

# Work-related skin disease in Great Britain, 2018

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# Summary



## Work-related skin disease

**7,000**

Estimated annual new cases of self-reported work-related skin problems

**891**

Estimated new cases of occupational contact dermatitis reported by dermatologists in 2017

- Most cases of work-related skin disease reported by dermatologists participating in the EPIDERM scheme within The Health and Occupation Reporting (THOR) network are *contact dermatitis* caused by exposure to allergens or irritants.
- The estimated rate of annual new cases of contact dermatitis seen by dermatologists during the last 5 years was lower than in the previous 10 years.
- Contact with soaps and cleaning materials and working with wet hands continue to be the most common causes of occupational contact dermatitis according to reports by dermatologists.
- Occupations with the highest rates are florists, hairdressers, beauticians, cooks and certain manufacturing and health-care related occupations.
- Other conditions reported in EPIDERM include *urticaria*, *folliculitis*, *acne*, *infective* and *mechanical skin disease*, and *skin cancer*.

The document can be found at: [www.hse.gov.uk/statistics/causdis/](http://www.hse.gov.uk/statistics/causdis/)

## Introduction

Work-related skin diseases include any disorder of the skin caused by or made worse by work or workplace activity. “Occupational” skin disease is usually reserved for those cases that are directly caused by work, whereas the wider definition of “work-related” skin disease includes all cases where work may play a role.

There are a number of different types of work-related skin diseases, including contact dermatitis, contact urticaria, folliculitis, acne, infective and mechanical skin disease, and skin cancer (see the Technical note for further information about disease characteristics).

Work-related skin disease can vary widely in severity from serious cases of dermatitis, to minor skin irritation, which may not be recognised as an adverse health outcome by the individual. Statistics are available based on a variety of sources of data each with different strengths and weaknesses.

## Overall scale of work-related skin disease

### Incidence of self-reported work-related skin disease

There were an estimated 7,000 (95% Confidence Interval: 4,000-9,000) new cases of self-reported “skin problems” each year that were caused or made worse by work according to the Labour Force Survey (LFS) over the last five years.

### Specialist physician-diagnosed occupational skin disease

Estimated numbers of annual case reports of skin disease by dermatologists within the EPIDERM scheme – part of The Health and Occupation Reporting (THOR) network – are much lower than estimates based on the LFS, and include only those cases serious enough to be seen by a skin disease specialist:

- In 2017, there were an estimated 1090 individuals with new cases of occupational skin disease within EPIDERM [Table THORS01 [www.hse.gov.uk/statistics/tables/thors01.xlsx](http://www.hse.gov.uk/statistics/tables/thors01.xlsx)].
- There were 1129 new diagnoses among these individuals and of these diagnoses, 891 (79%) were contact dermatitis, 79 (7%) were other non-cancerous dermatoses (mainly contact urticarial and nail conditions), and the remaining 159 (14%) were skin cancers.
- Of the occupational dermatitis diagnoses in 2017, 38% were among men, and 62% among women [Table THORS01 [www.hse.gov.uk/statistics/tables/thors01.xlsx](http://www.hse.gov.uk/statistics/tables/thors01.xlsx)].
- Contact dermatitis often occurs at a young age, particularly among female workers: 53% of reports to EPIDERM among women were aged less than 35 years compared with 36% among men [Table THORS02 [www.hse.gov.uk/statistics/tables/thors02.xlsx](http://www.hse.gov.uk/statistics/tables/thors02.xlsx)].

Not all of eligible dermatologists are included in EPIDERM, and some of those included do not report any cases.

### Cases assessed for Industrial Injuries Disablement Benefit (IIDB)

The coverage of the IIDB scheme is much more restricted than that of THOR and typically identifies only the most severe cases of dermatitis. Annual numbers of cases assessed for IIDB have been reducing over the last decade.

- In 2017, there were 25 cases assessed for IIDB compared with over 100 cases per year ten years earlier and an average of 50 cases per year over the last 10 years [Table IIDB02 [www.hse.gov.uk/statistics/tables/iidb02.xlsx](http://www.hse.gov.uk/statistics/tables/iidb02.xlsx)]. About 25% of IIDB cases are typically among women.

### Total currently with skin problems – illness prevalence

Estimates of the total number of people with occupational illnesses at any given time (disease prevalence) in Great Britain may also be derived from the Labour Force Survey (LFS).

- There are currently an estimated 17,000 (95% confidence interval: 13,000-22,000) people currently or recently in work (i.e. within the last year) with skin problems they regard as caused or made worse by work. This is based on data from the LFS in 2015/16, 2016/17 and 2017/18 [Table-1 [lfsilltyp.xlsx](http://www.hse.gov.uk/statistics/lfs/lfsilltyp.xlsx)].
- The LFS figures for the prevalence of self-reported skin problems caused or made worse by work, whilst quite variable, have been broadly flat over the last ten years.

## Sickness absence

Statistics based on reporting of cases by GPs in the THOR-GP scheme (for which the last year of reporting was 2015) suggested that 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 occupational disease diagnoses.

Based on reports made during 2013-2015 to the THOR-GP scheme, skin diseases accounted for around 1% of total sickness absence days certified due to occupational illnesses. For skin diseases, a sickness certificate was issued in 7% of cases [Table THORGP01 [www.hse.gov.uk/statistics/tables/thorgp01.xlsx](http://www.hse.gov.uk/statistics/tables/thorgp01.xlsx)].

For contact dermatitis specifically, a sickness certificate was issued in 9% of cases (based on reports during 2006-2012), and 16% of cases were referred to a hospital specialist or other health practitioner.

## Trends in incidence

### Trends in overall incidence of contact dermatitis

Data from EPIDERM can be used as the basis for inferences about time trends in the annual incidence of occupational dermatitis. However, such inferences cannot be made solely on the basis of the number of estimated annual cases since various factors can influence these numbers as well as true changes in incidence.

Relative changes in annual incidence based on the latest statistical modelling by the University of Manchester<sup>1</sup> which takes account of some of these factors (including the number and type of participating specialists, their reporting habits, and seasonal effects associated with the time of year they report) give the best guide available to date about year-on-year changes.

### Figure 1: Occupational contact dermatitis in Great Britain, 2006-2017

Figure 1A: Estimated rate of annual new cases reported by dermatologists relative to 2017 (EPIDERM)

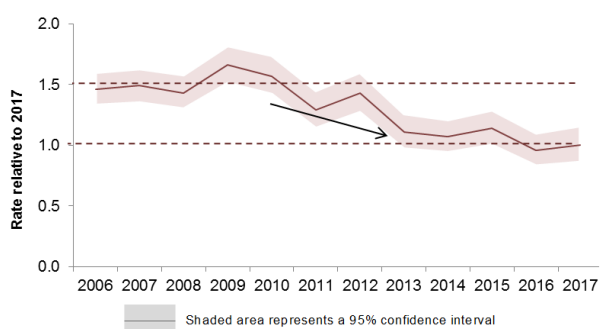
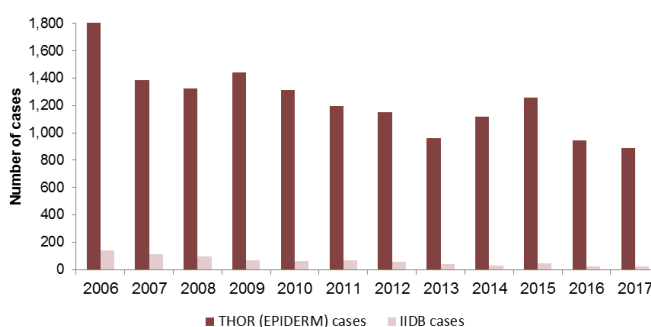


Figure 1B: Estimated number of cases reported by dermatologists (EPIDERM) and IIDB cases



Source: THOR (EPIDERM) scheme, University of Manchester

The latest analyses show:

- The estimated rate of annual new cases of contact dermatitis seen by dermatologists was lower during the last 5 years than during the previous 10 years (Figure 1A).
- There was on average around 1,000 estimated new cases per year during the last 5 years (2013-2017) compared with around 1,400 per year during the earlier part of the period shown (2006-2012) (Figure 1B).
- An analysis of longer-term trends estimated the overall average change in incidence to be -4.0% per year (95% confidence interval: -4.4, -3.5) over the period 1996-2017. This is similar to the estimate of -4.1% per year (95% confidence interval (-5.3,-3.0)) for the more recent period 2006-2017. The period 2012 to 2017 has shown a larger decline of -6.2% per year (95% CIs: -9.0,-3.2).

The statistical modelling does not take account of a possible tendency for THOR reporters to include fewer cases than they should once they have been reporting for some time (so called "reporting fatigue").

There is some evidence of an increase in non-response and in the number of those reporting zero cases within EPIDERM and this could be an indication of reporting fatigue. If the data were affected by reporting fatigue, adjusting for its effect would tend to reduce the size of the observed downward trend – although the investigations so far suggest not by a large extent.

Such an adjustment can only be made for all disease types recorded within EPIDERM, and not for contact dermatitis on its own. The estimated annual decrease over the period 1996-2017 would change from -4.1% to -3.1%.<sup>1</sup>

## Trends in contact dermatitis in relation to specific agents

While the statistical analyses of EPIDERM data by the University of Manchester suggest that the overall incidence of contact dermatitis is likely to have reduced, this is not necessarily the case for contact dermatitis caused by exposure to some specific agents.

The longer-term downward trend in annual incidence appears to have been particularly influenced by a reduction in cases caused by allergens in the first part of the period (i.e. prior to 2007) rather than by irritants. However, the lower overall incidence seen in the last 4 years has in fact been driven by a reduction in cases caused by irritants, whereas the incidence in allergic cases has remained broadly constant over the last decade.

Part of the explanation for the earlier fall in the incidence of allergic cases may have been a reduction in the use of powdered latex gloves, particularly among health care workers.<sup>2</sup> Work by the University of Manchester suggested that this coincided with an increase in irritant dermatitis incidence that may have resulted from initiatives to increase in hand hygiene<sup>3</sup>.

Other analyses by the University of Manchester show a reduction in allergic contact dermatitis due to chromates that is likely to be a result of reduced exposures in cement following the introduction of EU legislation in 2005<sup>4</sup>, and that there has been an increase in the incidence of allergic contact dermatitis caused by acrylates among beauticians.<sup>5</sup>

## Dermatitis by causative agents

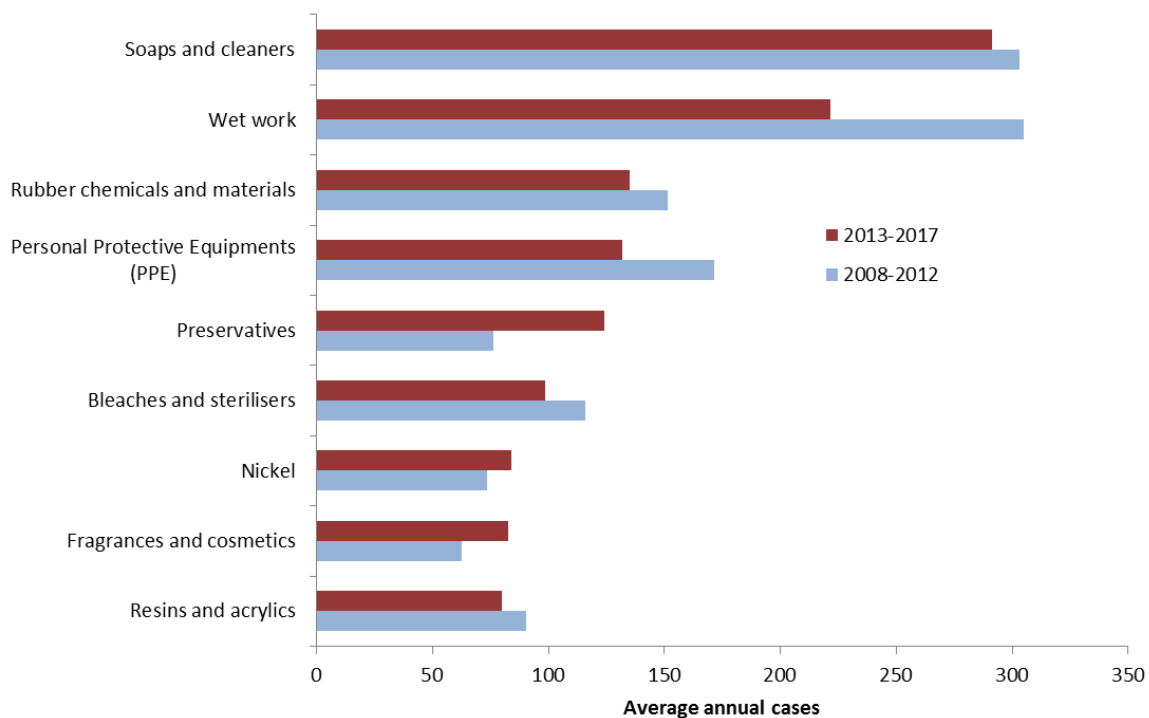
Analyses of EPIDERM data for 1996-2017, shows that around 37% of cases of contact dermatitis were allergic in nature, 44% were irritant and the remainder mixed or unspecified. For the period 1996-2017, the incidence of allergic cases showed a decline of 5.3% compared to 3.0 decline for irritant and 2.7 decline for mixed contact dermatitis.<sup>1</sup>

Dermatologists reporting to EPIDERM try to identify the causes of cases of skin disease they see. The causative agents recorded by dermatologists for contact dermatitis cases reported in EPIDERM are shown in Table THORS06 [[www.hse.gov.uk/statistics/tables/thors06.xlsx](http://www.hse.gov.uk/statistics/tables/thors06.xlsx)]. Figure 2 shows the most common agents mentioned in these case reports of contact dermatitis during the last two 5-year periods.

Contact with soaps and cleaners and working with wet hands – i.e. “wet work” – have consistently been the most commonly recorded causes. Other common causal agents include “Rubber chemicals and materials”, “Personal protective equipment” (including latex gloves), “Preservatives”, “Bleaches and sterilisers”, and “Nickel”.

Note that 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.

**Figure 2: Contact dermatitis: causal agents most commonly reported to THOR (EPIDERM) during 2008-2012 and 2013-2017**



# Dermatitis by occupation and industry

Of the available data sources, EPIDERM includes the highest numbers of actual reported cases of occupational dermatitis each year and as such provides the best basis for comparisons of incidence across occupation and industry groups.

## Occupation

Statistics for occupational dermatitis by occupational group based on EPIDERM reports during the period 2001-2017 are shown in Table THORS04 [[www.hse.gov.uk/statistics/tables/thors04.xlsx](http://www.hse.gov.uk/statistics/tables/thors04.xlsx)].

These statistics show that there is considerable variation in the incidence of occupational dermatitis between the major groupings of occupations. The groups “Managers, Directors and Senior Officials” and “Administrative and Secretarial Occupations” had the lowest incidence rates (1.1 and 0.4 cases per 100,000 workers per year during 2008-2017 respectively), whereas the groups “Caring, Leisure and Other Service Occupations” and “Skilled Trades Occupations” had incidence of rates of 9.9 and 7.5, which are several times higher. “Process, Plant and Machine Operatives”, “Professional Occupations” and “Elementary Occupations” also had much higher rates than the managerial and administrative groups.

More detailed statistics (for occupation unit groups) are subject to considerable statistical uncertainty due to smaller number of actual reported cases, however, they show that some occupations have much higher dermatitis incidence rates than any of the major groupings of occupations.

The five occupations with the highest rates of the period 2008-2017 were:

- Florists (76.7 cases per 100,000 workers per year),
- Hairdressers and barbers (67.5 cases per 100,000 workers per year),
- Beauticians (69.9 cases per 100,000 workers per year),
- Cooks (62.9 cases per 100,000 workers per year), and
- Metal working machine operatives (43.7 cases per 100,000 workers per year).

Other occupations with high incidence rates (over 25 new cases per 100,000 per year) were Dental practitioners, Nurses and Moulders, core makers and die casters.

Caution must be applied when comparing incidence rates for successive time periods for individual occupation major and unit groups. In addition to the issues discussed under Trends in incidence above, the figures are subject to increased statistical variation resulting from the often small numbers of actual reported cases within specific groups.

## Industry

Statistics for occupational dermatitis by industry group based on EPIDERM reports during the period 2008-2017 are shown in Table THORS05 [[www.hse.gov.uk/statistics/tables/thors05.xlsx](http://www.hse.gov.uk/statistics/tables/thors05.xlsx)].

Variations in the incidence of occupational dermatitis by industry are a reflection of where the occupations with the highest rates are likely to predominate within the industry classification. For example, the industry section with the highest annual incidence of occupational dermatitis during 2015-2017 was “Other service activities” with a rate of 20.0 cases per 100,000 workers per year. The industry division with the highest incidence rate – “Other personal service activities” with a rate of 37.9 cases per 100,000 workers per year – is a subgroup within this section and includes the hairdressing and beauty treatment industries which, as the statistics by occupation show, have particularly high rates of dermatitis.

The high incidence rates seen in the human health related industry sections and divisions reflect the high rates among dentists and nurses, and a higher than average rate in the manufacturing industry also reflects high rates seen in the various manufacturing associated occupations mentioned above.

Whilst these statistics can give insight into the types of workplaces and activities where the burden of occupational dermatitis in the British workforce is highest, they should be seen as minimal estimates of the absolute incidence in each setting. Rates are calculated by using denominators from the Labour Force Survey (LFS) which are representative of overall numbers employed in each occupation or industry, whereas the number of cases reported is limited by underreporting (as discussed above under Overall scale of disease).

# Technical notes

## Disease definitions

Work-related skin disease may be defined as any disorder of the skin which is caused by or made worse by work or workplace activity. The term “occupational” skin disease is usually reserved for those cases that are directly caused by work, whereas the wider definition of “work-related” skin disease includes all cases where work may play a role, for example, by making existing skin problems worse.

There are a number of skin diseases - so called ‘dermatoses’ - in which occupational factors can play a role. These are discussed briefly below. The focus of this document is on non-cancerous skin disease; occupational skin cancers are covered separately – see [www.hse.gov.uk/statistics/causdis/cancer/](http://www.hse.gov.uk/statistics/causdis/cancer/) .

The identification of specific cases of skin diseases as work-related 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 disease<sup>6</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 that develop 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.

## Data sources

Estimation of the overall scale of work-related diseases 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.

A number of data sources provide information about the incidence of occupational skin disease in Great Britain (the number of new cases occurring each year). The Health and Occupation Research Network (THOR) includes a scheme known as EPIDERM in which dermatologists record any new cases of occupational skin disease they see. General practitioners included in THOR also report cases of occupational skin disease within a scheme known as THOR-GP. 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).

Work-related skin disease can vary widely in severity from serious cases of dermatitis, to minor skin irritation, which may not be recognised as an adverse health outcome by the individual. 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. However, the relatively small sample of participating GPs results in imprecise estimates of the overall scale of work-related skin disease in Great Britain.

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 Labour Force Survey (LFS) is the only current source of information about the prevalence of occupational skin disease at any given time (the proportion of the population currently with the disease).



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