

Occupational Lung Disease statistics in Great Britain, 2022

Data up to March 2022

Annual statistics

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Occupational Lung Disease Summary

Important Note

The coronavirus (COVID-19) pandemic and the government's response has impacted recent trends in health and safety statistics published by HSE and this should be considered when comparing across time periods. More details can be found in our [reports](#) on the impact of the coronavirus pandemic on health and safety statistics.

There are currently an estimated 12,000 Occupational Lung Disease (OLD) deaths each year linked to past exposures at work (based on death certificates and epidemiological estimation of the effects of occupational exposures).

Estimates of breathing or lung problems caused or made worse by work each year based on the Labour Force Survey (LFS) averaged over the last three year show that there were:

- 19,000 new cases each year among those who worked in the previous year;
- 49,000 new or long-standing cases among those who worked in the previous year; and
- 149,000 new or long-standing cases among those who have ever worked.

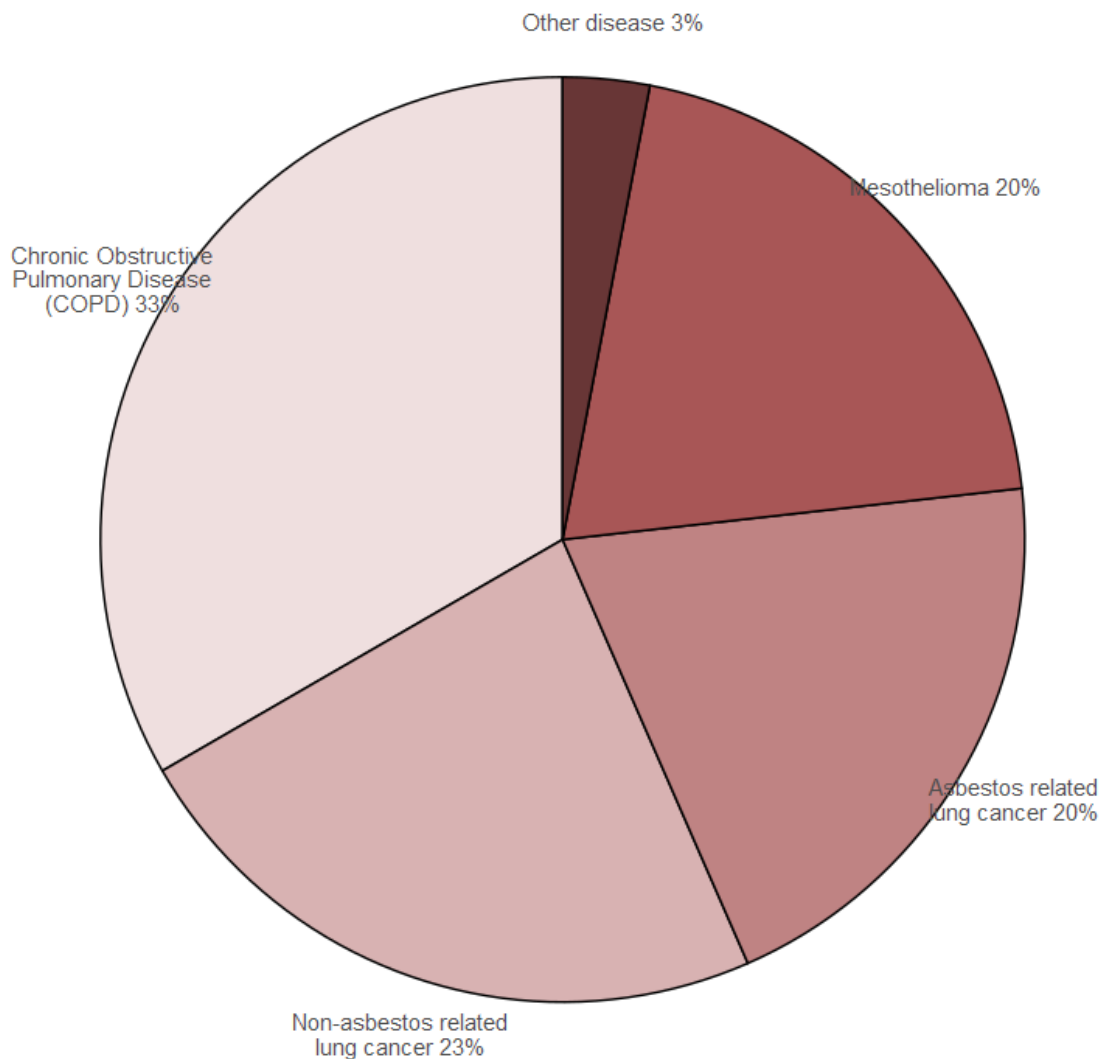
Part of the estimate of self-reported breathing or lung problems based on the 2020/21 and 2021/22 LFS is likely to be COVID-19 arising from infection at work. However, some of the respondents may have still reported having breathing or lung problems for other work-related reasons had they not contracted COVID-19.

Deaths due to occupational lung disease

A range of lung diseases can be caused by exposures in the workplace including very serious diseases, such as cancer and chronic obstructive pulmonary disease (COPD), which can often be fatal.

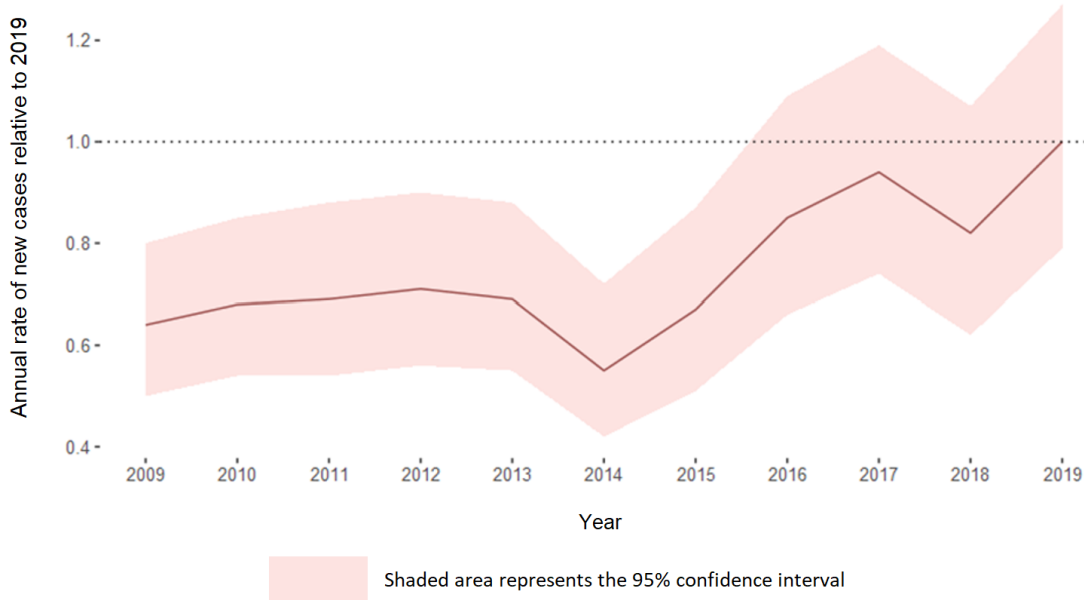
Occupational lung diseases typically have a long latency (they take a long time to develop following exposure to the agent that caused them). Therefore, current deaths reflect the effect of past working conditions.

Occupational Lung disease contributing to estimated current annual deaths

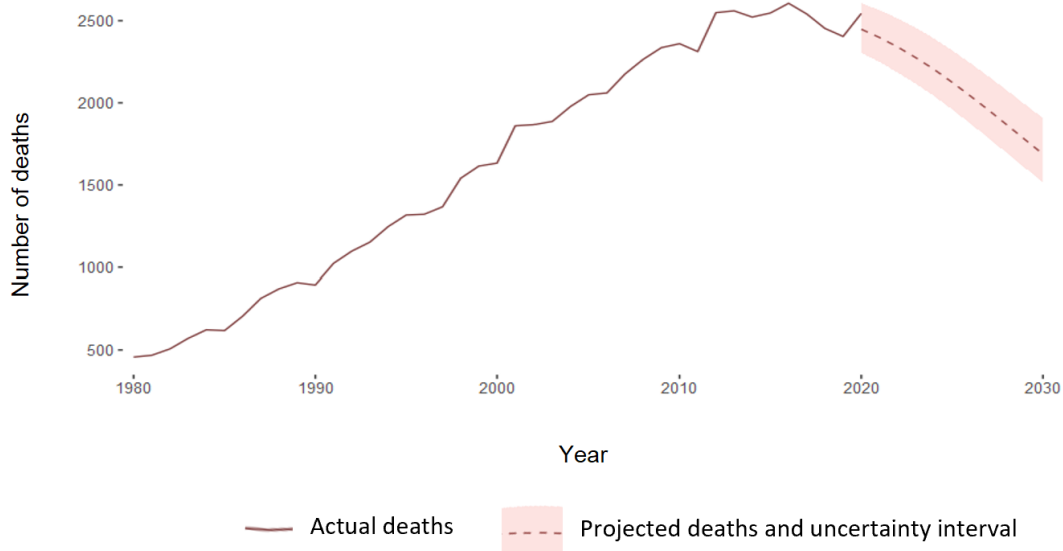


Trends in occupational lung disease

Estimated rate of annual new cases of occupational asthma reported by chest physicians relative to 2019



Mesothelioma in Great Britain: annual actual and predicted deaths



More information about Occupational Lung Disease:

[More detailed information on asbestos-related disease](#)

[Work-related asthma in Great Britain 2022](#)

[Work-related Chronic Obstructive Pulmonary Disease \(COPD\) in Great Britain 2022](#)

[Silicosis and coal worker's pneumoconiosis 2022](#)

[More detailed information on other occupational lung disease](#)

Introduction

Important Note

The coronavirus (COVID-19) pandemic and the government's response has impacted recent trends in health and safety statistics published by HSE and this should be considered when comparing across time periods. More details can be found in our [reports](#) on the impact of the coronavirus pandemic on health and safety statistics.

This document gives an overview of the latest statistical evidence about Occupational Lung Disease (OLD) in Great Britain. More detailed statistical commentaries relating to specific diseases are also available.

A range of lung diseases can be caused by exposures in the workplace, including:

- Respiratory cancers, including lung cancer and mesothelioma
- Chronic Obstructive Pulmonary Disease (COPD)
- Silicosis, asbestosis and other forms of pneumoconiosis
- Occupational asthma
- Diffuse pleural thickening and pleural plaques
- Allergic alveolitis and byssinosis

Many of these are serious diseases which can often lead to death or substantial disability. Most are *long latency* diseases, meaning they start to develop many years after the workplace exposures that caused them or contributed. The main exceptions are occupational asthma and allergic alveolitis which can develop more quickly.

Current and recently occurring cases of long latency diseases are mainly a reflection of past workplace conditions. However, many of the causative agents can still be present in workplaces and thus constitute a potential on-going hazard.

Data Sources

Statistics for occupational lung disease can be derived from a number of data sources. No particular source is best for estimating the overall disease burden and time trends in occupational lung disease. A range of data sources can be used to provide evidence about this depending on the particular disease type.

The main data sources are as follows:

Source:	Used for estimation of:
National mortality data (death certificates)	Annual deaths from specific diseases known to be strongly associated with certain exposures – for example, mesothelioma (due to asbestos) and pneumoconiosis (due to dusts like silica and coal)
Cases reporting by chest physicians in SWORD scheme within The Health and Occupation Reporting (THOR) network	Shorter latency diseases such as asthma and allergic alveolitis or where cases can be readily attributed to work on a case-by-case basis
Cases assessed for Industrial Injuries Disablement Benefit (IIDB)	Diseases arising from circumstances where the link to work is sufficiently strong (balance of probabilities argument, or clinical features of cases) for state-based no-fault compensation to be awarded
Self-reporting of “breathing or lung problems” in the Labour Force Survey (LFS)	Survey-based measure of the overall scale and trends for the broadest definition of occupational lung disease using selfreports
Attributable Fraction (AF) estimation using epidemiological data	Diseases for which attributing individual cases to workplace exposures is difficult because they are often caused by both occupational and non-occupational factors – for example, many cancers and COPD

Overall scale of occupational lung disease

Mortality

Occupational lung diseases are often serious and can lead to early mortality. Table 1 provides a summary of the latest information about the current scale of annual mortality due such diseases.

- For some diseases such as mesothelioma, pneumoconiosis, byssinosis, and certain types of allergic alveolitis, counts of annual deaths can be obtained from routinely available national mortality records.
- For conditions that can be caused by a variety of occupational and non-occupational exposures, such as lung cancer and COPD, annual deaths can be estimated based on Attributable Fractions derived from epidemiological research.

Table 1: Estimated current annual mortality from lung diseases in Great Britain

Disease	Estimated annual deaths	Basis for estimate
Mesothelioma	2,400 (20%)	Annual figure from death certificates(1)
Asbestos-related lung cancer	2,400 (20%)	Estimated from epidemiological information
Lung cancer due to other agents	2,800 (23%)	Estimated from epidemiological information
COPD	4,000 (34%)	Estimated from epidemiological information
Other (pneumoconiosis and allergic alveolitis)	350 (3%)	Current annual scale from death certificates(2)
Total	12,000 (100%)	

- (1) Assuming 97% of male and 82.5% of female mesothelioma deaths attributed to past occupational asbestos exposures
- (2) Deaths where these diseases were identified as the underlying cause of death

Prevalence of self-reported breathing or lung problems

Although some occupational lung diseases – particularly cancers like mesothelioma and lung cancer – are often rapidly fatal following the onset of symptoms, other diseases such as COPD and asthma may persist and progress over a period of many years. An important source of information that will tend to include cases of these chronic conditions is based on self-reported cases under the category “breathing or lung problems” within the Labour Force Survey (LFS).

Based on a three-year average from the LFS in 2019/20, 2020/21 and 2021/22:

- An estimated 49,000 people who worked in the last 12 months currently have breathing or lung problems they regard as caused or made worse by work (95% Confidence Interval: 40,000 to 58,000) [see lfsilltyp Table-1: www.hse.gov.uk/statistics/lfs/lfsilltyp.xlsx]
- An estimated 149,000 people who have ever worked currently have breathing or lung problems they regard as caused or made worse by work (95% Confidence Interval: 130,000 to 168,000).

Coronavirus pandemic

A substantial minority of respondents in the 2020/21 and 2021/22 Labour Force Surveys who reported having breathing or lung problems caused or made worse by work identified that this was linked to coronavirus or suspected coronavirus at work, and most of these reported that their illness may have been from exposure to coronavirus at work. Therefore, part of the estimate of breathing or lung problems based on the 2020/21 and 2021/22 LFS is likely to be COVID-19 arising from infection at work. However, some of the respondents may have still reported having breathing or lung problems for other work-related reasons had they not contracted COVID-19. More details can be found in our [reports](#) on the impact of the coronavirus pandemic on health and safety statistics.

Here, annual prevalence refers to the number who said they were ill at some point during the previous 12 months. For respiratory diseases this is broadly equivalent to

the number currently suffering from such conditions as estimated in each survey year.

A limitation of the LFS is that it will tend to identify only those cases of disease where the individuals can make the link between their own ill health and work. Individuals with occupational COPD or cancer may not always recognise their disease as being due to workplace exposures since the role of occupation may be overlooked in light of other common causes such as smoking.

New cases occurring each year- disease incidence

The LFS also provides information about the incidence of the general category of “breathing or lung problems”. However, many cases of diseases that are difficult to attribute to occupation – such as COPD – or that are relatively rare in the general population as a whole – such as cancer – may not be identified by this survey.

Data based on reporting of individual cases of disease within the THOR and IIDB schemes can provide more detailed information about specific conditions but tend to substantially underestimate the incidence.

The best available statistics from these sources are for 2019. Reporting of new cases within THOR were disrupted by the coronavirus pandemic [1] and assessments of new IIDB cases were affected in 2020 and may also have been affected during 2021.

Where diseases are usually rapidly fatal, such as mesothelioma and asbestos-related lung cancer, annual incidence approximates closely to annual mortality, as set out in Table 1 above.

The latest statistics show:

- There are currently an estimated 19,000 new cases of breathing and lung problems each year (95% confidence interval: 13,000 – 25,000) where individuals regarded their condition as being caused or made worse by work based on data from the LFS in 2019/20, 2020/21 and 2021/22. Part of the estimate based on the 2021/22 LFS is likely to be COVID-19 arising from infection at work (see earlier comments).
Table lfsilltyp (Table-2) www.hse.gov.uk/statistics/lfs/lfsilltyp.xlsx
- In 2019, there were 1,108 new cases of occupational respiratory disease recorded by consultant chest physicians within the SWORD scheme. This represents a substantial underestimate of the annual incidence: for example, many cases of mesothelioma and asbestos related lung cancer are not referred

to chest physicians, and for other diseases, the scheme will tend to identify only the more severe cases.

Table THORR01 www.hse.gov.uk/statistics/tables/thorr01.xlsx.

- For cases reported to SWORD in 2019, 62% of diagnoses were asbestos-related conditions (mesothelioma, non-malignant pleural disease and asbestosis), 15% were other long-latency diseases such as lung cancer, pneumoconiosis and COPD, and 19% were cases of shorter latency disease (such as occupational asthma and allergic alveolitis).

Table THORR01 www.hse.gov.uk/statistics/tables/thorr01.xlsx.

- In 2019 there were 3,955 new cases of occupational lung diseases assessed for Industrial Injuries Disablement Benefit (IIDB), of which 3,680 (93%) were diseases associated with past asbestos exposure. There were 2645 new cases in 2020 and 3490 in 2021. Both of the latter figures, but particularly that for 2020, may have been affected by a reduction in assessments during the coronavirus pandemic.

Table IIDB01 www.hse.gov.uk/statistics/tables/iidb01.xlsx.

More detailed information from the SWORD and IIDB schemes are available in the statistical summaries for specific diseases.

Trends

Mortality

Overall trends in annual mortality due to occupational respiratory diseases are difficult to assess for a number of reasons. These include the fact that different patterns are evident for different diseases, and because the estimates of the scale of mortality for some diseases using epidemiological information are not sufficiently precise to allow the assessment of year-on year-changes.

After increasing substantially over a number of decades, annual mesothelioma deaths have remained broadly level in recent years, with numbers around 10-fold higher than in the early 1970s. Numbers are expected to decline during the 2020s. Deaths mentioning asbestosis (excluding those that also mention 'mesothelioma') have also increased substantially over a similar period. These cases are largely a consequence of heavy past occupational asbestos exposures and the fact that the disease typically take decades to develop.

(Table MESO01 www.hse.gov.uk/statistics/tables/meso01.xlsx and ASIS01 www.hse.gov.uk/statistics/tables/asis01.xlsx).

There has been a decline in annual silicosis and coal workers' pneumoconiosis over a number of decades. Trends in mortality from occupational COPD overall cannot be assessed with any precision based on current evidence about the causes of this disease.

Self-reported work-related breathing or lung problems

Figure 1 below shows the annual prevalence rates for self-reported work-related breathing or lung problems since 2001/02 for those working in the last 12 months. In the years prior to the coronavirus pandemic, the rate of self-reported breathing or lung problems had been broadly flat since the mid-2000s, having been higher previously. In 2021/22 the rate was similar to the pre-coronavirus level. Averaged over the last three surveys, the rate is 150 cases per 100,000 workers, equivalent to 49,000 prevalent cases (95% Confidence Interval: 40,000 to 58,000).

Figure 1: Self-reported work-related breathing or lung problems for those working in the last 12 months

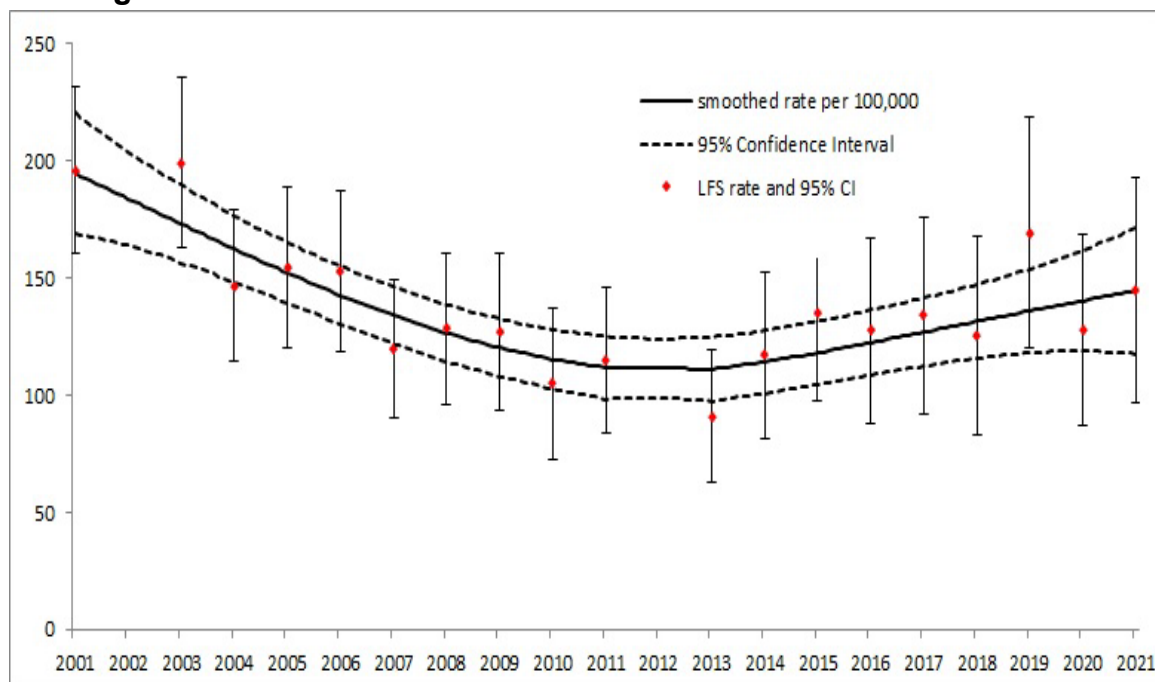
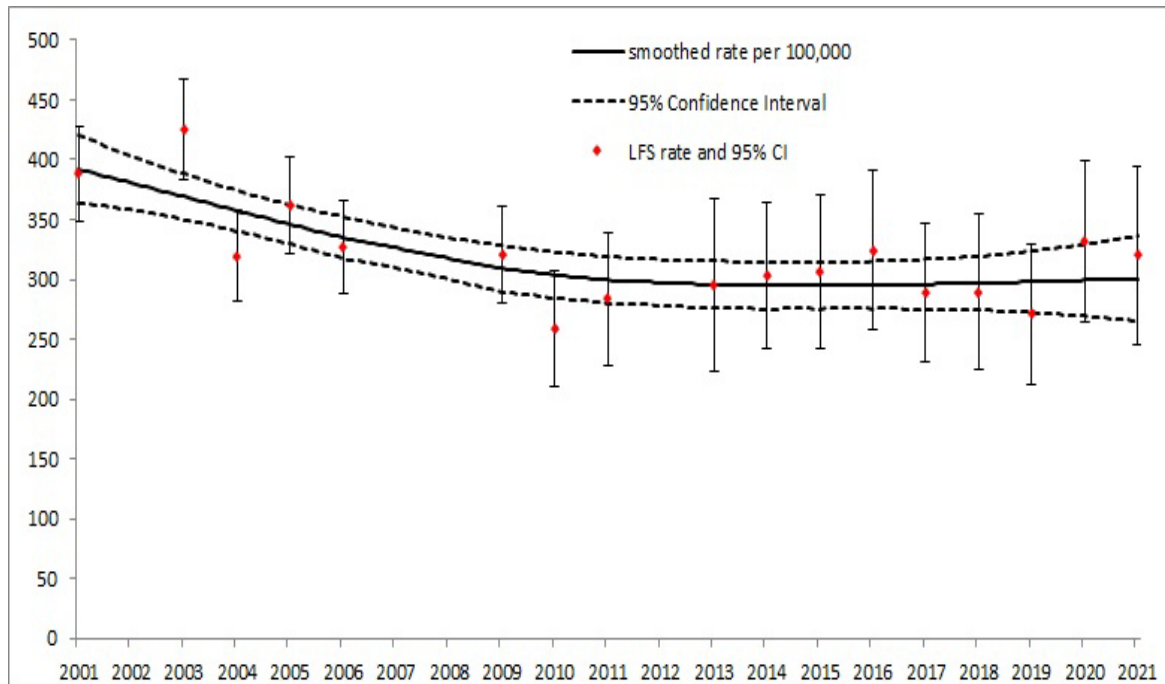


Figure 2 below shows the annual prevalence rates for self-reported work-related breathing or lung problems since 2001/02 among those who have ever worked. The rate reduced from 390 cases per 100,000 workers in the early 2000s but has remained broadly constant over the last 10 years, with an estimated 310 cases per 100,000 based on the latest three Labour Force Surveys. This rate averaged over the last three surveys is equivalent to 149,000 prevalent cases (95% Confidence Interval: 130,000 to 168,000)

Figure 2: Self-reported work-related breathing or lung problems for those who ever worked



Assessment of trends in the incidence of self-reported work-related breathing or lung problems are hampered by uncertainty arising from small numbers of sample cases in the Labour Force Survey.

Part of the estimate based on the 2020/21 and 2021/22 LFS is likely to be COVID-19 arising from infection at work (see earlier comments).

Trends in incidence based on reporting to THOR (SWORD)

An assessment of trends in the incidence of specific occupational respiratory diseases based statistical modelling of reports to the SWORD scheme is available in a separate report [2].

Causes of self-reported respiratory disease

The LFS in 2009/10, 2010/11 and 2011/12 asked those who reported having breathing or lung problems caused or made worse by work to identify, in general terms, what it was about work that was contributing to their ill health.

Based on those currently with breathing and lung problems and who had ever worked, the following factors were identified as causing or making their ill-health worse:

- “Airborne materials from spray painting or manufacturing foam products” (in 13% of cases),
- “Dusts from flour, grain/cereal, animal feed or straw” (7% of cases),
- “Airborne materials while welding, soldering, or cutting/grinding metals” (10% of cases),
- “Dusts from stone, cement, brick or concrete” (nearly 20% of cases),
- “General work environment (uncomfortable – hot/cold/damp/wet/dry/etc)” (20% of cases).

References

1. Iskandar I, Daniels S, Byrne L, Fowler K, Carder M, Gittins M, van Tongeren M (2022). Work-related ill-health as reported to The Health and Occupation Research (THOR) network by physicians in the UK in 2021. Report to the Health and Safety Executive. Centre for Occupational and Environmental Health, University of Manchester.
www.hse.gov.uk/statistics/pdf/thordescriptive22.pdf
2. Iskandar I, Carder M, Barradas A, Byrne L, Gittins M, Seed M, van Tongeren M (2020) Time trends in the incidence of contact dermatitis and asthma in the UK, 1996-2019: estimation from THOR surveillance data.
www.hse.gov.uk/statistics/pdf/thortrends20.pdf

National Statistics

National Statistics status means that statistics meet the highest standards of trustworthiness, quality and public value. They are produced in compliance with the Code of Practice for Statistics and awarded National Statistics status following assessment and compliance checks by the Office for Statistics Regulation (OSR). The last compliance check of these statistics was in 2013.

It is Health and Safety Executive's responsibility to maintain compliance with the standards expected by National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the OSR promptly. National Statistics status can be removed at any point when the highest standards are not maintained and reinstated when standards are restored. Details of OSR reviews undertaken on these statistics, quality improvements, and other information noting revisions, interpretation, user consultation and use of these statistics is available from www.hse.gov.uk/statistics/about.htm

An account of how the figures are used for statistical purposes can be found at www.hse.gov.uk/statistics/sources.htm.

For information regarding the quality guidelines used for statistics within HSE see www.hse.gov.uk/statistics/about/quality-guidelines.htm

A revisions policy and log can be seen at www.hse.gov.uk/statistics/about/revisions/
Additional data tables can be found at www.hse.gov.uk/statistics/tables/.

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