

Chronic Obstructive Pulmonary Disease (COPD)

COPD in Great Britain

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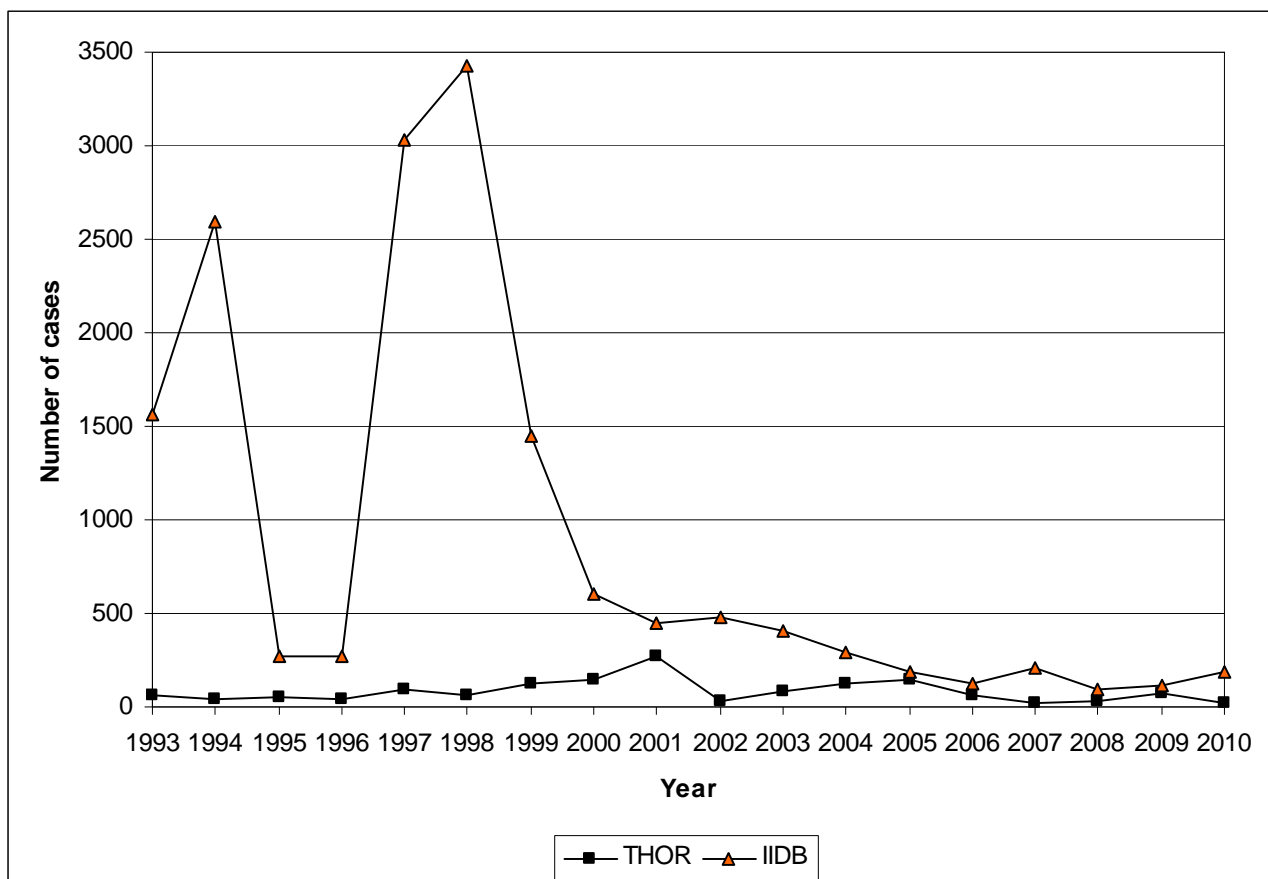
Summary

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/copd/index.htm

Chronic Obstructive Pulmonary Disease (COPD) is a serious long-term lung disease in which the flow of air into the lungs is gradually reduced by inflammation of the air passages and damage to the lung tissue. Bronchitis and emphysema are common types of COPD.

- COPD is common in later life: it is likely that over a million individuals currently have the disease in GB and there are over 25,000 deaths each year.
- The most important cause of COPD is smoking, but past exposures to fumes, chemicals and dusts at work will have also contributed to causing many currently occurring cases.
- Reports by respiratory and occupational physicians (THOR) and assessments for Industrial Injuries Disablement Benefit (IIDB) underestimate the annual number of new cases of work-related COPD.
- Other research shows that about 15% of COPD is likely to be work-related. This suggests there are currently around 4000 deaths each year in GB.
- Workplace exposures likely to contribute to COPD include various dusts (coal, cotton, grain, flour, silica, and wood) as well as certain fumes and chemicals (welding fume, isocyanates, cadmium, vanadium, and polycyclic aromatic hydrocarbons).

Figure 1: Chronic bronchitis and emphysema in Great Britain, 1993-2010



Background

Chronic Obstructive Pulmonary Disease (COPD) is a term used to describe a progressive and irreversible decline in lung function which results in reduced airflow in the lungs. It includes two main diseases: bronchitis - in which inflammation narrows the bronchi (the tubes carrying air to and from the lungs) and causes chronic bronchial secretions; and emphysema - a permanent destructive enlargement of the airspaces within the lung without any accompanying fibrosis of the lung tissue. Asthma may also be included within the term COPD if there is some degree of chronic airway obstruction.

COPD is a long-latency disease - meaning that cases tend to develop a number of years after first exposure to the particular causative agents - and in many cases symptoms become manifest during mid-life or later. The most important causative factor is smoking - but others include occupational exposures to fumes, chemicals and dusts, as well as genetic susceptibility and environmental pollution¹.

COPD accounts for a substantial number of deaths in Great Britain: it has consistently given rise to between 25,000 and 30,000 deaths each year over the last 25 years. The number of people suffering from the disease at any given time is difficult to estimate because of different definitions of the disease and under-diagnosis. One recent estimate suggested that there are currently 900,000 diagnosed cases in England and Wales and that, allowing for under-diagnosis, the true prevalence could be 1.5 million². However, results from a survey in 2001 estimated the prevalence of COPD, as defined by lung function test, to be much higher than this: an estimated 13.3% (95% CI: 12.6-14.0%) of those aged over 35 years in England had COPD³, equivalent to 3.4-3.8 million cases. Most people in this survey with COPD (as defined by lung function test) did not report having had a diagnosis for respiratory disease.

COPD attributed to occupational exposures

The multi-factorial nature of COPD and the fact that cases resulting from different causes are clinically indistinguishable means that it is difficult to determine how many cases may be due to occupational exposures. Indeed, no detailed assessment is available for Great Britain. However, the estimated proportion of COPD which is work-related based on a recent review of epidemiological studies in various countries was 15%, which confirms estimates of the proportion based on an earlier review^{4,5}. None of the studies in these reviews were based in Great Britain, however, the estimate is likely to be broadly applicable to the British population suggesting that there could be around 4000 annual deaths due to COPD resulting from workplace exposures in the past. Applying the figure to estimates of people currently with COPD can be considered to be at best indicative of the prevalence of occupational COPD in GB but it suggests there could be several hundred thousand occupational cases.

Various agents and occupational groups have been implicated as being associated with an increased risk of COPD. Coal dust exposure through mining activities is an established cause of the disease, and cases of chronic bronchitis and emphysema (CBE) in coal workers with a specified level of lung function impairment and at least 20 years underground exposure have been eligible for compensation under the Department for Work and Pensions Industrial Injuries and Disablement Benefit (IIDB) scheme since 1993. This scheme also compensates those with emphysema arising from exposure to cadmium. Epidemiological studies have identified associations between a number of other occupational exposures, including cotton dust, grain dusts and endotoxin, flour dust, welding fumes, other minerals - such as silica and man-made vitreous fibres, other chemicals - such as isocyanates, cadmium, vanadium, and polycyclic aromatic hydrocarbons (PAHs) - and wood dust¹. The strength of the evidence about the extent of these risks is variable.

Compensation claims and other data sources

There was a large number of compensation claims for chronic bronchitis and emphysema among coal miners following its specification as a prescribed disease in September 1993. This resulted in a total of over 4000 assessed cases up to the end of 1994. Numbers fell back in 1995 and 1996 to around 270 per year, which is probably closer to the annual incidence of new cases meeting the DWP criteria. However, the number then rose dramatically in 1997 and 1998 to over 3000 per year, as a result of a relaxation in the criteria for benefit effective from April 1997, and in association with heightened publicity, particularly following successfully civil litigation in 1998 against the former British Coal Board. The number of cases fell to 600 in 2000, and since then has declined steadily to 90 cases in 2008, 115 cases in 2009 and 185 cases in 2010; this suggests that the backlog of claimants satisfying the current criteria and/or the incidence of disability giving rise to new eligible claims is reducing (Table IIDB01 www.hse.gov.uk/statistics/tables/iidb01.xls). There have been fewer than 5 assessed cases of emphysema due to cadmium poisoning in each of the last 10 years within the Industrial Injuries Disablement Benefit scheme (Table IIDB05 www.hse.gov.uk/statistics/tables/iidb05.xls).

Cases of chronic bronchitis and emphysema in relation to any occupational exposure may also be recorded by occupational and chest physicians under the SWORD and OPRA surveillance schemes which form part of The Health and Occupation Reporting (THOR) network. The numbers of new cases reported yearly are typically between 20 and 150; in 2010 it was 17 (Table THORR01 www.hse.gov.uk/statistics/tables/thorr01.xls). These figures are consistently lower than the number of disablement benefit cases in coal miners (Figure 1). This suggests that, even for more serious cases of chronic bronchitis and emphysema - that is, those more likely to be seen by specialist chest physicians - few are being attributed to occupational causes. Furthermore, the long latency of COPD means that cases arising in those who have had access to occupational health services while at work may occur after retirement, meaning that they will go un-reported by occupational physicians reporting to THOR.

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