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**Report by the Industrial Injuries Advisory Council in
accordance with Section 171 of the Social Security
Administration Act 1992 reviewing the terms of
prescription for diffuse pleural thickening under the
Industrial Injuries Scheme**

Presented to Parliament by the Secretary of State for Work and Pensions
By Command of Her Majesty
April 2016





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Dear Secretary of State

REVIEW OF THE TERMS OF PRESCRIPTION FOR DIFFUSE PLEURAL THICKENING

One harmful effect of occupational exposure to asbestos is a thickening of the lung's covering called "Diffuse Pleural Thickening" (DPT). This disease, which can restrict lung expansion and thereby cause breathlessness, is already recognised within the Industrial Injuries Disablement Benefit (IIDB) Scheme as Prescribed Disease (PD) D9.

The present terms of prescription were set out in 2005, before computerised tomography (CT) scanning came into use as a routine tool for diagnosis of the disease. The wording of PD D9 includes a requirement for "obliteration of the costophrenic angle" (the places where the diaphragm meets the ribs), which is a typical accompaniment of DPT. However, since this appearance is normally one that is sought on a chest radiograph (chest X-ray) and not a CT scan, this may have discouraged claimants and medical specialists from presenting CT scan evidence of their disease – increasingly the form of evidence now available to them. Rarely also, claims for PD D9 have been turned down in claimants with clear evidence of disabling occupationally-caused DPT on CT scanning, for want of evidence of costophrenic angle involvement or a lack of involvement on a chest radiograph.

The Industrial Injuries Advisory Council (IIAC) recommends that the terms of the disease's definition be modernised by removing the requirement for "obliteration of the costophrenic angle". This will enable CT scan evidence to be used more simply and directly in claims assessment. CT scanning is a more sensitive technique than conventional radiology, with the potential that it may identify some individuals with lesser degrees of disease than under existing criteria. It is expected, however, that little change will be seen in claims activity, as the vast majority of claimants with DPT on CT-scanning would make a claim with or without the proposed change in terms. The new wording is detailed in paragraph 34; no change is proposed to the occupational coverage of PD D9.

Yours sincerely

Professor Keith Palmer
Chairman
Industrial Injuries Advisory Council

12 April 2016



Summary

1. Diffuse pleural thickening (DPT) is a respiratory disease that affects the covering of the lungs, potentially restricting lung capacity with accompanying breathlessness. It is often caused by occupational exposure to asbestos, and under these circumstances the disease is prescribed within the terms of the Industrial Injuries Disablement Benefit (IIDB) Scheme (as Prescribed Disease (PD) D9).
2. The present terms of prescription were set out in 2005 and include a radiographic criterion that is potentially restrictive, since it implies to medical specialists diagnostic assessment by means of a chest radiograph. However, advances in medical imaging mean that most claimants are now investigated using a computerised tomography (CT) scan, a more sensitive and modern technique.
3. A few claimants who are disabled and who have demonstrable DPT on CT scanning fail to meet the criteria for prescription based on a traditional chest radiograph; many more nowadays are likely to present medical evidence to support their claim in the form of evidence from CT imaging.
4. The Industrial Injuries Advisory Council (IIAC) therefore recommends that the disease's definition be modernised by removing the requirement for "obliteration of the costophrenic angle" from the terms of prescription for PD D9. (The meaning of these terms are explained in paragraph 22.) No changes are proposed to the occupational coverage of the prescribed disease.



Introduction

The Industrial Injuries Disablement Benefit Scheme


5. The Industrial Injuries Disablement Benefit (IIDB) Scheme provides a benefit that can be paid to employed earners because of an occupational accident or prescribed disease. The benefit is no-fault, tax-free, non-contributory and administered by the Department for Work and Pensions. It is paid in addition to other incapacity and disability benefits, but is taken into account when determining the level of payment for income-related benefits.

The Industrial Injuries Advisory Council

6. The Industrial Injuries Advisory Council (IIAC) is an independent statutory body established in 1946 to advise the Secretary of State for Social Security and the Department for Social Development in Northern Ireland on matters relating to the IIDB Scheme. IIAC advises on the prescription of occupational diseases; matters referred by the Secretary of State; draft regulations or proposals concerning the IIDB Scheme; and any other matter relating to the Scheme or its administration.
7. IIAC is a non-departmental public body and has no power or authority to become involved in individual cases or in their decision making processes.

Prescribed Disease provisions of the IIDB Scheme

8. The Social Security Contributions and Benefits Act 1992 states that the Secretary of State may prescribe a disease where he or she is satisfied that the disease:
 - a) Ought to be treated, having regard to its causes and incidence and any other considerations, as a risk of the occupation and not as a risk common to all persons; and
 - b) Is such that, in the absence of special circumstances, the attribution of particular cases to the nature of employment can be established or presumed with reasonable certainty.
9. In other words, a disease may only be prescribed if there is a recognised risk to workers in an occupation, and the link between disease and occupation can be established or reasonably presumed in individual cases.
10. Some occupational diseases are relatively simple to verify, as the link with occupation is clear-cut. For example, the proof that an individual's dermatitis is caused by their occupation may lie in its improvement when they are on holiday and regression when they return to work, and in the demonstration that they are allergic to a specific substance with which they come into contact only at work. It can be that a disease only occurs as a result of an occupational hazard (e.g. coal workers' pneumoconiosis) or rarely outside work (e.g. mesothelioma).
11. Other diseases are not uniquely occupational, and when caused by occupation, are indistinguishable from the same disease occurring in someone who has not been exposed to a hazard at work. In these circumstances, attribution to occupation on the balance of probabilities depends on epidemiological evidence that work in the prescribed job, or with the prescribed occupational exposure, increases the risk of developing the disease to a sufficient degree, as explained elsewhere.

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12. DPT is a disease that is capable of diagnosis and attribution to occupation by clinical means alone, following the advice of a specialist in respiratory medicine and suitable diagnostic tests referred to below.

Diffuse pleural thickening

13. DPT is a disease in which the covering of the lung (the pleura) is thickened, making it difficult for the lung(s) to expand and contract as is normal during breathing. As a result patients with DPT may have reduced lung capacity which sometimes causes shortness of breath. The degree of these effects varies according to the extent of the pleural thickening.
14. Heavy exposures to asbestos can cause DPT. The latent period (interval) between such exposures and the recognition of DPT is 20 years or more; and the required level of exposure to asbestos is substantial, such that DPT would not occur outside the workplace. Reductions in, and the eventual ban of, asbestos use in the UK mean that recognition of the disease will be increasingly uncommon.
15. In 2014, 880 new claims for IIDB in relation to DPT were made; 430 of these were diagnosed with PD D9 and 340 resulted in payment. The remainder were turned down for a variety of reasons that included not being diagnosed with the disease, but having, for example, another asbestos-related disease.
16. Other causes of DPT in the UK include tuberculosis and other pleuro-pulmonary infections, chest injury or surgery and some unusual drug reactions and rare connective tissue diseases. Such alternative aetiologies can generally be distinguished from asbestos-caused disease on the basis of clinical history, immunological and other investigations and no history of exposure to asbestos.
17. The diagnosis of DPT and the identification of its cause usually require a, hospital-based specialist's opinion. In all cases, imaging of the chest – either by chest radiograph or computerised tomography (CT) scan, or both – is necessary.

History of prescription of diffuse pleural thickening

18. DPT has been a prescribed disease (PD D9) since 1982 (Cm 8750). Prior to this the propensity of asbestos to cause disabling lung fibrosis was recognized in the prescription of asbestosis (an affliction of lung tissue) alone. However, fibrosis of the lungs' covering (pleural thickening) sometimes arose and caused significant respiratory impairment even in the absence of asbestosis. The prescription of PD D9 catered for the first time for this source of occupational disablement.
19. As initially drafted, the prescription's terms required both lungs to be involved substantially, such that on chest X-ray the pleural thickening in each measured at least 5mm and extended over more than a quarter of the chest wall. Subsequent medical opinion led to a relaxation of the requirements on extent of thickening but that for bilaterality (involvement of the pleura of both lungs) was retained (Cm 9184, 1984).
20. Later on, a study by the Benefits Agency (subsequently the Department for Work and Pensions) identified high appellant success rates for PD D9 at Medical Appeal Tribunals and problems relating to diagnosis. A need was therefore established to define PD D9 more specifically. Around the same time, evidence was received that the requirement for bilaterality of disease was unduly restrictive, as cases of unilateral involvement were identified that caused sufficient impairment of ventilatory function to be


disabling. In 1996 (Cm 3467), therefore, the prescription was changed again to allow claims for unilateral as well as bilateral disease, and to reinstate a required degree of thickening (at least 5 mm in at least one site) and extent of disease (at least 25% of the total chest wall).

21. Diagnosis was based on a chest radiograph and followed standard methodology using definitions laid down by the International Labour Office. With the passage of time, however, the increasing use of non-standard radiographs made measurements of pleural thickening problematic.
22. By 2005, when further evidence was taken, experts advised that the chest radiograph remained the tool of choice for confirming DPT, but that involvement of the costophrenic angles (the places where the diaphragm meets the ribs) was one of the most critical clinical factors in diagnosis. Advice was also received that the finding of obliteration of one or both costophrenic angles would focus assessment on cases with likely disablement. The Council therefore amended the terms of prescription (Cm 6553), removing the criteria that were difficult to implement (those concerning measurement of the extent of thickening) and substituting a requirement for obliteration of the costophrenic angle on a chest radiograph, as well as some (unspecified) degree of pleural thickening. The current terms of prescription appear below.

Prescribed disease	Occupation
D9 Unilateral or bilateral diffuse pleural thickening with obliteration of the costophrenic angle	(a) The working or handling of asbestos or any admixture of asbestos; or (b) the manufacture or repair of asbestos textiles or other articles containing or composed of asbestos; or (c) the cleaning of any machinery or plant used in operations and of any chambers, fixtures and appliances for the collection of asbestos dust; or (d) substantial exposure to the dust arising from any of the foregoing operations.

Use of CT scans in diagnosis

23. In the same report the Council noted that CT scans, although not widely available at the time, could be effective in the early diagnosis of pleural thickening. It was suggested that CT scans might be used in claims assessment where they were available.
24. One disadvantage of the terms as set out is that the term “obliteration” is not well defined in non-standard chest radiographs.
25. Another disadvantage is that the term ‘costophrenic angle’ is normally reserved for description of a chest radiograph. Although not specified in legislation, this requirement for benefit implies diagnosis by conventional radiology and not by CT scan, and this is reflected both in the wording of the Council’s 2005 recommendations and in advice appearing in guidance by the Department to its medical assessors.

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26. In practice, the Council has learned that medical assessors do consider CT scan evidence when it is presented to them, and attempt (using suitable training images) to judge whether CT appearances could be consistent with obliteration of the costophrenic angle, had a chest radiograph been available. Also, CT scan evidence is often accompanied by a small chest radiograph provided for orientation, thus enabling a further judgement to be made. However, the admissibility of CT evidence may not be understood well by respiratory specialists caring for affected patients, as the terms of prescription imply radiographic rather than CT-based criteria for diagnosis.
 27. In the decade since the terms of PD D9 were last set the use of CT scans has become routine and it is probable nowadays that almost all patients will have had their diagnosis of DPT made or confirmed using this technique. CT scans are more sensitive than chest radiography in identifying DPT (Neri *et al.*, 1994; Staples *et al.*, 1989).

Problems with the prescription

28. The current terms of PD D9 are not a good match to the full medical evidence that claimants are most likely to present.
29. They also have an additional limitation. DPT is normally accompanied by involvement of the costophrenic angle (i.e. the two diagnostic criteria in the prescription tend to go together strongly). Rarely, however, DPT may occur and be disabling in the absence of angle involvement. In the past two years the Council has received representation from a small number of respiratory specialists whose patients' claims for PD D9 have been turned down because of a lack of costophrenic angle involvement on a chest radiograph, despite clear evidence of occupationally-caused DPT on CT scan and clear evidence of respiratory disability. This would appear unsatisfactory.

Case for change

30. In its previous report the Council recognized a case would exist for reviewing the prescription if CT scans became widely applied in the investigation of DPT. Their routine use nowadays in diagnosis has prompted the Council to consider whether the requirement for costophrenic angle obliteration is unduly restrictive and whether benefit could be extended to claimants whose clinical circumstances are as set out in paragraph 29. Further evidence on this has been taken from a chest specialist with a research interest in DPT and a consultant radiologist (listed in Appendix 1).
31. The simplest available option for improvement would be to lift the requirement for costophrenic obliteration. This measure would carry several potential advantages:
 - a) it would enable ready diagnosis both by CT scan and by conventional radiography, widening the apparent range of admissible medical evidence used to support applications for benefit;
 - b) it would match more closely the evidence claimants are likely to have to hand (a more efficient position); and
 - c) it would bring within scope the relatively few claims for DPT that lack demonstrable obliteration of the costophrenic angle but which are, nonetheless, occupationally caused and disabling (a more equitable position).
32. A possible disadvantage of lifting this requirement, if relying substantially on CT evidence of DPT, is that the technique is very sensitive and may identify some patients with lesser degrees of disablement than under existing criteria. This in turn could lead to an increase in claims assessment activity without a matching increase in benefit awards.

33. In practice, however, the Council believes that any additional workload will be small because the vast majority of claimants with DPT on CT scanning would make a claim with or without the proposed change in terms. The Department has been consulted and has no particular concerns about an impact on claims activity; disablement, and therefore entitlement to benefit, would be assessed as it is now.

Recommendations

34. The Council recommends that the terms of prescription for DPT (PD D9) be amended to remove the requirement for costophrenic angle obliteration on chest radiograph. The occupational coverage for PD D9 should remain unchanged. The revised terms proposed for PD D9 appear below.

Prescribed disease	Occupation
D9 Unilateral or bilateral diffuse pleural thickening	(a) The working or handling of asbestos or any admixture of asbestos; or (b) the manufacture or repair of asbestos textiles or other articles containing or composed of asbestos; or (c) the cleaning of any machinery or plant used in operations and of any chambers, fixtures and appliances for the collection of asbestos dust; or (d) substantial exposure to the dust arising from any of the foregoing operations.

Diversity and equality

35. The Council has resolved to seek to avoid unjustified discrimination on equality grounds, including age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, gender and sexual orientation. During the course of this review no diversity and equality matters were identified.

Prevention

36. Diffuse pleural thickening and other asbestos-related diseases can be prevented by ensuring that workers who come into contact with asbestos-containing materials are not exposed to the asbestos fibres which may be released when these materials are handled or otherwise disturbed.
37. The importation, supply and use of asbestos have now been banned, but asbestos was extensively used as a building material from the 1950s through to the late 1970s. Those currently at risk from exposure to asbestos fibres include workers who remove asbestos-containing materials and building and maintenance workers who may unknowingly be exposed during the course of their work.
38. To deal with the risks of exposure, there is a requirement in the Control of Asbestos Regulations 2012 to conduct a risk assessment and to take a series of precautions, depending on the assessment, to prevent or reduce exposure to asbestos fibres so far as is reasonably practicable. This includes a requirement for training and medical surveillance in certain circumstances. Since May 2004, there has been a duty on those who have maintenance and repair responsibilities for non-domestic premises to identify (or assume) the presence of asbestos, monitor the condition and, to actively manage the situation.



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Staples CA, Gamsu G, Ray CS, Webb WR. High resolution computed tomography and lung function in asbestos-exposed workers with normal chest radiographs. *Am Rev Respir Dis* 1989; 139(6): 1502–8.



Appendix 1

List of consultees

Professor Mark Britton – Consultant Physician at the Nuffield Health Woking Hospital, Visiting Professor at the University of Surrey and Medical Advisor at the British Lung Foundation.

Professor David Hansell – Professor of Thoracic Imaging at the National Heart and Lung Institute, Imperial College London and Consultant Radiologist at the Royal Brompton & Harefield NHS Foundation Trust.





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