

# Work-related skin disease

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## Summary

The information in this document relates to Health and safety statistics for 2010/11. The document can be found at: [www.hse.gov.uk/statistics/causdis/dermatitis/index.htm](http://www.hse.gov.uk/statistics/causdis/dermatitis/index.htm)

There has been an overall reduction in annual new cases of work-related skin disease since the late 1990s. However, it is still relatively common, particularly in certain occupations, and can be severe in some cases.

The latest information shows:

- Each year there were about 136 new cases of work-related skin disease per 100 000 workers during 2008-10 according to GPs (THOR-GP).
- This suggests about 40 000 new cases per year – the majority of these will be dermatitis cases caused or made worse by work.
- Reports of more severe cases of occupational dermatitis and other less common skin diseases from specialist doctors suggest there has been a reduction in numbers of new cases per year since the late 1990s (THOR-EPIDERM).
- The most common causes of occupational dermatitis are soaps and cleaners, wet work, and rubber chemicals and materials (THOR).
- Florists and hairdressers continue to have high rates of dermatitis (THOR).

## Introduction

Occupational skin disease may be defined as any disorder of the skin which is caused by or made worse by work or any workplace activity. There are a number of so called occupational dermatoses some of which are described briefly below. The identification of specific cases of these disorders as occupational will typically be based on a consideration of when the disease first developed, whether the disease improves away from the work environment and whether there is a plausible causative agent present in the work environment which can be linked to the expression of the skin disease<sup>1</sup>.

*Contact dermatitis* may be defined as inflammation of the skin resulting from contact with a chemical or physical agent. There are two main forms of the disease: irritant contact dermatitis (ICD) includes a range of abnormal skin changes due to cell damage by various irritants, and where the changes are non-immunological in nature; in contrast, allergic contact dermatitis (ACD) occurs as an immunological response to an allergen - and therefore only in those susceptible to such a reaction to that specific agent. There is likely to be a delay between initial contact with the allergen and manifestation of the condition, but, once sensitised, any further contact with the allergen is likely to lead to the disease.

*Contact urticaria* is a transient immunological response of the skin which typically occurs rapidly following exposure and may resolve soon after exposure ceases.

Other non-allergic chemically induced dermatoses include *folliculitis* and *acne* - inflammation of the skin or hair follicles - and *infective skin diseases* resulting from exposures to bacteria, fungi or viruses.

*Mechanical skin disease* is characterised by skin damage due to mechanical trauma associated with particular occupations - for example, those involving repetitive tasks - and *skin neoplasia* can result from occupational exposure to various chemical and non-chemical carcinogens.

Estimation of the overall scale of these disease in Great Britain, trends in incidence, and identification of high risk occupations and activities, relies on a variety of sources of data each with different strengths and weaknesses.

## Data sources

A number of data sources provide information about occupational skin disease in Great Britain including three surveillance schemes within The Health and Occupation Network (THOR) in which dermatologists (EPIDERM scheme), occupational physicians (OPRA scheme), and general practitioners (THOR-GP scheme) record any new cases of occupational skin disease they see. Statistics are also available based on the Self-reported Work-related Illness (SWI) survey – a module of questions included annually in the national Labour Force Survey (LFS) – and from assessments for Industrial Injury and Disablement Benefit (IIDB).

Occupational skin disease can vary widely in severity from, for example, skin cancers and serious cases of dermatitis, to minor skin irritation, which may not be recognised as an adverse health outcome by the individual. Since THOR-GP captures those cases which are of enough concern to have triggered a visit to a GP and be subsequently diagnosed and attributed to work, but is not restricted to including only those cases serious enough to be referred to a dermatologist (as in EPIDERM), it is likely to give the best indication of the overall numbers of new cases of skin disease (i.e. disease incidence) each year.

EPIDERM provides by far the largest numbers of actual reported cases of skin disease and, though restricted to more severe cases and subject to a degree of underreporting, provides the best basis for more detailed analyses such as by occupational group or causal agent. The SWI survey is the only current source of information about the total number of people with occupational skin disease at any given time (i.e. disease prevalence).

Further information about data sources is available – see [www.hse.gov.uk/statistics/sources.htm](http://www.hse.gov.uk/statistics/sources.htm).

# Overall scale of disease

## New cases occurring each year – disease incidence

During 2008-2010 there were an estimated 136 new diagnoses of skin disease per 100 000 workers per year based on reports within the THOR-GP scheme (Table THORG01 [www.hse.gov.uk/statistics/tables/thorgp01.xls](http://www.hse.gov.uk/statistics/tables/thorgp01.xls)). This is equivalent to approximately 40 000 new diagnoses of occupational skin disease each year during this period. Skin disease diagnoses were substantially less likely to be issued with a sickness notification and tended to be associated with much shorter periods of sickness absence than average for all diagnoses.

The number of respondents reporting new cases of skin problems in the SWI survey is usually too small to produce reliable incidence estimates for this particular condition. The most recent year for which it was possible to produce an estimate was 2006/07 in which there were an estimated 6 000 to 16 000 new cases of skin problems (Table SWIT6W12 [www.hse.gov.uk/statistics/lfs/swit6w12.xls](http://www.hse.gov.uk/statistics/lfs/swit6w12.xls)). This is substantially lower than the estimates from THOR-GP. This may be because some respondents regard "skin problems" as a condition or complaint rather than an illness and therefore do not report them. Furthermore, where respondents have suffered more than one illness, estimates are based on the illness they regard as most severe. Both these factors may tend to lead to an underestimation of the incidence of occupational skin disease by the LFS surveys.

Reports to EPIDERM and OPRA include only those cases of skin disease that were serious enough to be seen by a dermatologist or occurred in workplaces where there is access to occupational physicians. Furthermore, many cases that failed to be diagnosed at all or where the link with work activity was not recognised will not be included. Thus, these schemes inevitably underestimate the true incidence of occupational skin disease - particularly for those conditions such as contact dermatitis where there may be substantial numbers of less serious cases.

In 2010, there were 2055 new diagnoses of occupational skin disease by dermatologists and occupational physicians reporting to the EPIDERM and OPRA schemes within the THOR network (Table THORS01 [www.hse.gov.uk/statistics/tables/thors01.xls](http://www.hse.gov.uk/statistics/tables/thors01.xls)). Of the skin disease diagnoses reported within THOR in 2010, 1497 (73%) were contact dermatitis and 390 (19%) – most of the remainder – were skin cancers. The majority of the cases seen by both dermatologists occupational physicians were contact dermatitis (70% for EPIDERM and 85% for OPRA in 2009) while only EPIDERM tends to pick up cases of skin cancer (only 1 case was reported by OPRA during last seven years.) This is largely due to the fact that occupational physicians see very few patients who are over the age of 65, while the reverse is true of dermatologists. Hence, skin cancers and other diseases of long latency are much less likely to be picked up by OPRA. A full description of the various occupational dermatoses reported to EPIDERM and OPRA is given in Table THORS01.

Of the diagnoses of occupational dermatitis within the THOR scheme in 2010, slightly more were among women (52%) than men (48%), though the majority of skin cancers (87%) were among men. Contact dermatitis tends to occur at a young age – particularly amongst female workers, however, for skin cancer the majority of the cases occur in those aged over 65 years (Table THORS02 [www.hse.gov.uk/statistics/tables/thors02.xls](http://www.hse.gov.uk/statistics/tables/thors02.xls)).

The majority of cases (84 per cent) of occupational skin disease in 2008-10 occurred in England, with 9 per cent in Scotland and 7 per cent in Wales (Table THORS03 [www.hse.gov.uk/statistics/tables/thors03.xls](http://www.hse.gov.uk/statistics/tables/thors03.xls)). For contact dermatitis the proportion of cases in England was slightly lower (81%) but for skin cancer, somewhat higher (96%).

The coverage of the IIDB scheme is much more restricted than that of THOR and typically identifies only the most severe cases of dermatitis. In 2010, there were 55 cases assessed for disablement benefit (Table IIDB02 [www.hse.gov.uk/statistics/tables/iidb02.xls](http://www.hse.gov.uk/statistics/tables/iidb02.xls)).

## Total currently ill – disease prevalence

Estimates the total number of people with occupational illnesses at any given time (disease prevalence) in Great Britain may be derived from the Self-reported Work-related Illness (SWI) module of questions included annually in the national Labour Force Survey (LFS). Recent results indicate that around 20 000 people who had worked in the previous 12 months had "skin problems" they thought were caused or made worse by work (Table SWIT3W12 [www.hse.gov.uk/statistics/lfs/swit3w12.xls](http://www.hse.gov.uk/statistics/lfs/swit3w12.xls)).

## Working days lost

The 2001/02 Self-reported Work-related Illness (SWI)<sup>2</sup> module of the Labour Force Survey is the most recent year for which there were sufficient numbers of sample cases to estimate the number of working days lost due to occupational skin disease. Between an estimated 96 000 and 367 000 full time equivalent working days were lost due to skin disease in 2001/02. This compares with 31.8 million days lost due to all self-reported work-related illness in the same year (95% CI: 29.1-34.4 million). The average number of days lost per case was between 3.9 and 12.5 days for skin disease compared with 22.8 days for all self-reported work-related illness (95% CI: 21.1-24.5 days).

Based on reports made during 2008-2010 to the THOR GP scheme, skin diseases accounted for around 3% of total days sickness absence certified due to all occupational illnesses. For skin diseases, a sickness certificate was issued in 14% of cases (Table THORGP01 [www.hse.gov.uk/statistics/tables/thorgp01.xls](http://www.hse.gov.uk/statistics/tables/thorgp01.xls)).

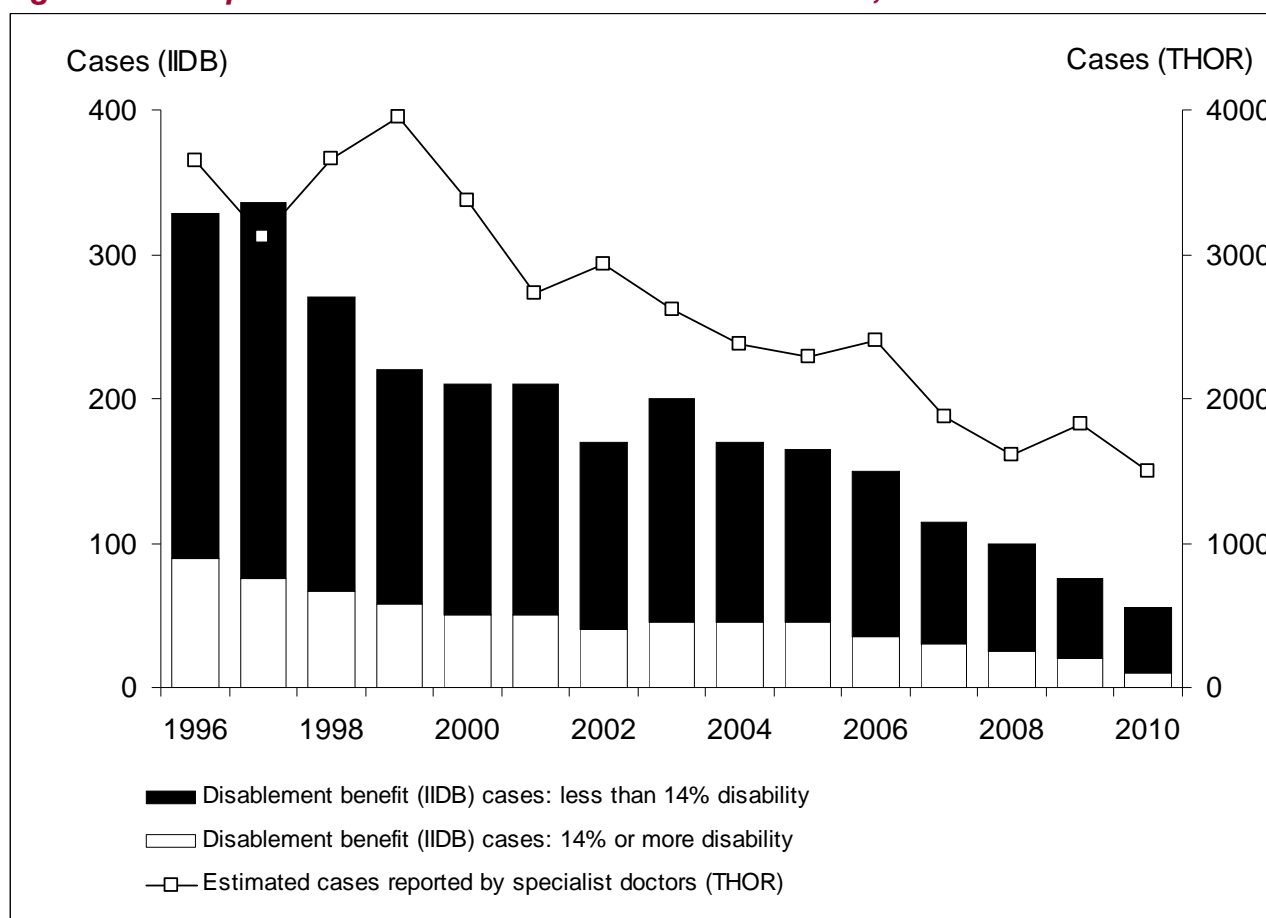
## Trends in incidence

Statistics based on reports of occupational skin disease within the THOR scheme are affected by various factors including the number and type of participating specialist and occupational physicians, their reporting habits, and by seasonal effects associated with the time of year they report. This makes assessment of trends based on total annual estimated cases problematic since these factors - as well as the true incidence - can vary over time. Statistical modelling by the University of Manchester showed statistically significant downward trends in the incidence of both contact dermatitis and all skin disease cases over the period 1996-2010 after taking account of some of these effects. However, this was largely due to reductions in incidence prior to 2006: no trends were observed during the most recent 5-year period (2006-2010) either for contact dermatitis or all skin disease. Neither was there any significant reduction in the incidence as reported within THOR-GP within this latter period.

For contact dermatitis a stronger downward trend was evident during 1996-2010 within the OPRA scheme suggesting a larger reduction in incidence among workers who have access of occupational physicians. However, again most of the reduction took place in the earlier part of the period with no change in incidence over the last five years. The analyses do not take account of a possible tendency for reporters to include fewer cases than they should once they have been reporting for some time (so called "reporting fatigue"). If the data were affected by reporting fatigue this would tend to reduce any observed downward trends. Annual estimated cases of contact dermatitis based on the THOR scheme are shown in Figure 1 below.

The number of assessed cases of occupational dermatitis within the IIDB scheme has declined steadily over the period shown in Figure 1. In the late 1990s there were over 300 assessed cases each year compared with fewer than 100 cases in each of the last two years.

**Figure 1: Occupational contact dermatitis in Great Britain, 1996-2010**

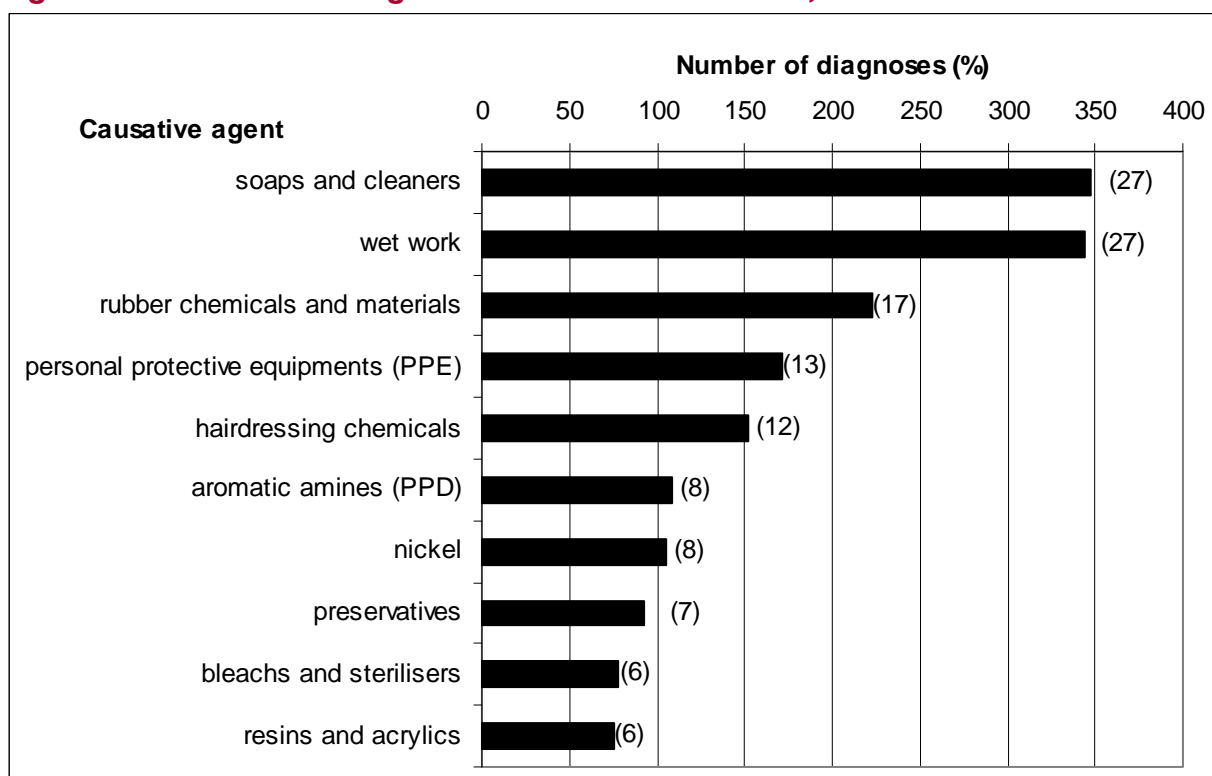


## Causative agents\*

Causative agents recorded by the physicians reporting to EPIDERM or OPRA during 2008-10 are shown in Table THORS06 ([www.hse.gov.uk/statistics/tables/thors06.xls](http://www.hse.gov.uk/statistics/tables/thors06.xls)), and those agents accounting for more than 5% of diagnoses by dermatologists during that period are shown in Figure 2. The most common agents were "soaps and cleaners", "wet work", and "rubber chemicals and materials". There may be some degree of overlap between agent categories with some diagnoses being assigned more than one agent code. For example, some cases caused by the use of latex gloves may appear in both the "rubber chemicals and materials" and "personal protective equipment" categories.

An analysis of THOR data for 2002-2005 found that 43% of cases of contact dermatitis reported to EPIDERM were allergic in nature, 40% were irritant and the remainder mixed or unspecified. Of contact dermatitis reports to OPRA over the same period there were nearly three times as many irritant cases as allergic cases - though about half of all cases were unspecified<sup>3</sup>.

**Figure 2: Most common agents for contact dermatitis, 2008-10**



\* Because the coverage of British industry by occupational physicians varies by type of industry and occupation the dermatologist (EPIDERM) data alone should be used for making comparative statements between different agents, industries and occupations. Given that there is not thought to be a great deal of overlap in cases reported in the two schemes, data from both chest physicians (EPIDERM) and occupational physicians (OPRA) can be combined to give the most complete available estimate for any particular subgroup.

## Occupation and industry<sup>†</sup>

Industrial and occupational analyses of EPIDERM/OPRA cases can give an insight into the types of workplaces and activities that are currently causing occupational dermatitis in the British workforce. Table THORS04 ([www.hse.gov.uk/statistics/tables/thors04.xls](http://www.hse.gov.uk/statistics/tables/thors04.xls)) and Table THORS05 ([www.hse.gov.uk/statistics/tables/thors05.xls](http://www.hse.gov.uk/statistics/tables/thors05.xls)) show the average number of EPIDERM and OPRA cases reported per year during the period 2008-2010, by occupation and industry respectively, together with estimated rates per 100 000 workers. These latter rates are calculated by using a denominator based on the number of workers identified in the Labour Force Survey in the relevant occupational or industrial sector. Thus the denominator is representative of the whole sector whereas the number of cases reported is limited by underreporting (see above). As a consequence the rates identified should be seen as minimal estimates. Numbers and rates for each major occupational group and industrial section are shown, and where the number of actual cases over a three year period is greater than or equal to 10, case numbers and rates are also shown for unit groups in occupations, and divisions in industry.

Caution must be applied when interpreting the rates at the occupational unit group and industry division level of detail, as there may be occupations and industries that are relatively small; therefore the actual rates of disease incidence may be high, but they are not included in the EPIDERM/OPRA tables because the number of cases is below the inclusion threshold.

Five major occupational groups had rates of occupational contact dermatitis higher than the overall rate of 4 cases per 100,000 workers per year in 2008-10 (Table THORS04 [www.hse.gov.uk/statistics/tables/thors04.xls](http://www.hse.gov.uk/statistics/tables/thors04.xls)). The top two were 'Personal Service Occupations' (11 cases per 100 000 per year) and 'Skilled Trades Occupations' (9 cases per 100 000 per year). For unit groups, occupations with the highest estimated rates of contact dermatitis reported to dermatologists (EPIDERM) were: 'floral arrangers and florists' (136 cases per 100 000 per year), 'hairdressers and barbers' (109 cases per 100 000 per year) and 'metal working production and maintenance fitters' (94 cases per 100 000 per year). Using information from both schemes, however, would give somewhat higher estimates for some occupations, for example 46 per 100 000 for nurses, compared with the figure of 30 per 100 000 based on EPIDERM alone. However, this rate - which should not be used as a means of comparing with other occupations<sup>†</sup> - will still be an underestimate of the true rate of new cases of work related dermatitis for this occupation.

Six industry sections had rates of occupational contact dermatitis higher than the overall rate of 4 cases per 100 000 per year during 2008-2010 (Table THORS05 [www.hse.gov.uk/statistics/tables/thors05.xls](http://www.hse.gov.uk/statistics/tables/thors05.xls)). The top three were 'Other service activities' (28 cases per 100 000 per year), 'Mining and quarrying' (11 cases per 100 000 per year), and 'Human health and social work activities' (10 cases per 100 000 per year). The industry divisions with the highest rates of occupational dermatitis as seen by dermatologists were 'Other personal service activities' (53 cases per 100 000 per year), 'Extraction of crude petroleum and natural gas' (36 cases per 100 000 per year) and 'Manufacture of chemicals and chemical products' (19 cases per 100 000 per year).

<sup>†</sup> Because the coverage of British industry by occupational physicians varies by type of industry and occupation the dermatologist (EPIDERM) data alone should be used for making comparative statements between different agents, industries and occupations. Given that there is not thought to be a great deal of overlap in cases reported in the two schemes, data from both chest physicians (EPIDERM) and occupational physicians (OPRA) can be combined to give the most complete available estimate for any particular subgroup.

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