

THOR (UK Health and Occupation Research Network) - its role in prevention and policy.

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“Alert and sentinel systems for the identification of work-related diseases in the EU”

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Aim and structure of the presentation

To illustrate and discuss how The Health and Occupation Research Network (THOR) in the UK contributes to prevention and policy mainly through the Health and Safety Executive (HSE):

Examples of:

- THOR's value in impacts on, or evaluation of, policy e.g. via Regulations & Campaigns.
- Reactive provision of data to help assess risks e.g. from new hazards, or recognised hazards but in new or re-emerging contexts impact)
- Pro-active use of THOR data to prompt HSE and others to preventive measures or policy changes.
- Debate

NB please refer to workshop 1, papers, etc

The Health and Occupation Research Network (THOR)

- Research & surveillance 'medical observatory' - originally for measuring the incidence and determinants of occupational disease / WRDs (but later extended e.g. sentinel reporting, sickness absence burden)
- Started in UK with 1st scheme in 1989: SWORD
- Currently >1000 doctors participate in UK & ROI reporting incident cases (either every month or as a sample for 1 random month p.a.)
 - > Hence estimate of annual cases
- Physicians motivated e.g. By free online Continuing Professional Development based on active participation and reflective self learning EELAB; and networking
- Reports from clinical 'system' specialists account for an estimated 5,000 new UK cases of work-related ill-health per annum.
- Reports from OPs and GPs account for a further estimated 10,000 UK cases per year

HSE preferred sources for injuries and ill health

THOR data are the preferred 'strong' data sources by HSE for various categories of work related ill health e.g.:

- Occupational asthma (SWORD)
- 'Other respiratory disease' (SWORD)
- Skin disorders / dermatitis (EPIDERM)

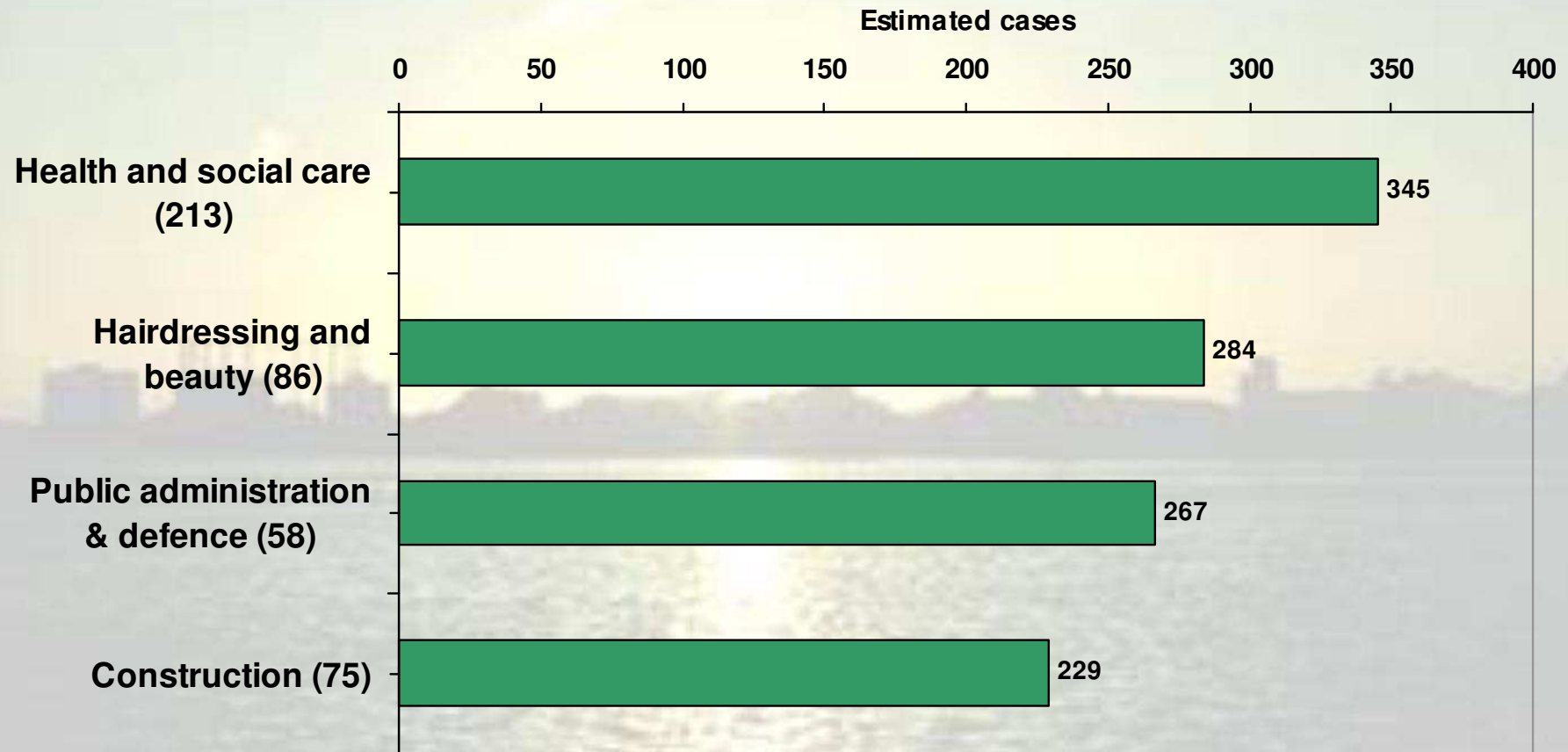
Besides being contributing data sources for other diseases e.g.

- Asbestos related lung cancer (SWORD)

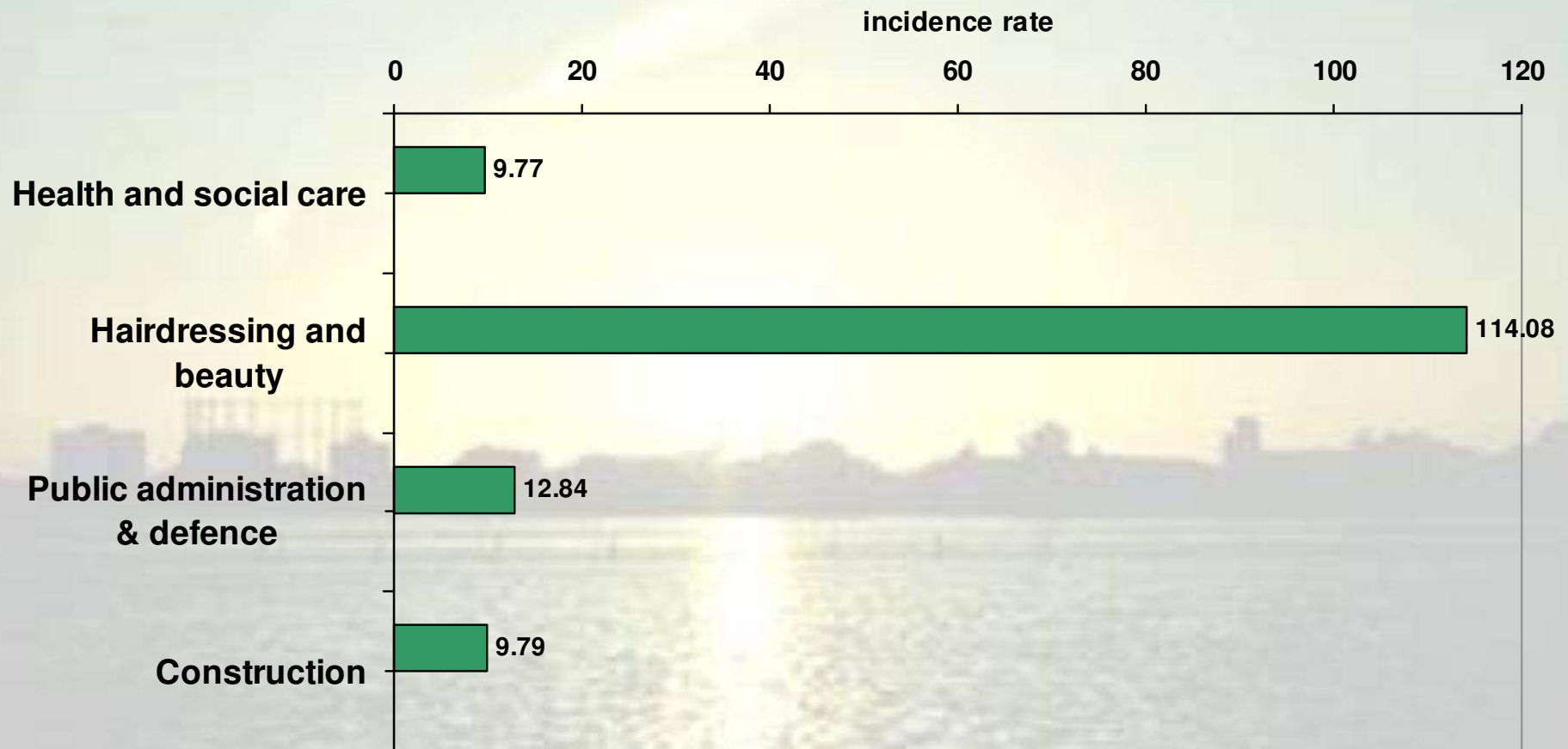
<http://www.hse.gov.uk/statistics/preferred-data-sources.pdf>

Occupational skin disease - Most frequently reported industries

Estimated cases of **all skin disease** reported by dermatologists in **2008** ('Epiderm': University of Manchester)



Incidence rates of **all skin disease reported to EPIDERM (2008) by most frequently reported industries per 100,000 employed per year compared with population denominator from the Labour Force Survey 2007 data**



HSE - Bad Hand Day Campaign (hairdressers)

Hairdressing

What is dermatitis?

Causes of dermatitis

How to prevent dermatitis

Where can I buy gloves?

Hairdresser

Salon manager

Resources

Related content

- HSE's Sector and Health priority plans
- Dermatitis and other skin disorders
- Skin at work

Bad hand day campaign

History

The 'Bad Hand Day?' campaign was launched in November 2006 to raise awareness of work-related dermatitis in the hairdressing industry. Hairdressers have been identified as one of the occupational groups with the highest risk of developing work-related contact dermatitis.

Up to 70% of hairdressers will suffer some form of skin damage at some stage in their career. The main causes of work-related contact dermatitis in hairdressers are exposure to some of the chemicals present in hairdressing products and frequent wet work, including shampooing and rinsing.

HSE and Local Authorities, in conjunction with hairdressing industry bodies including Habia, the government appointed standards setting body of the hair and beauty industry, NHF (the National Hairdressers' Federation) and HBSA (the Hairdressing and Beauty Suppliers Association) have worked together to raise awareness and promote good hand care, including the use of the correct type of gloves.

20,000 hairdressers have been targeted through seminars and salon and college visits by Local Authorities and HSE, to discuss the campaign and encourage hairdressers to 'get gloved up'.

Resources



Maxine's story

Contact dermatitis video



Misunderstandings, myths and prevention checklist



Workplace poster

Small steps stop dermatitis becoming a big problem

 [More resources](#)

Cases of occupational asthma and contact dermatitis attributed to persulphate salts (2015)

Relevant to campaigning to prevent dermatitis especially in hairdressing.

Schemes from which data were sourced –

- Surveillance of Work-Related and Occupational Respiratory Disease (SWORD), 2001-2014
- Occupational Skin Surveillance (EPIDERM), 2001-2014
- Occupational Physicians Reporting Activity (OPRA) 2001-2009
- THOR in general practice (THOR-GP), 2006-2014

- Results – SWORD

- 3 cases reported: hairdresser; photo mechanical operator; process worker

- EPIDERM

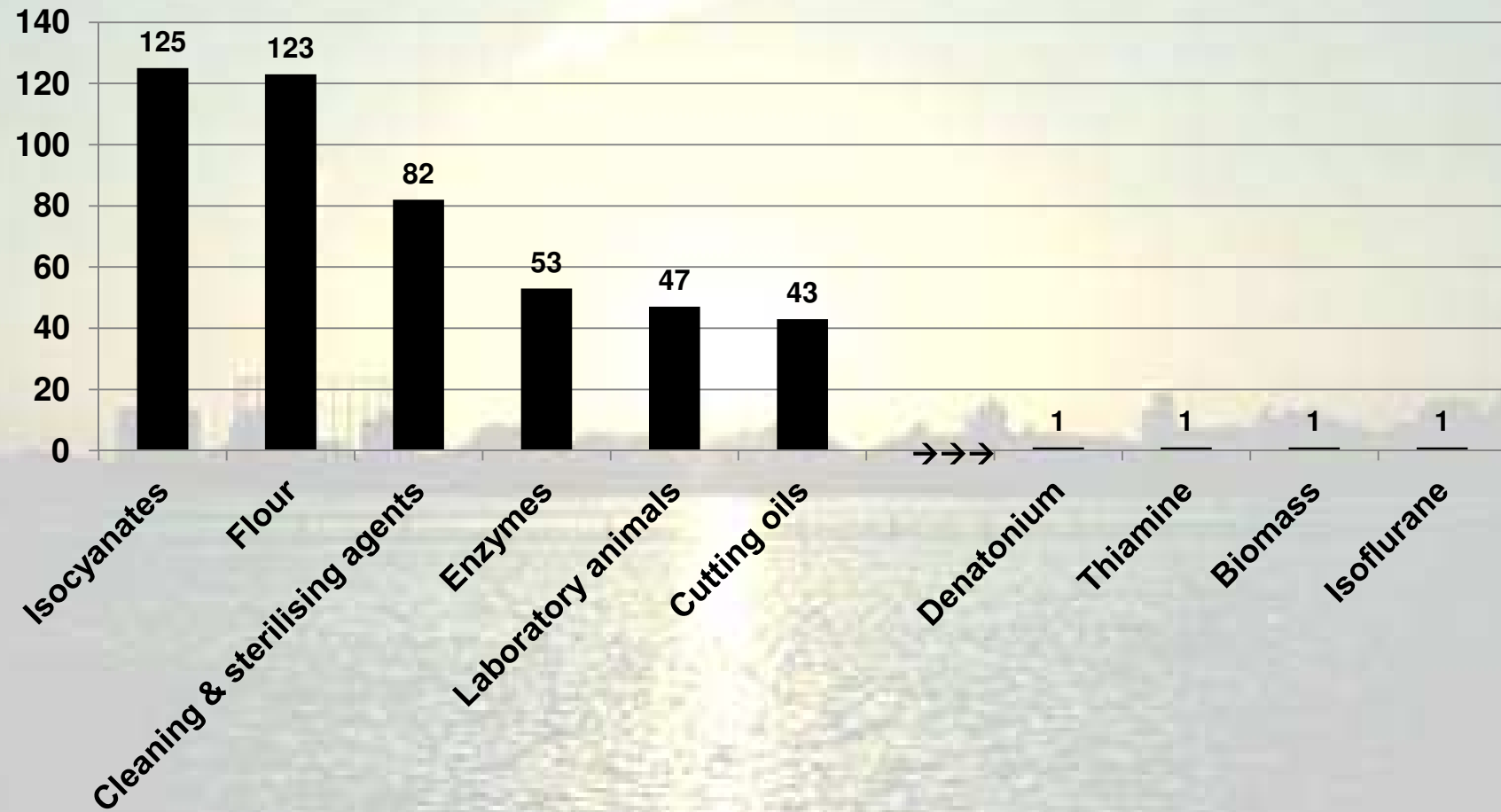
- 237 actual (534 estimated) cases reported: 90% reported in females; mean age 24 years (range = 16-62 years); occupations reported were:=

Occupation	Cases / %age
Hairdressers, barbers	490 (92%)
Bakers, flour confectioners	29 (5%)
Hairdressing & beauty salon managers	5 (1%)
Chefs, cooks	5 (1%)
Medical practitioners	1 (<1%)
Beauticians & related occupations	1 (<1%)
Sales & retail assistants	1 (<1%)
Bar staff	1 (<1%)
Launderers, dry cleaners, pressers	1 (<1%)
Total	534 (100%)

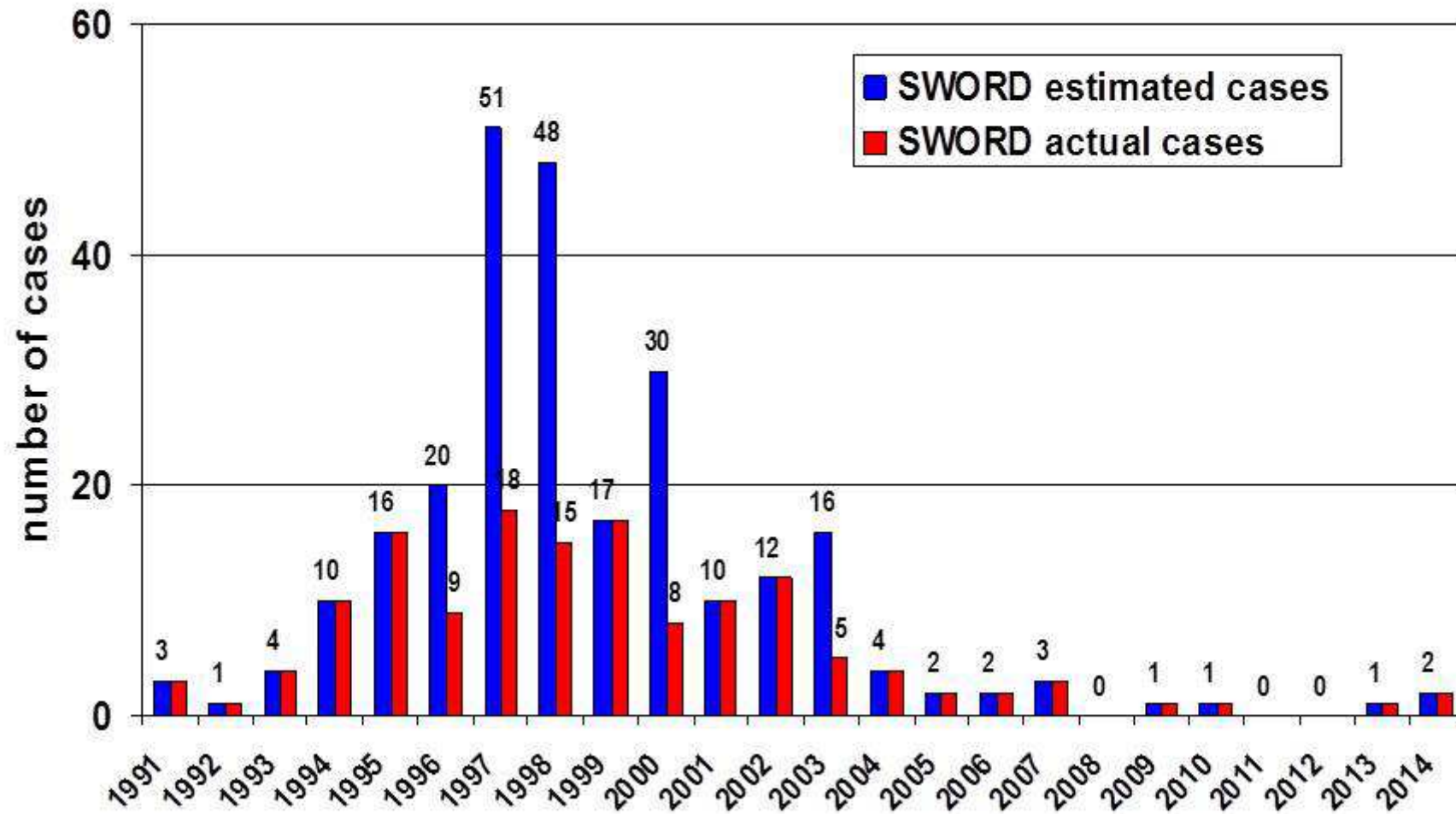
- No cases reported to OPRA or THOR-GP

Reports of agents causing asthma (SWORD 2007-2016)

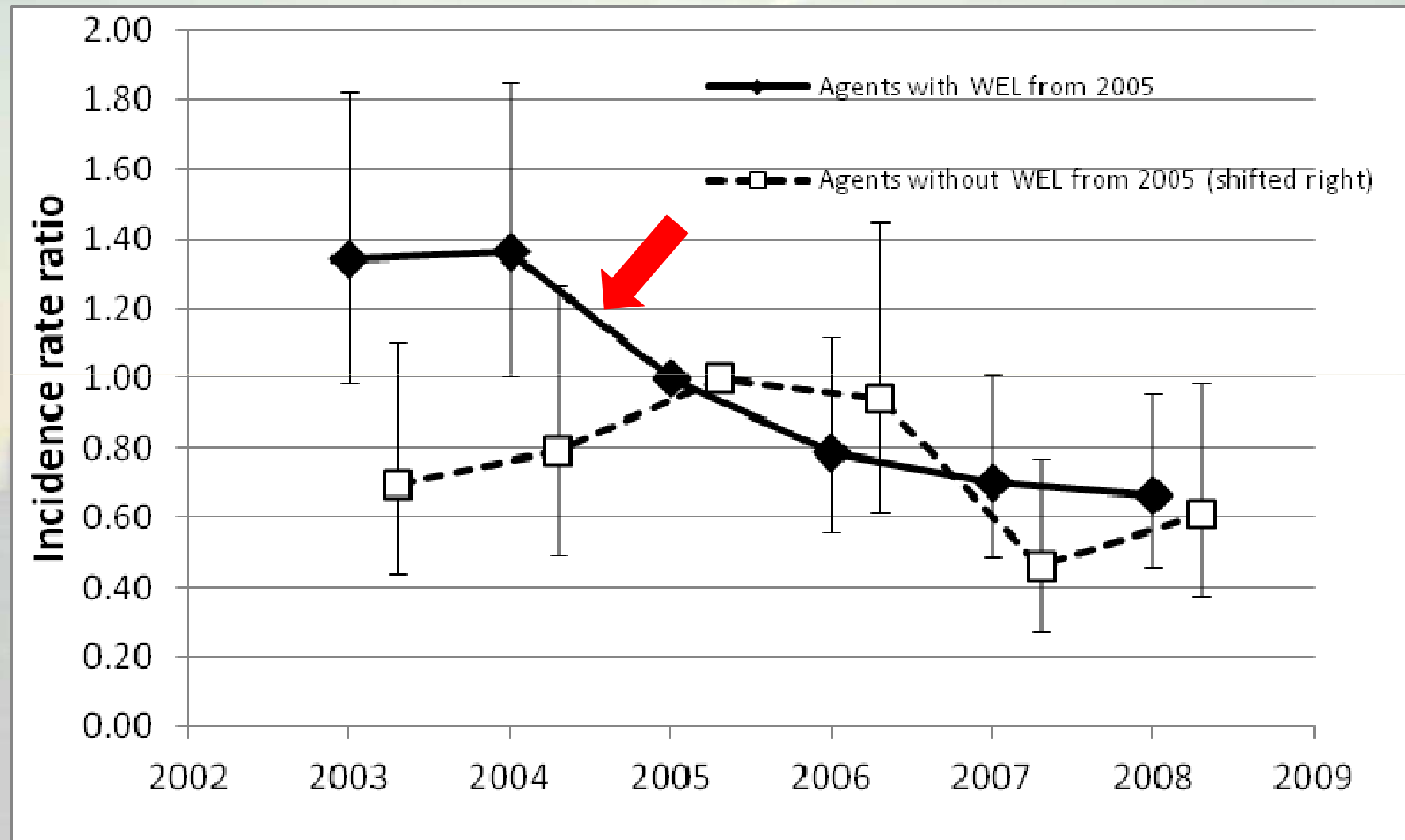
Examples at both extremes from statistical analysis of trends (left) to sentinel cases for generating alerts (right)



Cases of occupational *asthma* attributed to latex exposure reported to SWORD (1991-2014)



Changes in reported incidence of asthma attributed to agents with or without a workplace exposure limits introduced in 2005



HSE – Isocyanate disease reduction programme

Control of isocyanate exposure in motor vehicle repair (MVR) bodyshops Disease Reduction Programme



Cases of occupational dermatitis attributed to isocyanates (2017)

Relevant to prevention of skin disease (besides the well recognised respiratory risks) in automotive and other industries.

Schemes from which data were sourced –

- Occupational Skin Surveillance scheme (EPIDERM, 2006-2015)
- Occupational Physicians Reporting Activity (OPRA 2006-2015)
- The Health and Occupation Research in General Practice (THOR-GP, 2006-2015).

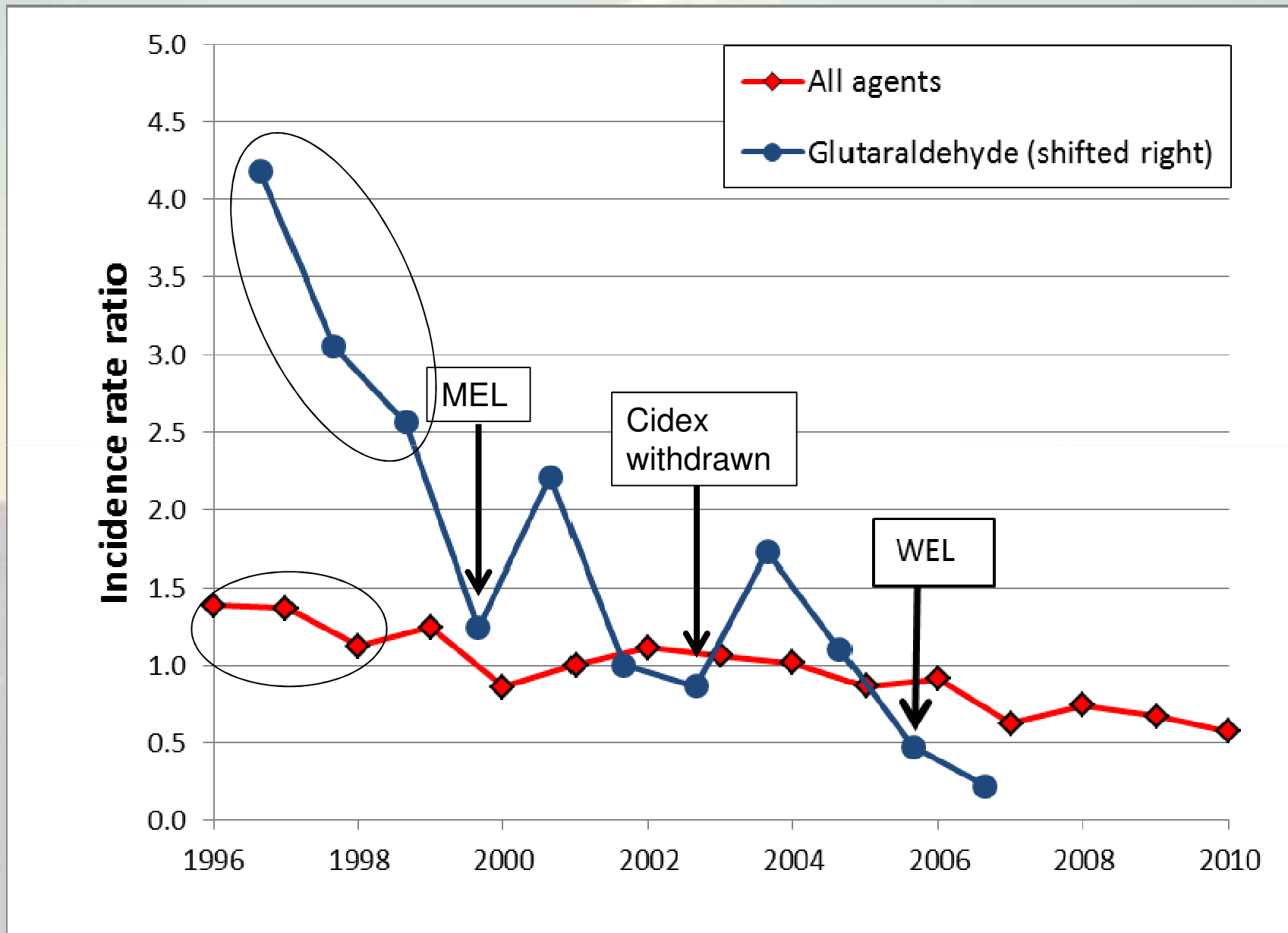
- Results:
- 11 actual (33 estimated) cases reported to EPIDERM
 - 73% reported in males; mean age (all cases) 37 years (range 17-60 years); occupations = paint sprayer, nurse, artist, farmer, car repair, computer engineer, boat builder, carpet underlay manufacture, chemical lab worker, repair and maintenance, retired.
- 3 actual (36 estimated) cases reported to OPRA
 - All were reported in females ranging in age from 23-26 years. Occupations listed as lab technicians (2 cases) and materials scientist.
- No cases reported to THOR-GP


Timeline of events impacting on the use of glutaraldehyde based disinfectants in health care

- First used 1960s
- 1989 endorsed by British Society of Gastroenterologists first line disinfectant for endoscopes
- 1993 above reiterated but health risks recognised as significant
- 1999 First exposure limit introduced
- 2002 'Cidex' (glutaraldehyde) withdrawn
- 2005 Exposure limit reduced further

(Stocks et al 2013)

Trends in asthma attributed to glutaraldehyde





Other examples of
Health & Safety Executive
(HSE)(Great Britain)
data requests in support of
preventive policy decisions

Cases of work-related ill-health associated with dichloromethane exposure (2015)

HSE had several years previously addressed such ill health. New data would help re-assess the effectiveness of preventive campaigns / measures.

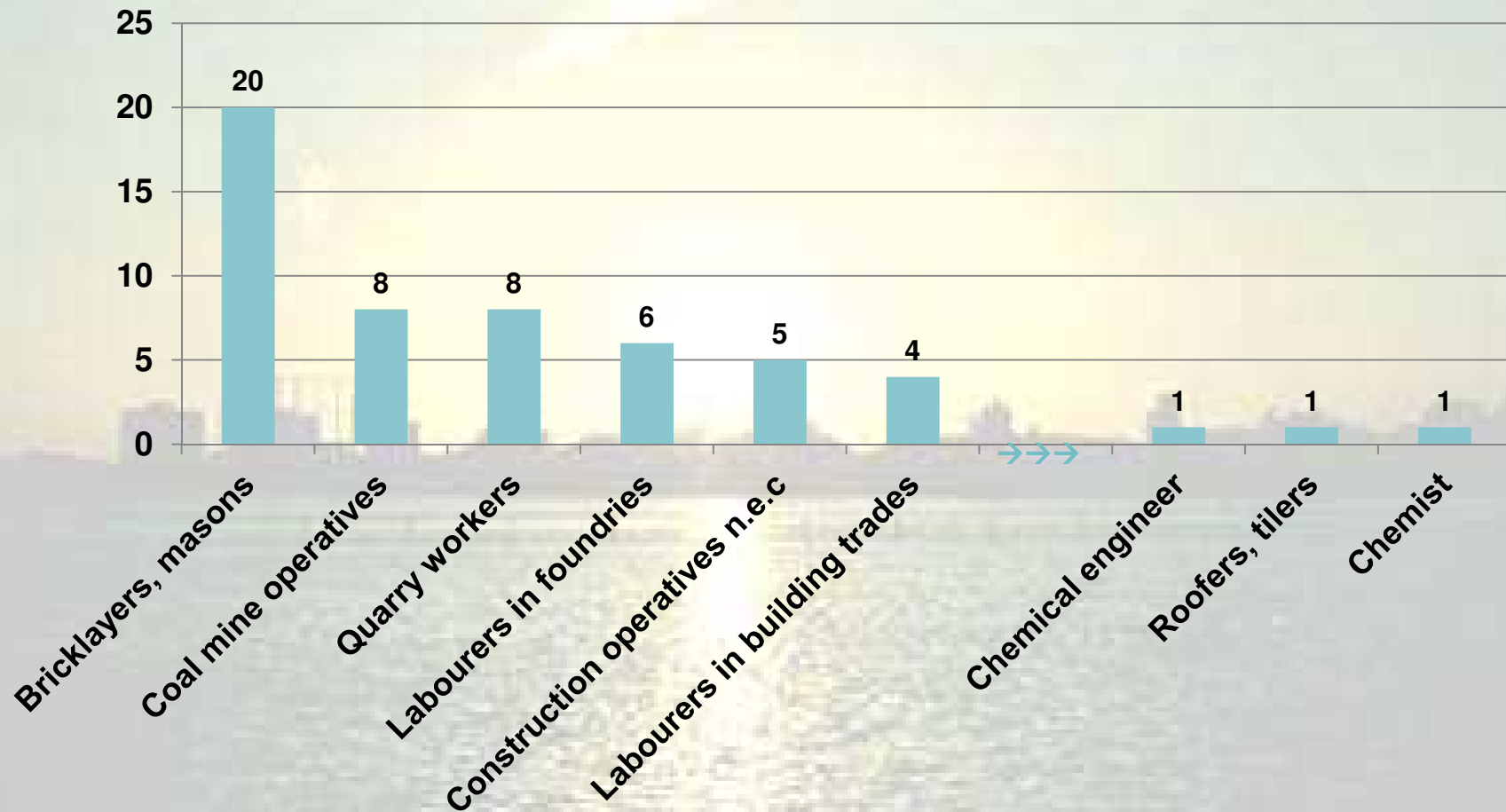
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- Occupational Physicians Reporting Activity (OPRA)
- THOR in general practice (THOR-GP), 2006-2014

- Results: 31 cases reported to all schemes:

Scheme	Year	Diagnosis	Sex	Age group	Industry	Occupation	Suspected agent
SWORD	1989	Other	M	16-24		Paint stripper	Dichloromethane
SWORD	2001	Hyperventilation	F	Missing	Glue manufacture	Filler	Methylene chloride
SWORD	1991	Inhalation accident	F	25-34		Lab Technician	Methylene chloride
SWORD	1991	Inhalation accident	M	25-34		Welder	Methylene chloride
SWORD	1991	Inhalation accident	M	35-44		Concrete production chargehand	Methylene chloride
SWORD	1992	Inhalation accident	M	25-34		Aircraft repairer/fitter	Methylene chloride
SWORD	1992	Inhalation accident	F	45-54		Darkroom technician	Methylene chloride
SWORD	1993	Inhalation accident	F	45-54		Cosmetics manufacture	Methylene chloride
SWORD	1994	Inhalation accident	M	25-34		Research worker	Dichloromethane vapour
SWORD	1994	Inhalation accident	M	35-44		Storekeeper	Dichloromethane
SWORD	1994	Inhalation accident	M	Missing		Caretaker	Dichloromethane
SWORD	1994	Inhalation accident	F	16-24		Laboratory technician	Dichloromethane
SWORD	1999	Inhalation accident	F	Missing	Electrical	Managerial	Dichloromethane
SWORD	2008	Inhalation accident	M	35-44	Freight/logistics	Not recorded driving forklift at the time	Dichloromethane
SWORD	2008	Inhalation accident	M	45-54	Logistics/freight	Not recorded driving forklift at the time	Dichloromethane
SWORD	1989	Asthma	M	55-64		Process worker	Methylene chloride
SWORD	1989	Asthma	M	45-54		Security guard	Methylene chloride
SWORD	1991	Asthma	M	25-34		Fettler	Dichloromethane
SWORD	1996	Asthma	M	35-44	Hotel kitchen	Washer up	Dichloromethane (in oven)
SWORD	1998	Asthma	M	55-64	Dockyard	Copper smith	Dichloromethane
SWORD	1999	Asthma	F	Missing	Electronic	Laser cutter	Dichloromethane
SWORD	2000	Asthma	M	Missing	Welding (car)	Welder	Solder?/Dichloromethane
OPRA	1997	Allergic CD	M	Missing	Utilities (Water Company)	Development Fitter (Pipe Work)	epoxy resins/methylene chloride
OPRA	2012	Fatality	M	25-34	Motor vehicle repair	Labourer	Dichloromethane
OPRA	1999	Death (inhalation)	M	16-24	Paint stripping	Operator	Dichloromethane
OPRA	1999	Death (inhalation)	M	35-44	Paint stripping	Operator	Dichloromethane
EPIDERM	1993	Contact Dermatitis	M	Missing		Chemical Worker	methylene chloride
EPIDERM	1994	Contact Dermatitis	M	Missing		Ex Fork Lift Driver	chemical burn/dichloromethane
EPIDERM	2003	Contact Dermatitis	M	45-54	Pharmaceutical manufacturing	Chemical process operator	Methylene chloride
EPIDERM	2008	Contact Dermatitis	M	45-54	Chemical	Production worker	Irritant from methylene chloride

Examples of occupations reported for Silicosis cases (SWORD 2007-2016)



Cases of silicosis, bronchitis/emphysema in the glass manufacturing sector (2015)

Relevant to prevention of ill health in glass manufacture:

Schemes from which data were sourced –

- Schemes:
- Surveillance of Work-Related and Occupational Respiratory Disease (SWORD), 2001-2014.

- Results:
- 6 cases identified via search, only 1 reported in glass manufacturing industry

Year	Diagnosis	Occupation	Industry
2008	Silicosis	Not specified	Pottery manufacture
2002	Silicosis	Brickmaker	Brick manufacture
2005	Silicosis	Glazer	Pottery manufacture
2007	Silicosis	Stamper/etcher	Glass manufacture
2004	Bronchitis/emphysema	Lithographer	Pottery
2006	Bronchitis/emphysema	Labourer	Brick manufacture

Cases of respiratory disease attributed to milk powder/products, coffee, diacetyl (2017)


Relevant to prevention in the food industry.

Schemes from which data were sourced –

- Surveillance of Work-Related and Occupational Respiratory Disease scheme (SWORD, 2006-2015)
- Occupational Physicians Reporting Activity (OPRA 2006-2015)
- The Health and Occupation Research in General Practice (THOR-GP, 2006-2015)

- Results:
- 8 actual cases of work-related respiratory disease attributed to milk powder/products, coffee, diacetyl reported by chest physicians to SWORD (2006-2015)
- No cases reported to OPRA or THOR-GP

Year	Diagnosis	Sex	Age	Industry	Job	Suspected agents
2006	OBSTRUCTIVE BRONCHITIS	M	37	FOOD	OPERATOR	DIACETYL
2006	OTHER RESPIRATORY DISEASE NOT SPECIFIED	M	38	FOOD	PRODUCTION OPERATIVE	DIACETYL
2014	ASTHMA SENSITISATION	M	44	FOOD	MAINTENANCE ENGINEER	GREEN COFFEE
2014	OCCULAR ALLERGY	M	50	FOOD	TRUCK DRIVER	GREEN COFFEE BEAN
2014	RHINITIS	M	41	FOOD	ENGINEER	GREEN COFFEE BEAN OR ALTERNARIA
2015	ASTHMA IRRITATION	M	47	FOOD	PACKAGING TECHNOLOGIST	BURNT COFFEE BEANS
2015	ASTHMA IRRITATION	M	47	FOOD	PACKAGING TECHNOLOGIST	BURNT COFFEE BEANS
2015	INHALATION ACCIDENT	M	47	FOOD	MAINTENANCE TECHNICIAN	GREEN COFFEE

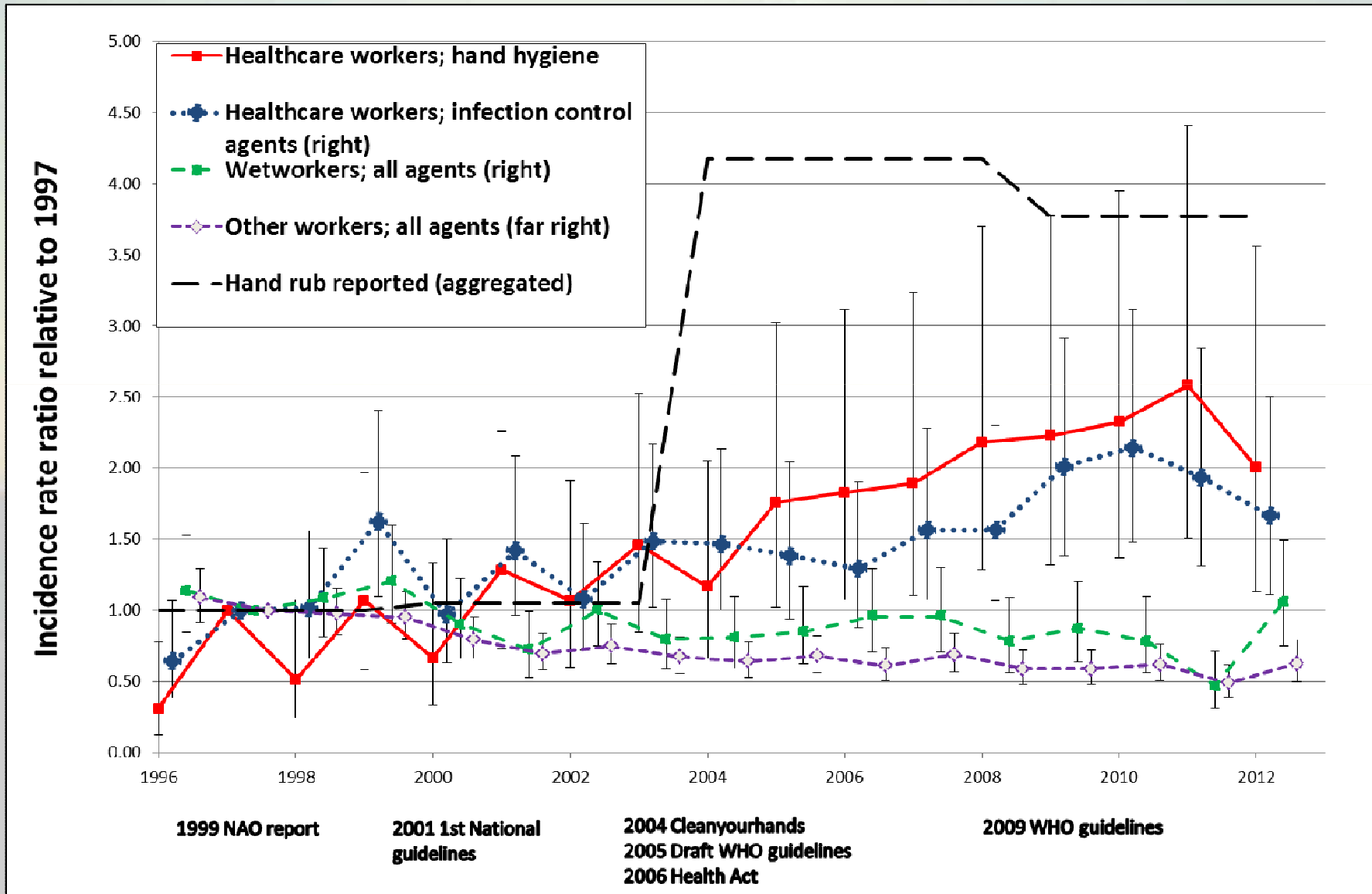


Other examples of
THOR data being used proactively to
encourage prevention
and to prompt policy review

Interventions promoting hand washing/hygiene (special reference to UK healthcare)

- Pre-intervention 1996-1999
- NAO Report made to UK House of Commons 1999
- Publication of first national (UK) evidence-based guidelines 2001
- NICE (UK) guidelines 2003
- 'Cleanyourhands' campaign (UK) 2005 -2008
- Draft WHO hand hygiene guidelines 2005
- UK Health Act 2006 (Code of Practice)
- Revision of national (UK) evidence-based guidelines 2007
- UK Health and Social Care Act 2008
- Final WHO guidelines on hand hygiene 2009
- NICE (UK) guidelines 2012

Trends in Irritant Contact Dermatitis attributed to hand hygiene in healthcare workers



Asthma caused by all cleaning agents by industry, (10 highest ranked in case numbers) reported by SWORD chest physicians: 1989-2015

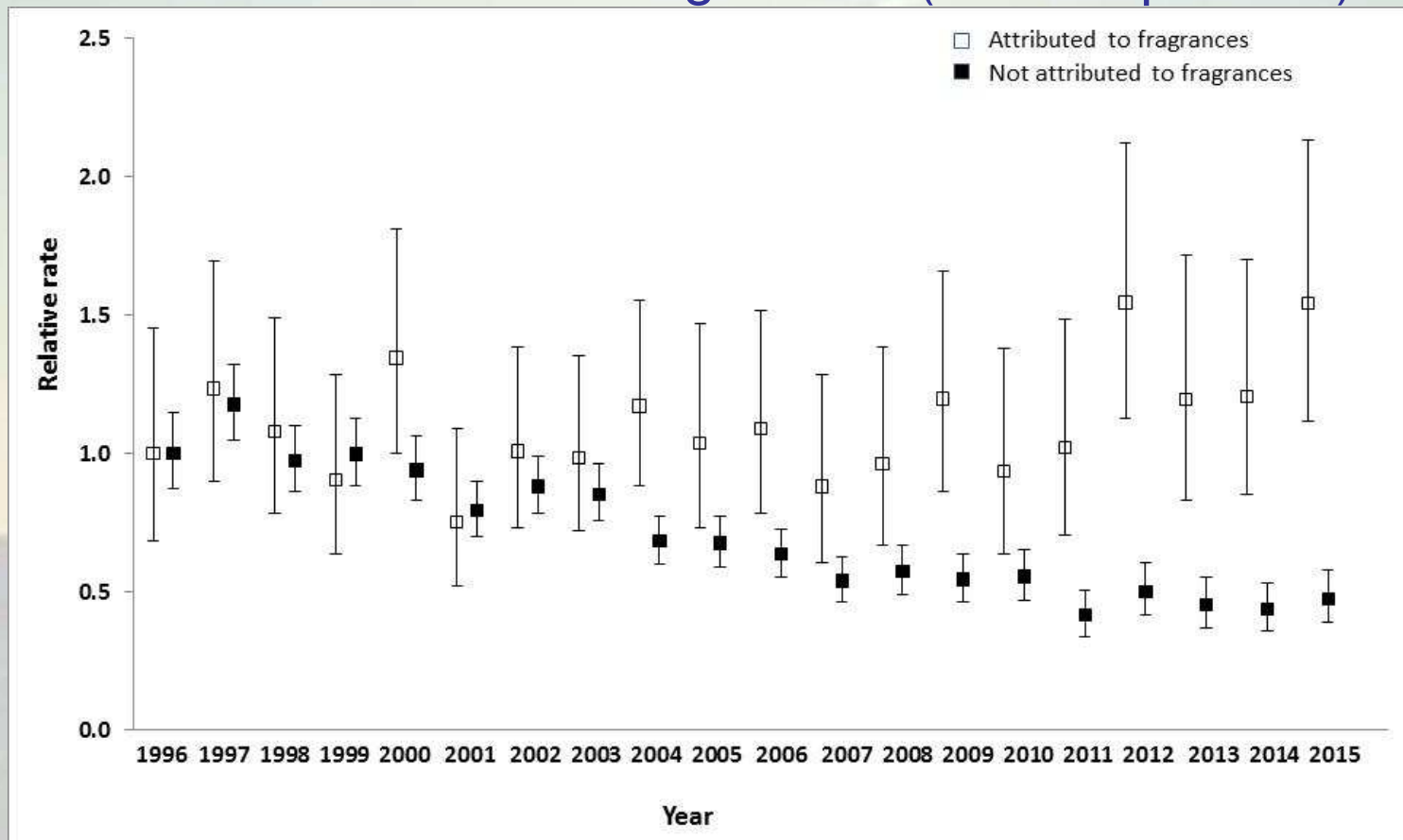
(SIC 2007 code) description	Actual cases	Annual average incidence rate per 100,000 employed*
(86-88) Human health and social work activities	318	0.8
(10) <u>Manufacture of food products</u>	49	0.7
(93) Sports activities and amusement and recreation activities	40	0.4
(85) Education	38	0.1
(81) <u>Services to buildings</u> and landscape activities	25	0.6
(84) Public administration and defence	24	0.1
(96) <u>Other personal service activities</u>	24	0.6
(20) Manufacture of chemical and chemical products	10	0.2
(1) Crop and animal production	7	0.3
(45) Wholesale and retail trade; repair of motor vehicles and motorcycles	6	0.3
All other industries	126	0.1
Total	667	0.2

*Rates based on estimated cases accounting for sampling ratio, mid-point LFS (2002) data applied as the denominator

Number of actual cases of occupational and work-related respiratory disease attributed to cleaning agents, reported by chest physicians to SWORD (1989-2015), occupational physicians to OPRA (1999-2015) and General Practitioners to THOR-GP (2006-2015)

Group	Name	SWOR D	OPRA	THOR-GP
		Total cases (%)		
		1989- 2015	1999-2015	2006-2015
1	Caustics including ammonia and alkaline phosphates	21 (3%)	3 (4%)	2 (13%)
2	Acids	37 (6%)	6 (8%)	1 (6%)
3	Chlorine / releasers	165 (25%)	27 (39%)	6 (38%)
4	Chloramines and nitrogen trichloride	26 (4%)	2 (3%)	0
5	Quaternary ammonium	7 (1%)	2 (3%)	0
6	Solvents (organic)	45 (7%)	0	1 (6%)
7	Aldehydes	222 (33%)	11 (15%)	1 (6%)
8	Phenolics	7 (1%)	2 (3%)	0
9	Terpenes	4 (1%)	0	2 (13%)
10	Enzymes	6 (1%)	1 (1%)	0
11	Miscellaneous	26 (4%)	6 (8%)	1 (6%)
12	Unclear	101 (15%)	12 (17%)	2 (13%)

Relative rates by year (95% CI) of Allergic Contact Dermatitis reported by dermatologists attributed to fragrance versus not attributed to fragrances (all occupations)



Group	Average annual percentage change and 95% confidence intervals		p*
	Attributed to fragrances	Not attributed to fragrances	
Health and social care	0.4 (-2.6, 3.6)	-8.3 (-9.9, -6.7)	<0.001
Beauty	3.1 (-0.2, 6.5)	1.4 (-0.5, 3.2)	0.193
Food	1.3 (-3.1, 5.9)	-3.7 (-6.1, -1.3)	<0.05
All industry	1.1 (-0.8, 3.0)	-5.5 (-6.2, -4.7)	<0.001

* Test to see if trends (fragrance v not fragrance) are statistically, significantly different

Conclusions

THOR data contribute to prevention and policy at various levels:

- Prompting legislation / regulations – and evaluating them
- Prompting educational and enforcement campaigns, and supporting them with evidence
- Reactively responding to HSE, H&S professionals, industry, workers etc concerned about prevention and possible needs for policy changes
- Pro-actively highlighting areas to the above stakeholders where more efforts may be needed for prevention and/or change in policy

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- Dr Jill Stocks

Thank you for your attention

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