

Meeting date: 24th February 2009**Open Govt. Status:** Partially closed**Type of paper:** For Discussion**Paper File Ref:****Exemptions:**

WATCH COMMITTEE

Welding Fume and Chronic Obstructive Pulmonary Disease (COPD)

Issue

1. Clarification of the position on the evidence that exposure to welding fume might or might not cause COPD.

Timing Considerations

2. Routine.

Recommendation

3. WATCH is invited to consider the issues in this paper and HSE's current programme of activities on welding; and to form an opinion to be conveyed to ACTS.

Background

4. In 2004 HSE held a workshop to discuss whether there was sufficient justification to commit resource to work-related COPD. Participants were given an HSE draft document which outlined the evidence on what was known about occupational respiratory diseases in the UK. At the workshop there was a consensus view that occupational exposures were likely to make a significant contribution to the population burden of COPD. The American Thoracic Society has estimated that 15% of the burden of COPD is due to occupational exposure to gases, dusts, vapours and fumes and this would equate to 4000 deaths per year in the UK. Welding fume was identified as one of the substances that required further consideration by HSE.
5. A welding fume project was started under the Disease Reduction Programme (DRP) in 2005 with the aim of improving good practice in target industries that would in turn reduce the incidence of respiratory diseases such as COPD. The main factors for including welding were:
 - a) Evidence suggested that since welding fume could affect pulmonary function during exposure, welders were at risk of going on to develop COPD (NICE 2004);
 - b) The Labour Force Survey for the UK which estimated that there are 74,500 welders that have been employed in the UK for periods between 3 months and 20 years which indicated a significant population that could be at risk of COPD.
 - c) An analysis of the national occupational health surveillance schemes (SWORD and OPRA) for reported cases of COPD between 1989 and 2003 which showed that welding was one of four occupations that contributed to close on 60% of all cases of bronchitis/emphysema over the periods 1989-2003. The actual contributions associated with occupation were identified as coal miners (22%), dock workers (17%), welders (16%) and petroleum workers (2%). Welding fume was considered to be the most important substance attributed to cases of bronchitis/emphysema over the same period contributing 31% of the cases followed by coal miners (20%), ill-defined fumes/gases (7%). Dusts (5%) and silica (3%).
6. In 2007 HSE was challenged and asked to provide evidence that there was a link between welding and COPD. Details of HSE's subsequent action are given below in

“Argument”. The position then adopted by HSE was described by HSE to ACTS in November 2007 in the following terms ‘*The Secretary to ACTS noted there was no evidence to link COPD to welding*’. ACTS then asked HSE to engage WATCH in exploring the basis and evidence for this statement.

7. At the WATCH meeting in June 2008, HSE undertook to provide an explanation to WATCH at its October 2008 meeting of the rationale for the statement made to ACTS. At that meeting members expressed concern that HSE’s position was not clear so the relevant text has been amended and highlighted in this paper (paragraphs 10 and 11 below).

Argument

Evidence that welding fume causes COPD

8. In 2007 HSE was asked to provide evidence that there was a link between welding and COPD and so consulted its statistical experts. Their conclusion was that only limited reliance can be attached to the SWORD/OPRA figures and epidemiological studies linking welding to COPD, because of the difficulties in attributing this diagnosis causally to welding. Where physicians have reported such cases of COPD to SWORD/OPRA it is likely they will have had a strong index of suspicion, rather than certainty, that work was particularly relevant. To the extent that attributable cases can be identified, the SWORD/OPRA figures can be regarded as a minimum (and from the more severe end of a spectrum of disease too). However, underreporting may be more marked in other industries meaning that welding is spuriously identified as being one of the major occupational risks.
9. The Industrial Injuries Advisory Council (IIAC) has recently reviewed the prescription of Chronic Obstructive Pulmonary Disease (COPD) – Chronic Bronchitis and Emphysema (<http://www.iiac.org.uk/pdf/reports/cm7253.pdf>). This is attached at Annex 1 for ease of reference. COPD is an umbrella term that includes a number of diseases which involve a common obstruction to airflow in the bronchial airways which is predominantly irreversible e.g. chronic bronchitis and emphysema. In the case of chronic bronchitis and emphysema the criteria for prescription under the Industrial Injuries Disablement Benefit Scheme (IIDB) is that there needs to be evidence of a greater than doubled risk of disabling loss of lung function in exposed compared with unexposed workers.
10. The IIAC reported that despite extensive investigation, they did not find any evidence that welders have a greater than 2-fold increased risk of developing disabling loss of lung function. This meant that welding did not meet the criteria for prescription. **This does not necessarily mean that there is no evidence that welding can be associated with COPD, but simply that the IIAC criteria are not met.**
11. HSE has identified the need for further research to establish more precisely which gases, dusts, vapours and fumes give rise to the reported work-related burden of COPD, so that specific preventive measures can be implemented. HSE’s statisticians are currently analysing some more formally gathered information from population surveys on employees’ perceptions of exposure to dusts, gases and fumes at work that may help to identify specific problem areas. They are also analysing the occupational distribution of COPD as identified in the Health Survey for England. Some preliminary findings were recently discussed at a meeting of the Group of Occupational Respiratory Disease Specialists and the work was presented to the British Thoracic Society (BTS) winter meeting. A table of preliminary results is attached at Annex 2. **The Committee will note that the findings provide some support for the view that work as “metal working operatives” and in “metal forming, welding etc trades” may be associated with an increased risk of COPD but that the findings are by no means conclusive. In summary, HSE’s position is that whilst current evidence is suggestive, it is not sufficient to establish a causal link between exposure to welding fume and COPD. That said, HSE remains concerned about the risk of COPD and other lung disease in welders given the known toxicity of a number of fumes that can arise from this**

work activity hence its continuing action under the Disease Reduction Programme (DRP).

Link to HSE Strategy

12. The welding project forms part of the Respiratory Disease Project within the DRP, part of HSE's Fit3 Strategic Programme. Future work will be informed by the new HSE strategy.

Consultation

13. No wider consultation on the content of this paper beyond HSE has been undertaken at this stage.

European Context

14. There are no specific links to EU procedures or activities.

Action

15. WATCH is asked to consider the explanation offered by this paper and to form an opinion, to be conveyed to ACTS.

Annexes

Annex 1 - Chronic Obstructive Pulmonary Disease (COPD) – Chronic Bronchitis and Emphysema. Report by the Industrial Injuries Council in accordance with Section 171 of the Social Security Administration Act 1992 reviewing the prescription of chronic obstructive pulmonary disease (COPD) – chronic bronchitis and emphysema. Cm7253. ISBN 978-0-10-172532-3. November 2007.

Annex 2 – Table giving the prevalence ratios for COPD for the top ten standard occupational classification 1990 minor (2 digit) groups based on the HSE analysis of health survey for England data - CONFIDENTIAL

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