Silicosis and coal workers coal worker's pneumoconiosis in Great Britain, 2018

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Silicosis and coal worker's pneumoconiosis

Silicosis

- Available sources are likely to substantially underestimate the annual incidence of silicosis.
- Annual new cases assessed for Industrial Injuries Disablement Benefit (IIDB) have reduced during the last 10 years with 30 cases in 2017 compared with 85 in 2008.
- Chest physicians participating in the SWORD scheme with The Health and Occupation Reporting (THOR) network have typically identified around 25 estimated new cases each year.
- There have typically been between 10 and 20 annual deaths from silicosis over the last 10 years.

Coal worker's pneumoconiosis

- In 2017, there were 130 new cases assessed for IIDB.
- Estimated numbers of annual new cases identified by chest physicians participating in the SWORD scheme have fluctuated substantially year-on-year averaging around 25 per year.
- Annual deaths from pneumoconiosis have remained relatively constant over the last 10 years with an average of around 135 deaths per year.

The document can be found at: www.hse.gov.uk/statistics/causdis/

Introduction

Pneumoconiosis is a serious lung disease caused by inhaling various forms of dust in certain kinds of occupations.

The most common forms are coal worker's pneumoconiosis (due to coal dust), silicosis (due to respirable crystalline silica (RCS)), and asbestosis (due to asbestos). The different forms of disease are usually identified based on assessment of an occupational history of exposure to one of these dusts.

This report describes available statistics for forms of pneumoconiosis other than asbestosis, which is covered in a separate report available at www.hse.gov.uk/statistics/causdis/asbestosis/asbestos-related-disease.pdf.

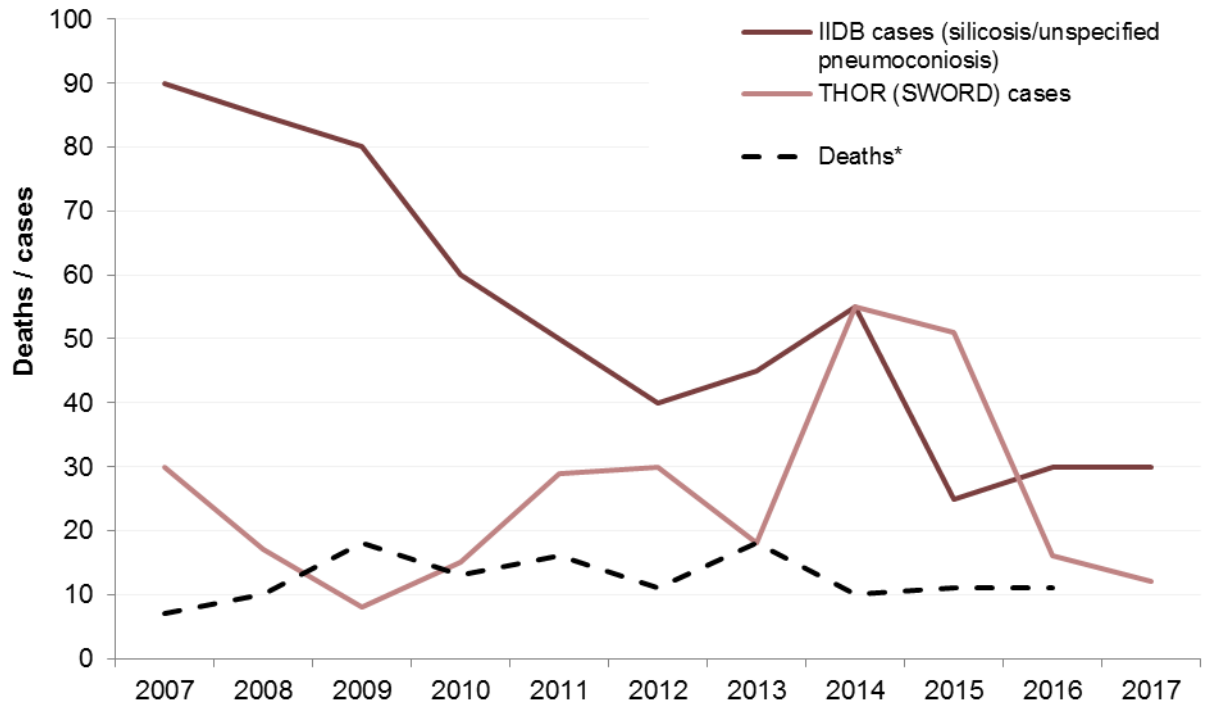
Pneumoconiosis is a "long latency" disease which typically develops gradually over a number decades following exposure to these dusts and can eventually be fatal. Current and recently occurring cases and deaths therefore largely reflect the effect of past working conditions.

Statistics based on individual cases of pneumoconiosis occurring in Britain are available from the three sources:

- cases assessed for Industrial Injuries Disablement Benefit (IIDB) (main source table IIDB01 www.hse.gov.uk/statistics/tables/iidb01.xlsx with an industry breakdown in table IIDB06 www.hse.gov.uk/statistics/tables/iidb06.xlsx).
- cases identified by chest physicians participating in the SWORD scheme within The Health and Occupation Reporting (THOR) network (main source table THORR01 www.hse.gov.uk/statistics/tables/thorr01.xlsx).
- deaths recorded with pneumoconiosis as the underlying cause (Table DC01 www.hse.gov.uk/statistics/tables/dc01.xlsx).

Silicosis

Figure 1: Silicosis in Great Britain, 2007-2017



*Deaths not yet available for 2017

- The majority of IIDB cases that are not due to coal or asbestos are silicosis [1]. Annual new cases assessed for Industrial Injuries Disablement Benefit (IIDB) have reduced during the last 10 years with 30 cases in 2017 compared with 85 in 2008.
- 12 estimated new cases of silicosis were identified by chest physicians participating in the SWORD scheme in 2017 compared to 16 in 2016 and over 50 in each of two previous years. Annual estimated cases have averaged 25 per year over the last decade.
- There have typically been between 10 and 20 annual deaths from silicosis over the last 10 years, with 11 deaths in 2016.

Given the different patterns suggested and the limitations of these data sources it is difficult to draw any firm conclusions about an overall trend in silicosis incidence during the period.

Both the IIDB and THOR data sources are likely to substantially underestimate the incidence of silicosis. Estimates of annual lung cancer cases due to past exposures to silica (nearly 800 deaths per year)[1] imply that the extent of underestimation of silicosis by IIDB and THOR was substantial, since many such lung cancers would be expected to develop from among highly exposed workers who were also developing silicosis. Estimates of the risk of silicosis following long-term exposure[2], together with information about the likely extent of past exposures in Britain, also suggest that silicosis incidence could be much higher than recorded in the available IIDB and THOR statistics.

The following industries and occupations were most commonly associated with silicosis cases reported within the THOR scheme during the 10-year period 2006-2015:

- Stonemasons and bricklayers (26% of actual reported cases)
- Other construction-related occupations (25% of actual reported cases)
- Mining and quarrying (20% of actual reported cases)
- Foundry-related occupations (13% of actual reported cases)

Around 70% cases of other agent (mainly silica) pneumoconiosis occur in men over retirement age and 2% occur in females (see table IIDB07 www.hse.gov.uk/statistics/tables/iidb07.xlsx.)

Previous analyses of data from the THOR scheme indicate that around 5% of silicosis cases are female and 10% of other (non-asbestos and not coal related) pneumoconiosis cases are female. THORR02 www.hse.gov.uk/statistics/tables/thorr02.xlsx) indicates that for all types of pneumoconiosis (including asbestosis) over 94% of female and 84% of male cases are aged 65 or over.

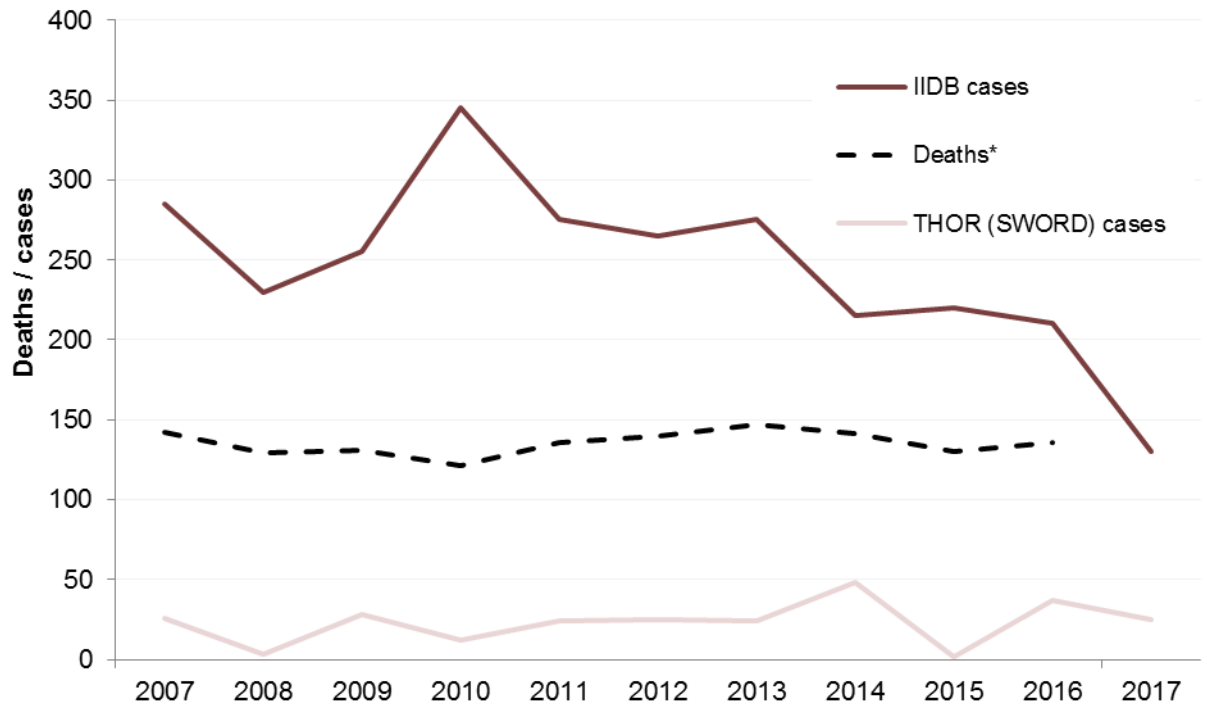
The role of silica exposure in work-related respiratory disease is also supported by information about how individuals currently with “breathing or lung problems” thought that work had caused or made their illness worse, according to the Labour Force Survey (LFS).

The most recent estimate of the annual prevalence of work-related respiratory disease (based on data from the LFS in 2015/16, 2016/17 and 2017/18) suggests that around 146,000 people who had ever worked currently had breathing or lung problems caused or made worse by work (95% Confidence Interval: 128,000 – 163,000) [see lfsilltyp Table-1 www.hse.gov.uk/statistics/lfs/lfsilltyp.xlsx]. Based on questions about what respondents thought was the cause of their work related illness in the 2009/10, 2010/11, and 2011/12 surveys, “Dusts from stone, cement, brick or concrete” contributed in 19% of estimated cases of breathing and lung problems.

[1] Causal agents other than coal or asbestos are not recorded in the IIDB scheme, but details of the industrial setting in which cases occurred suggest that the majority of other cases are in fact silicosis.

Coal worker's pneumoconiosis

Figure 2: Coal worker's pneumoconiosis in Great Britain, 2007-2017



- In 2017, there were 130 new cases assessed for IIDB. This is somewhat lower than the 200-300 annual new cases per year seen over the previous 10 years.
- Estimated numbers of annual new cases identified by specialist chest doctors fluctuated year-on-year with an average of around 25 cases per year. There were an estimated 25 cases in 2017 and 37 cases in 2016.
- Annual deaths from pneumoconiosis other than silicosis and asbestosis (which are mainly coal workers pneumoconiosis) have remained relatively constant over the last 10 years with an average of around 135 deaths per year, and 136 deaths in 2016.

Current numbers of annual coal worker's pneumoconiosis cases and deaths are now lower than in previous decades and this reflects an overall reduction in exposure to coal dust over time driven, at least in part, by the substantial reduction in the size of the coal mining industry since the 1980s.

There are no IIDB and THOR cases of female coal worker's pneumoconiosis. Both the IIDB and THOR schemes indicate that most cases of pneumoconiosis occur in men over retirement age (see table IIDB07 www.hse.gov.uk/statistics/tables/iidb07.xlsx and THORR02 www.hse.gov.uk/statistics/tables/thorr02.xlsx). For example, around 80% of coal pneumoconiosis IIDB cases assessed in the ten years to 2016 were over 65 years of age.

References

[1] Rushton L, et al. (2012) Occupation and cancer in Britain. British Journal of Cancer 107;(Supplement 1):S1-S108

[2] Health and Safety Commission. (2005) Control of Substances Hazardous to Health Regulations 2002 (as amended 2005). Proposal for a Workplace Exposure Limit for Respirable Crystalline Silica. Consultative Document CD203. HSE Books, Sudbury, Suffolk. www.hse.gov.uk/consult/condocs/cd203.pdf (Page 12, Table 1)

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