing what appears to be a white sink or basin.

Irritant Contact Dermatitis

ICD is usually caused by irritants such as detergents, caustic substances and water

Allergic Contact Dermatitis

ACD develops when an individual becomes sensitised to a specific chemical and develops a type IV (delayed reaction).

Common occupational sensitisers include PPD in hair dyes (for hairdressers) or epoxy resins (for boat builders & floor finishers).

Allergic Contact Dermatitis

ACD is usually diagnosed through a process which includes patch testing.



A close-up photograph of a person's hands being washed under a running faucet. The water is clear and cascading down the left side of the frame. The hands are covered in white, bubbly soap suds. The background is softly blurred, showing what appears to be a white sink or countertop. The overall scene conveys a sense of hygiene and cleanliness.

Priority Disease

OCD has consistently been nominated by Safe Work Australia as a 'priority work-related disease'



Priority Disease

Workers may require extended time off work and changes in workplace practices

Some workers may need to change their jobs

Ongoing financial burden for treatment and preventative items

The background of the slide is a blurred image of hands being washed with soap and water. The water is running from a faucet on the left side, creating a dynamic, flowing effect. The hands are positioned in the center, with soap suds visible. The overall tone is clean and hygienic.

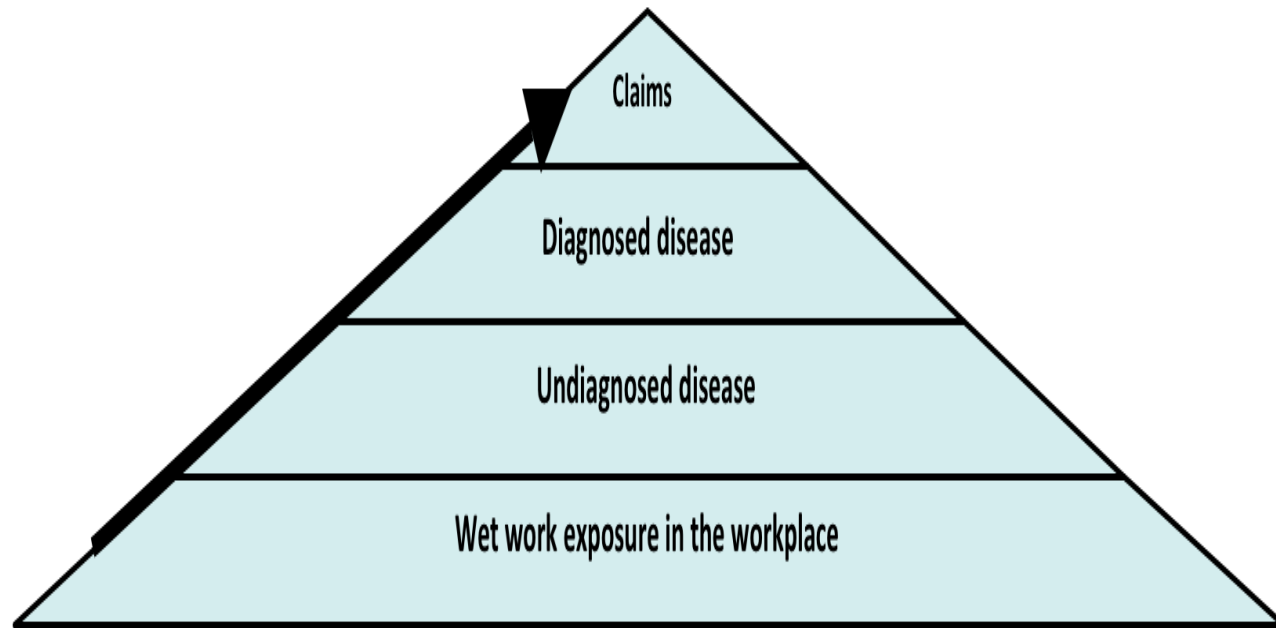
WorkSafe/TAC funded project

**WorkSafe/TAC through ISCRR
funded a project through the
development grants scheme to
consider aspects of exposure,
diagnosed disease and workers'
compensation claims for OCD**

Project summary

The project described:

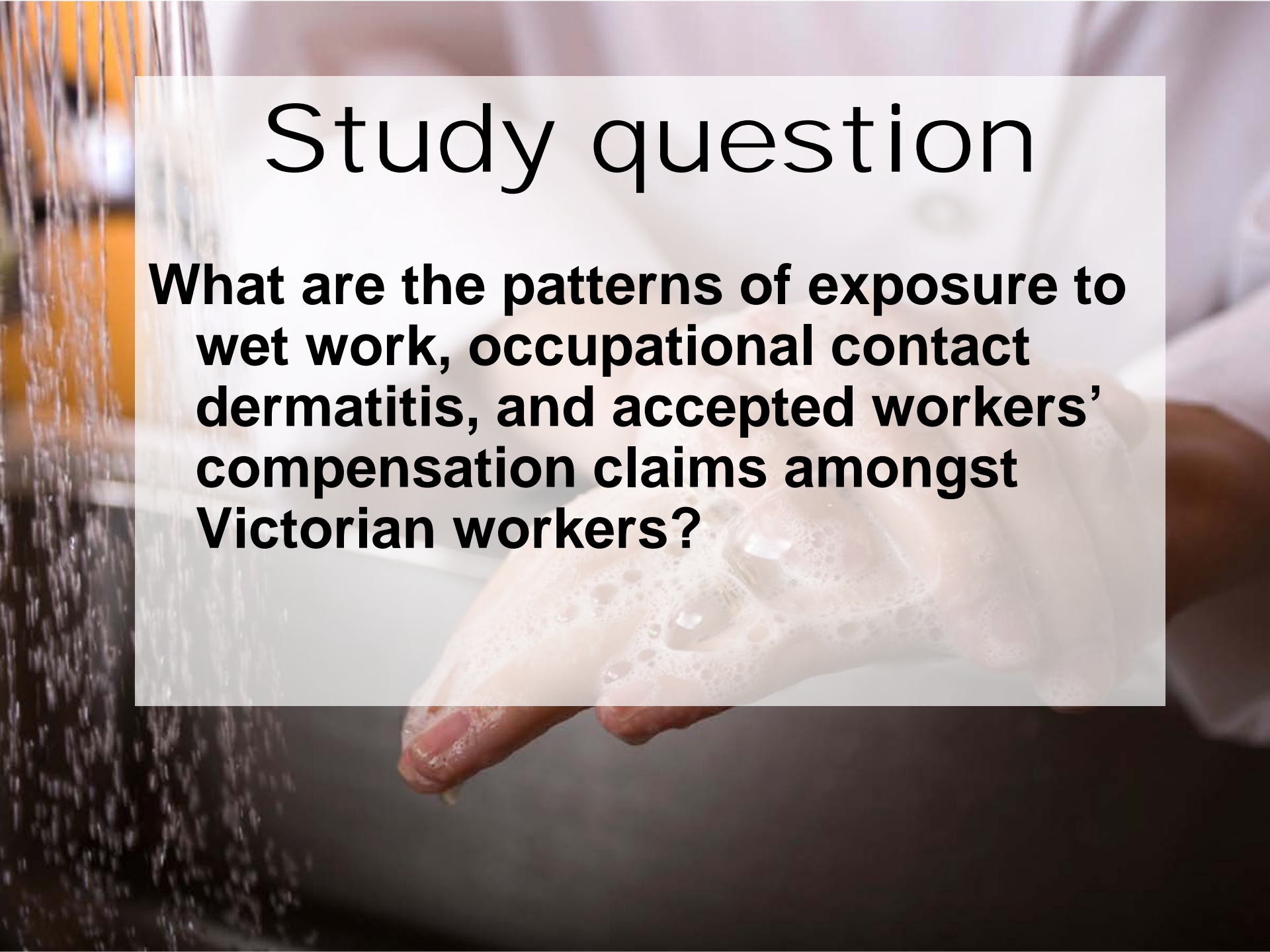
- 1. Wet work exposure**
- 2. Diagnosed OCD**
- 3. Successful workers' compensation claims**



Occupational contact dermatitis: wet work exposure and disease pyramid.

Study question

What are the patterns of exposure to wet work, occupational contact dermatitis, and accepted workers' compensation claims amongst Victorian workers?



Methods

- **The first dataset has information about self-reported Australian wet work exposure data**
- **The second dataset consists of de-identified diagnosed disease data from a Victorian dermatology clinic**
- **The final dataset consists of de-identified Victorian Workers' Compensation claims data**

Methods

- **The first dataset has information about self-reported Australian wet work exposure data**
- **The second dataset consists of de-identified diagnosed disease data from a Victorian dermatology clinic**
- **The final dataset consists of de-identified Victorian Workers' Compensation claims data**
- **Case Study: Hairdressers**

A close-up photograph of a person's hands being washed under a running faucet. The hands are covered in white, bubbly soap suds. The water is clear and cascades down the left side of the frame. The person is wearing a white, short-sleeved button-down shirt. The background is softly blurred, showing a white sink and a white wall.

Wet work

A close-up photograph of a person's hands being washed with white soap foam under a stream of water from a faucet. The background is blurred, showing a person in a white lab coat.

Study design & sample

In 2008, Safe Work Australia conducted the National Hazard Exposure Worker Surveillance (NHEWS) study

A close-up photograph of a person's hands being washed under a running faucet. The water is clear and cascading down the left side of the frame. The hands are covered in white, foamy soap suds. The background is a blurred white surface, likely a sink or countertop. The overall scene is brightly lit, emphasizing the cleanliness of the activity.

Wet work exposure

Two separate outcomes:

- 1) frequency of hand washing at work**
- 2) time spent with hands in liquids at work**



Wet work exposure

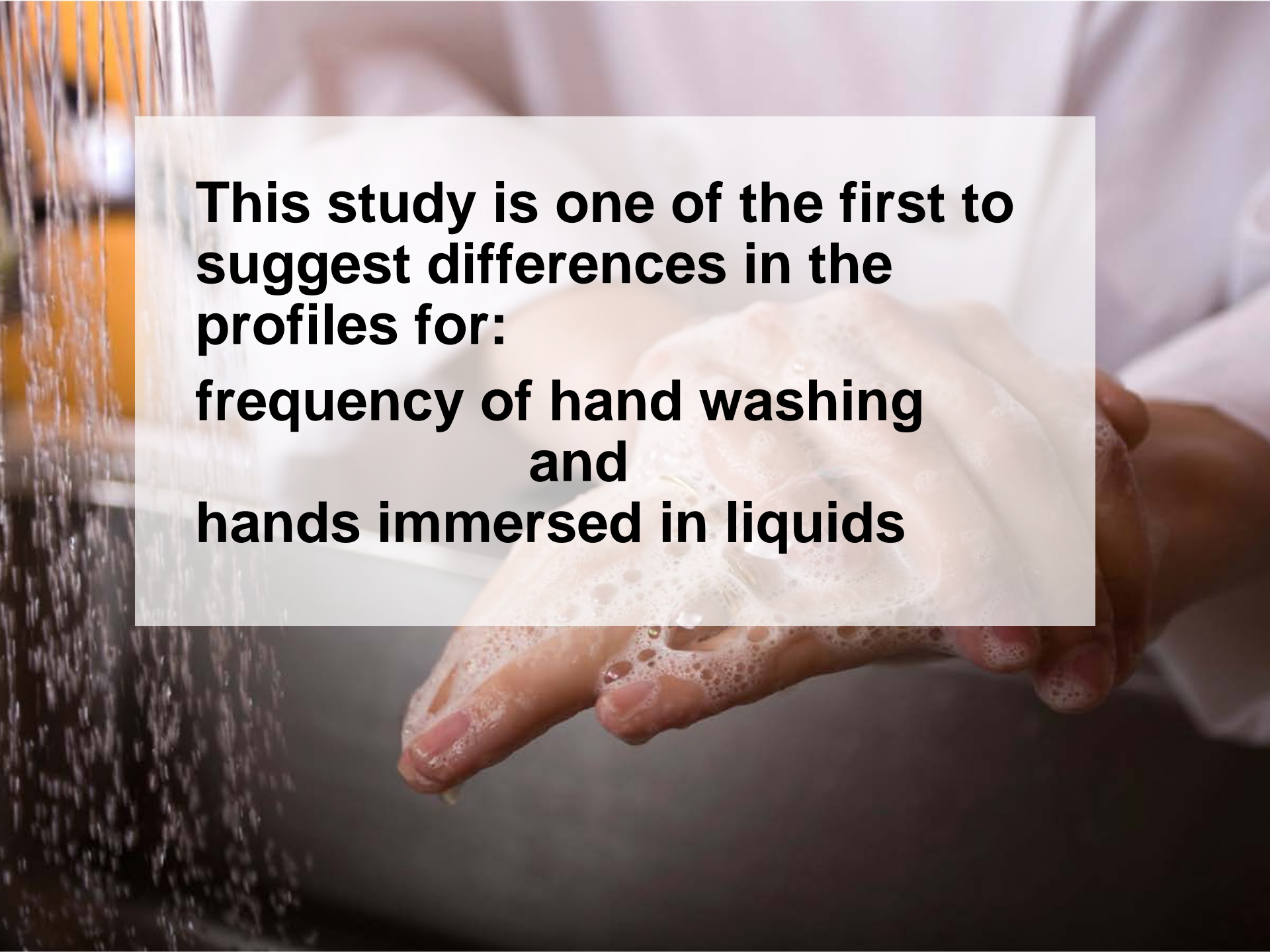
- **Workers were also asked what types of liquids they were exposed to at work**
- **Workers could nominate more than one liquid**

Results

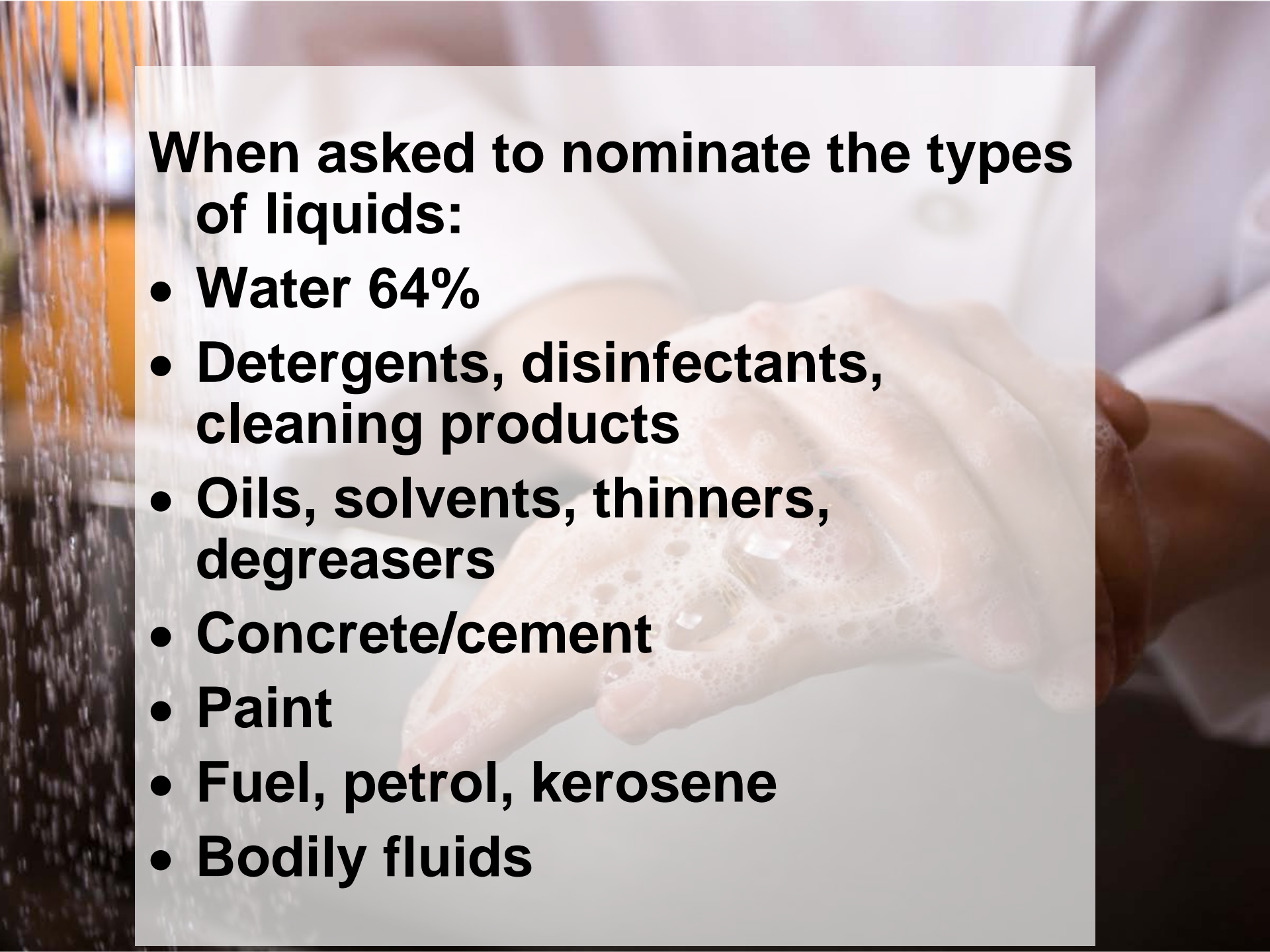
www.safeworkaustralia.gov.au

**Dermal exposure & diagnosed
OCD summary**

**Keegel T, Nixon R, LaMontagne AD.
Exposure to wet work in working Australians.
Contact Dermatitis 2012; 66(2), 87-94.**

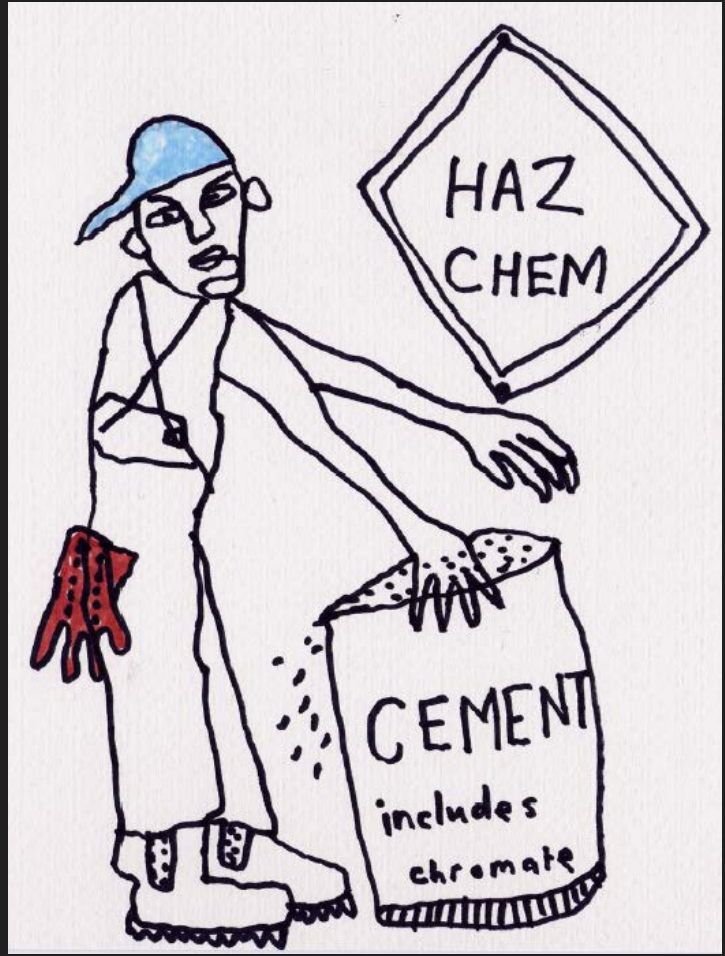
A close-up photograph of a person's hands being washed under a stream of water. The hands are covered in white, bubbly soap suds. The water is falling from the left side of the frame, creating a dynamic, blurred effect. The background is out of focus, showing a white sink and a person's white shirt.

**This study is one of the first to suggest differences in the profiles for:
frequency of hand washing
and
hands immersed in liquids**

A close-up photograph of a person's hands being washed under a running faucet. The water is clear and cascading over the hands, which are covered in white, bubbly soap suds. The background is slightly blurred, showing a white sink and a person's white shirt. The overall scene is clean and hygienic.

When asked to nominate the types of liquids:

- **Water 64%**
- **Detergents, disinfectants, cleaning products**
- **Oils, solvents, thinners, degreasers**
- **Concrete/cement**
- **Paint**
- **Fuel, petrol, kerosene**
- **Bodily fluids**



A close-up photograph of a person wearing a white lab coat, washing their hands with soap under a running faucet. The water is cascading down the left side of the frame, and the hands are covered in white, bubbly soap suds. The background is softly blurred, showing the person's torso and arms in the white coat. A semi-transparent white rectangular box is overlaid in the center of the image, containing the text "Diagnosed Disease data" in a black, sans-serif font.

Diagnosed Disease data

Study design & sample

Occupational Contact Dermatitis and Skin and Cancer Foundation clinics

Database for data from all clinics

- Jan 1993- Dec 2010

- all patients assessed by consultant dermatologist

- diagnosis included patch-testing

Results

- **1494 patients with occupationally-related contact dermatitis**
- **Similar number by gender**
Males (52%) Females (48%)
- **Younger age groups**
49% under 35 yr olds
22% 35-44 yr olds

A close-up photograph of a person's hands being washed under a running faucet. The hands are covered in white, bubbly soap suds. The water is clear and cascades down the left side of the frame. The background is softly blurred, showing a white sink and a person's arm in a white lab coat. A semi-transparent white rectangular box is overlaid on the upper portion of the image, containing the text.

Compensation Research Database

Study design & sample

**Victorian workers' compensation data
from Jan 1985- Dec 2009**

- filtered by “Affliction_Nature_CD”**
- Contact Dermatitis (codes 410 & 742)**
- Other and unspecified dermatitis (codes 420 & 742)**

Results

- **5,189 claims, from 4,773 workers**
- **Includes 416 repeat claims**

| | |
|---------------------|------------|
| Two claims | 342 |
| Three claims | 53 |
| Four claims | 13 |
| Five claims | 7 |
| Six claims | 1 |

Results

- **Cost of all claims \$26,724,383**
- **Mean \$5,150 (SD \$30,575)**

- **Total initial claims \$23,580,851**
- **Mean: \$4,940 (SD \$30,575)**

- **Total repeat claims: \$3,143,532**
- **Mean: \$7,556 (SD \$28,334)**

Results

- **Days away from work, all claims: 213,772**
- **Mean all claims: 41(SD 189)**
- **Mean initial claims: 40 (SD 189)**
- **Mean repeat claims: 51 (SD 182)**

Results

- **More males than females (67% male)**
- **Younger age groups (51% under 35)**
- **Occupational skill level**
 - Labourers and related 38%
 - Trades and related 30%
 - Professionals 10%

Results

- **Rate for initial claims:
Approx 9.4 per 100,000 part & full time
employed Victorians**

**Calculated using midpoint method²
Denominator from 1997 ABS Labour
Force Survey³**

²Boyle, P. and D.M. Parkin, *Statistical methods for registries, Cancer Registration: Principles and Methods*, O.M. Jensen, et al., Editors. 1991, IARC, : Lyon.

³ ABS, *Labour Force*, ABS, Editor. 1997, ABS Canberra.

A close-up photograph of a hand being washed with soap under running water. The water is cascading from the left, creating a blurred, dynamic effect. The hand is positioned in the lower right, with white, bubbly soap foam covering the palm and fingers. The background is a soft-focus white, likely a sink or countertop. The overall scene conveys a sense of hygiene and cleanliness.

Comparisons Diagnosed disease data & CRD

Demographic variables: Diagnosed disease data & CRD

| Demographic variables | Diagnosed disease data | Workers' compensation data | p value* |
|-----------------------|------------------------|----------------------------|----------|
| Gender | | | |
| Females | 717 (48) | 1,482 (33) | p<0.001 |
| Males | 777 (52) | 3,056 (67) | p<0.001 |
| Age group | | | |
| 15-24 | 328 (22) | 1,172 (26) | p<0.005 |
| 25-34 | 402 (27) | 1,169 (26) | p=0.318 |
| 35-44 | 332 (22) | 953 (21) | p=0.2681 |
| 45-54 | 269 (18) | 825 (18) | p=0.9548 |
| 55+ | 154 (11) | 419 (9) | p=0.1948 |

*two sample test of proportions

Case study: Hairdressers





Case Study: Hairdressers

For the period Jan 1993-December 2009

- **Diagnosed disease data: 156 Hairdressers**
- **CRD: 46 Hairdressers (no repeat claims)**
- **Total initial claims \$427,080**
- **Mean: \$4,146**
Total days away from work: 2648
- **Mean 58 days**

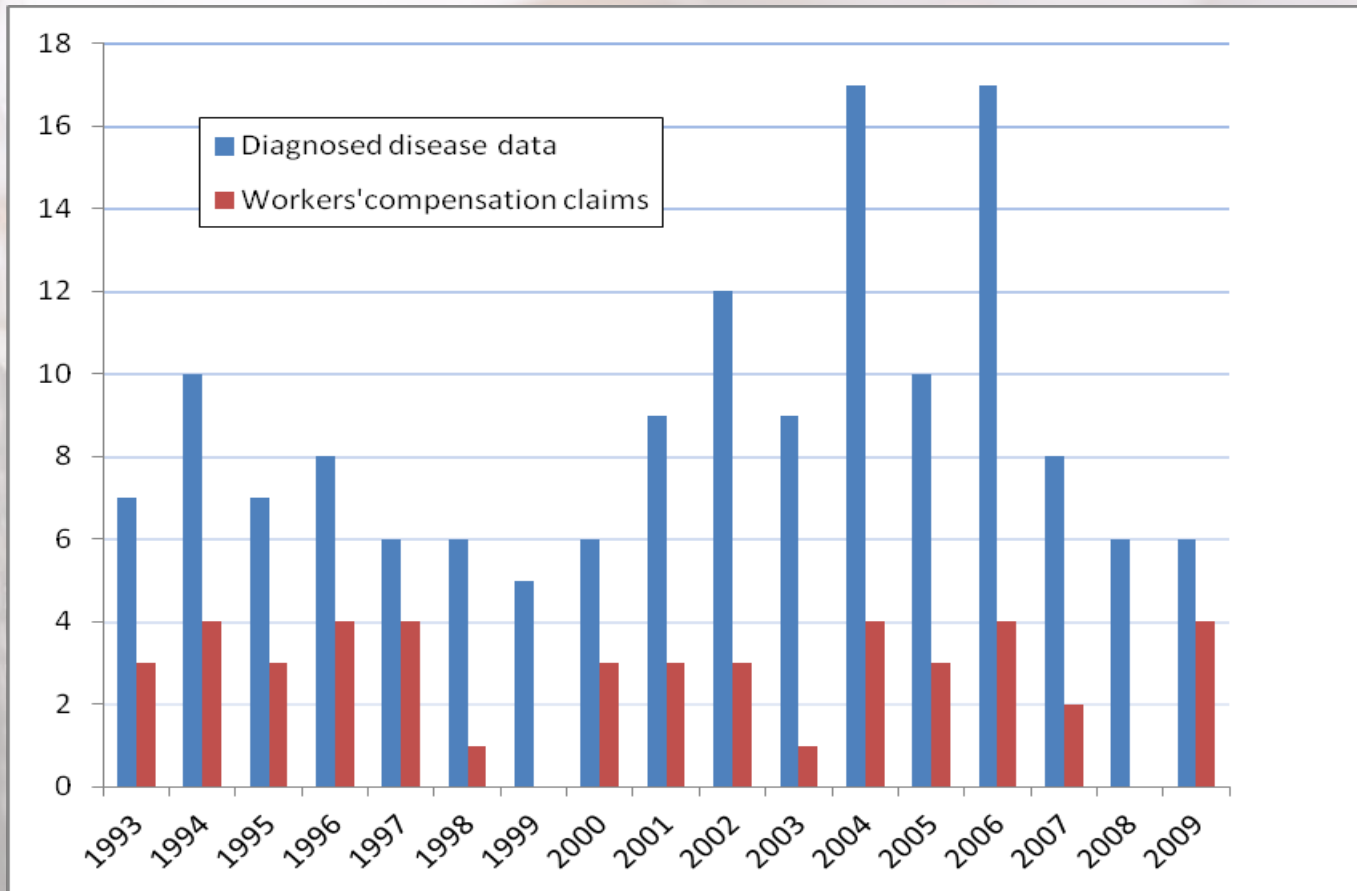
Case Study: Hairdressers Diagnosed disease data and CRD

| | Diagnosed disease data | Workers' compensation data | p value* |
|--------------------------------|-------------------------------|-----------------------------------|------------------|
| Gender | N=156 | N=46 | |
| Females | 150 (96) | 42 (91) | |
| Males | 6 (4) | 4 (9) | p=0.1771 |
| Age group | | | |
| 15-24 | 108 (69) | 41 (89) | p<0.01 |
| 25-34 | 30 (19) | 5 (11) | p=0.2062 |
| 35-44 | 12 (8) | -- | |
| 45-54 | 4 (3) | -- | |
| 55+ | 2 (1) | -- | |
| Apprentice/other status | | | |
| Apprentice | 70 (45) | 14 (30) | |
| Hairdresser/other | 86 (55) | 32 (70) | p=0.07 |

*two sample test of proportions

Case Study: Hairdressers

Diagnosed disease data vs CRD, by year 1993-2009



A close-up photograph of a person's hands being washed under a running faucet. The hands are covered in white, bubbly soap suds. The water is cascading down the left side of the frame. The background is blurred, showing a white sink and a person wearing a white lab coat. A semi-transparent white rectangular box is overlaid across the center of the image, containing the word "Discussion" in a large, black, sans-serif font.

Discussion

Diagnosed disease vs CRD

- **Gender:**
 - similar for diagnosed disease
48% female vs 52% males
 - different for WC claims
33% female vs 67% males
- **Age:**
 - different for the youngest age group
 - similar for other age groups

Initial vs repeat claims

- **Initial claims mean claims costs lower than repeat claims (\$4,940 vs \$7,556)**
- **Initial claims mean days away from work lower than repeat claims (40 days vs 51 days)**

A close-up photograph of a hand being washed with soap under running water. The water is cascading from the top left, creating a blurred, dynamic effect. The hand is positioned in the center-right, with white, foamy soap suds covering the palm and fingers. The background is a soft, out-of-focus light color, possibly a sink or a wall. The overall scene conveys a sense of hygiene and cleanliness.

High risk occupations

- **Considerable variations by specific occupations (hairdressing)**
- **Other high risk occupations nurses, food-handlers, plumbers**

Implications for WorkSafe

- **Policies need to be implemented to protect workers from developing OCD**
- **If a worker develops OCD, workplace exposure and return to work needs to be carefully managed or a worker's skin disease will reoccur**

Implications for WorkSafe

- **Targeted policies and education packages are required to guide intervention on workplace exposure**

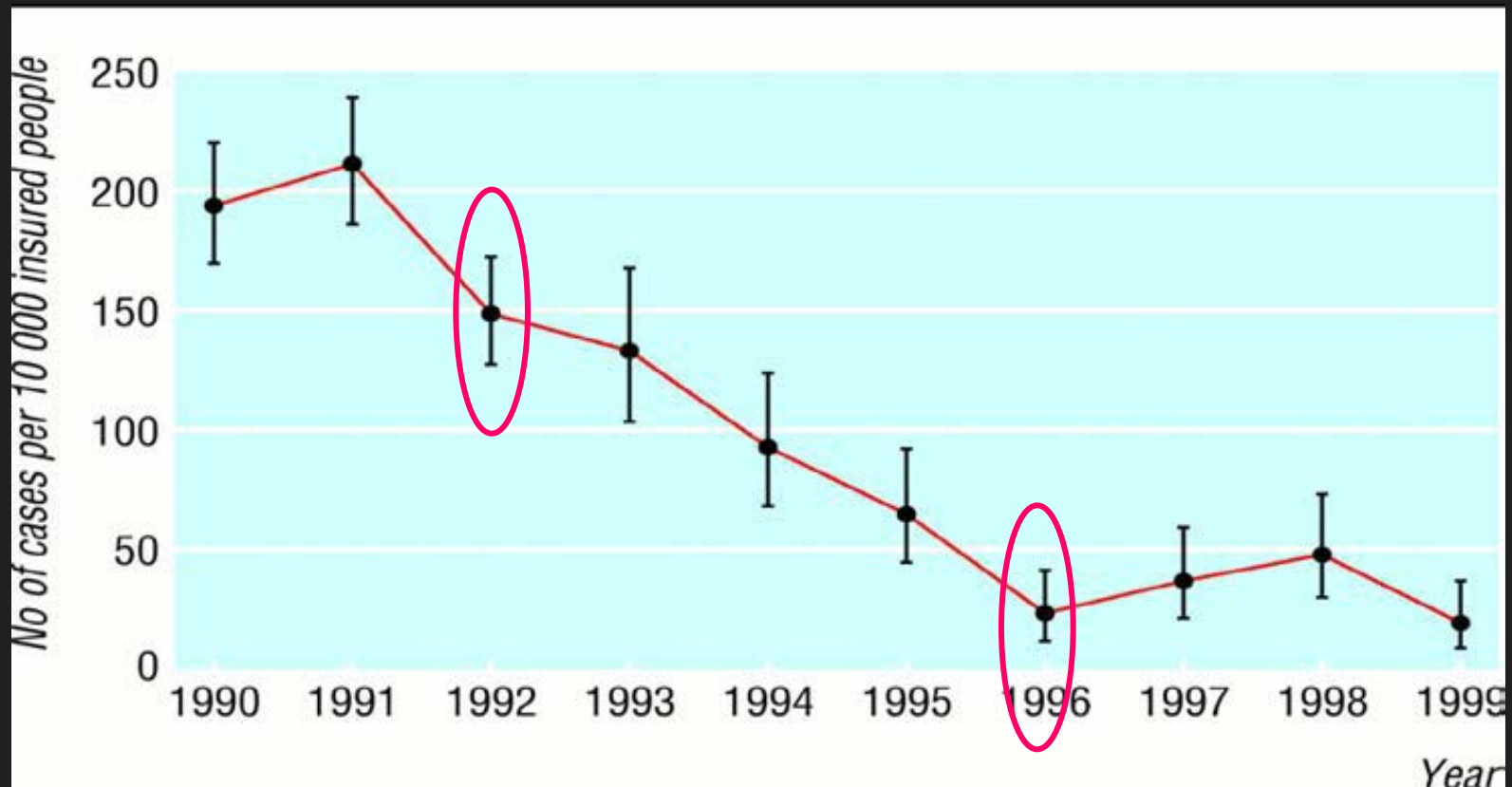
Policy implications

- **Success of the German policy *Technical standards*⁶ and *Technical Rules 530 Hairdressing*⁷**

6. BAuA German Federal Institute for Occupational Safety and Health. Technical standard for hazardous substances: Skin damage from work in wet environments (TRGS 531: wet work). Translation jointly prepared by NIOSH and BAuA,1996. Available at:

<http://www.cdc.gov/niosh/topics/skin/recommendations.html> (last accessed 08 April 2011)

7. Dickel H, Kuss O, Schmidt A, Diepgen TL. Impact of preventive strategies on trend of occupational skin disease in hairdressers: population based register study. *BMJ* 2002 15 June 2002:324:1422-3.



Annual incidence (\pm 95% confidence intervals) of hairdressers with a stated occupational skin disease 1990-1999. From BMJ 2002; 324:1422-1423 (Dickel et al. 2002)



Acknowledgements & publications details

Safe Work Australia, Dr Fleur Champion de Crespigny, Prof Thomas Diepgen, Prof Tove Agner, Ms Stella Gwini

2011 ISCRR Development Grant to TGK

NHMRC Post-Doctoral Fellowship to TGK (#540114)

Keegel T, Nixon R, LaMontagne AD.

Exposure to wet work in working Australians. *Contact Dermatitis* 66(2): 87-94 (2012)

Lyons G, Keegel T, Palmer A, Cahill J, Nixon R, Occupational Dermatitis in Hairdressers: Do they claim workers' compensation? Submitted to *Contact Dermatitis* 20/5/2012

