



**The Industrial Injuries
Advisory Council**

**Proceedings of the
13th Public Meeting**

19 June 2014
Edinburgh

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Foreword

The thirteenth Public Meeting of the Industrial Injuries Advisory Council (IIAC) was held in Edinburgh on 19th June 2014. This event built on the previous successes of the Public Meetings held around Great Britain over the past 12 years.

These meetings allow members of the Council to hear directly from interested members of the public and for the public to get a much better understanding of the Council's work. This Public Meeting proved an informative occasion for the Council with a number of topics being brought to our attention. I would like to thank all members of the public who came to the meeting for contributing to the lively discussions which made the occasion so worthwhile. As always, important issues were raised, which the Council and the Department for Work and Pensions (DWP) will consider going forward.

IIAC is a non-departmental public body that advises the Secretary of State for Work and Pensions and the Department for Social Development (DSD) in Northern Ireland on the Industrial Injuries Scheme. The DWP and DSD are responsible for the policy and administration of the Scheme. IIAC is independent of the DWP and the DSD. It is supported by a Secretariat provided by the DWP and endeavours to work cooperatively with Departmental officials in provision of its advice.

This document is a record of the Edinburgh public meeting and covers events and discussions up to June 2014. However, this report should not be taken as guidance on current legislation, or current policy within the DWP or DSD, as members may have expressed personal views, which have been recorded here for information.

Professor Keith Palmer
Chairman IIAC

Agenda

Registration

09:45 – 10:30

Welcoming Remarks

Chairman of IIAC – Professor Keith Palmer

IIAC's approach to scientific decision making

Chairman of IIAC – Professor Keith Palmer

The facts behind the Scheme: some statistics on IIDB

Mr Fergus Whitty

10:30 – 10:45

Discussion and questions

10:45 – 11:15

Break

11:15 – 11:35

Presumption – background to the review

Professor Keith Palmer

11:35 – 12:05

Presumption – what is changing, and what this means in practice

Mr Richard Exell

12:05 – 12:30

Discussion and questions

12:30 – 13:30

Lunch

13:30 – 14:00

Multi-causal diseases

Professor Neil Pearce

14:00 – 14:20

Cancers which are difficult to prescribe

Professor Damien McElvenny

14:20 – 14:40

Vibration-related Dupuytren's disease

Dr Karen-Walker Bone

14:40 – 15:00

Chronic Obstructive Pulmonary Disease

Professor Anthony Seaton

15:00 – 15:15

Open forum and closing remarks

Ms Clare Sullivan

15:15

End of public meeting

Welcoming Remarks

Professor Keith Palmer Chair of IIAC

1. Professor Keith Palmer welcomed everyone to the Edinburgh Public Meeting and the IIAC members introduced themselves.
2. The Industrial Injuries Scheme provides non-contributory, no-fault compensation which principally includes Industrial Injuries Disablement Benefit (IIDB). This is paid to people who become ill as a consequence of a workplace accident or an occupational or 'prescribed' disease. These terms have specific legal meanings and have been refined by case law. A workplace or 'industrial accident' is defined as "an unlooked for occurrence" or "mishap" arising "out of and in the course of employment". A prescribed disease is one that is associated with an occupational cause and which is listed in the Scheme's regulations; IIAC uses a specific approach to check for this.
3. The Scheme compensates employed earners; the self-employed are ineligible to claim IIDB for work-related ill-health or injury. Claimants can receive benefit from ninety days after the accident or onset of the prescribed disease; shorter periods of disablement are not compensated.
4. Certain prescribed diseases are given the benefit of 'presumption' – if a claimant is diagnosed with a disease and had an appropriate exposure then it is presumed that their occupation has caused the disease; the rule is complicated, however, and the Council is currently reviewing this topic.
5. The Scheme compensates for "loss of faculty" and its resultant "disablement", as compared to an age- and gender-matched person as assessed by medical advisers engaged by the Department. Assessments of disablement are based on loss of function, rather than loss of earnings and are expressed as a percentage. Thresholds for payment are applied, such that in general, payments can be made if disablement is equal to, or greater than, 14%. The exceptions to this are pneumoconiosis and byssinosis where payment can be made if disablement is 1% or more and occupational deafness where the threshold for payment is 20% disablement. Assessments of disablement for accidents and prescribed diseases can be aggregated (i.e. the process whereby two or more concurrent assessments are added together to produce one award of benefit).
6. IIAC is a statutory body, established under the National Insurance (Industrial Injuries) Act 1946, to provide independent scientific advice to the Secretary of State for Work and Pensions and to the Department for Social Development (DSD) in Northern Ireland on matters relating to the IIDB Scheme or its administration. The members of IIAC are appointed by the Secretary of State after open competition, and consist of a Chairman, scientific and legal experts, and an equal number of representatives of employers and employees. Officials from the Health

and Safety Executive (HSE) and relevant policy divisions of the DWP, Ministry of Defence and DSD attend IIAC meetings to provide information and advice. There are four meetings of the full Council per year.

7. The majority of IIAC's time is spent providing advice to the Secretary of State on the prescription of occupational diseases. IIAC's other roles are to advise on proposals to amend regulations under the Scheme, to advise on matters referred to it by the Secretary of State, and to advise on general questions relating to the IIDB Scheme. The Council has no involvement in decision-making of individual claims.
8. A permanent sub-committee of the Council, the Research Working Group (RWG), monitors and reviews medical and scientific literature to identify developments in the field of occupational ill-health which are then brought before the Council. This work is supported by a Scientific Adviser. The RWG meets four times a year.
9. IIAC also investigates diseases following referrals from the Secretary of State, correspondence from MPs, medical specialists, trade unions, and others, including topics brought to its attention by its own members and by other stakeholders.
10. IIAC produces several different types of publication. Command Papers are reports that are presented to Parliament by the Secretary of State for Work and Pensions, often forming the basis of legislation or changes to DWP policy (the reports are produced by 'command' of Her Majesty). Position Papers are published on important subjects that IIAC has considered, but where it does not recommend prescription or where the matter has not been referred by the Secretary of State. Commissioned research reports may be published from time to time, funding permitting, and are instigated at the request of the Council. These reports are carried out by an independent third party, usually by an academic expert, following a bid via open competition, and are used to provide a research analysis of a specific area of the Council's work programme. Finally, IIAC publishes an annual report and the proceedings from its Public Meetings.
11. IIAC's current and recent work programme includes, by way of examples, reviews of the presumption rule, medical assessments of disablement, benefits for the terminally ill, occupational chloracne, vibration-related Dupuytren's disease, medical treatment and assessments chronic bronchitis and emphysema and the risk of a variety of cancers in shift workers, hairdressers, textile workers, dry cleaners, smelters, welders and workers exposed to dioxins and mineral oils.

IIAC's approach to scientific decision making

Professor Keith Palmer Chair of IIAC

12. How does IIAC decide which conditions to prescribe? There is a legal framework for this and the Council is bound by the requirements set out in the Social Security Contributions and Benefits Act 1992. The disease must be a risk of the occupation and not a risk common to all persons, and attribution of the disease to the occupation in an individual case must be capable of being established or presumed with reasonable certainty.
13. Some occupational diseases are relatively simple to verify in that they have unique clinical features that can be ascertained and relatively rarely occur outside work. Examples of 'easy' cases are specific poisonings and mesothelioma; also, occupational asthma and contact dermatitis, where challenge with the suspected occupational agent confirms the diagnosis. On the other hand, where a disease is common in the general population and has no clinical features that are unique to occupational cases, it is much more difficult to establish a link between the occupation and the disease. Both back pain and stress are examples of 'tough' cases to verify and attribute as being caused by occupation. At the 'tough' end, judgements depend on assessment of the probabilities from the scientific literature rather than specific medical tests.
14. When considering a disease for prescription, IIAC has to address the question of attribution, i.e. whether there is a link between the job and the disease that can be presumed with reasonable certainty. For the purposes of the Scheme, IIAC interprets 'reasonable certainty' as meaning 'more likely than not' – the civil law standard of proof. Epidemiology is the branch of medicine that deals with the distribution and determinants of disease in human populations and IIAC applies epidemiological principles when considering prescription.
15. In epidemiological terms 'more likely than not' can be represented mathematically as an attributable fraction (i.e. the percentage of cases caused by an occupational exposure, assuming a causal relationship). 'More likely than not' means, for those with the exposure, an attributable fraction greater than 50%. Imagine we have two groups of equal size (for example 1000 in each group), an exposed group and a non-exposed group. Imagine there are 100 cases in the exposed group and 50 cases in the non-exposed group. Then it is clear that there is an exact doubling of risk in the exposed group (100 per 1000 vs. 50 per 1000). Also, the total risk in the exposed group can be split into two parts (i) the 50% that is due to the background risk common to all persons (ii) the 50% excess risk that is due to exposure. If the excess were slightly more (more than a doubling of risk) then it would also be the case that the disease was 'more likely than not due to the exposure'.

16. IIAC's task is to determine whether there is good evidence that the risk of a particular disease is more than doubled in a group with defined occupational exposure. If the answer to this question is yes, then IIAC would recommend that the disease is prescribed with the intention that the exposure is presumed to have caused the disease in an exposed worker on the basis of the defined group's probability.
17. The Council has already recommended prescription for several diseases where the process of attribution to occupation has been complex. These diseases include Vibration-induced White Finger (VWF), carpal tunnel syndrome, chronic bronchitis and emphysema and osteoarthritis (OA) of the hip in farmers.
18. In order to establish whether there is a more than doubling of risk of a disease attributable to a particular occupation, IIAC looks to scientific research and academic experts for evidence. It is important that the evidence is consistent and comes from more than one independent, good quality study, and ideally several studies of different design, since this reduces the likelihood of methodological problems resulting in error or bias, and of any decisions being overturned by the results of future research. The occupational circumstances also have had to have affected UK employed earners (at least in the past, if not presently).
19. Practically speaking, it is also important that the disease and the relevant exposures can be easily verified and that the disease is a cause of significant impairment.

Osteoarthritis of the hip in farmers – an illustrative example of decision making in practice

20. Professor Palmer outlined IIAC's scientific decision making in practice, using OA of the hip in farmers as an example.
21. OA of the hip is common in the general population and has a similar clinical appearance in farmers to other people. An increased incidence of osteoarthritis in farmers was first suspected as this occupational group appeared on hip surgery waiting lists more often than expected from the frequency of farming in the population. This observation in itself was not proof that farmers were more at risk of OA of the hip, since the data could have arisen because farmers presented themselves to hospital for treatment more readily (their livelihood depends on their ability to perform physically demanding work). However, this observation was followed by additional research which concluded that the disease was more common in farmers.
22. In one line of inquiry, researchers used X-rays which displayed the hip joints but which had been taken for other diagnostic purposes (e.g. to look for kidney disease). The frequency of farming was considered in those with and without hip OA. Studies from the University of Southampton and research groups in Sweden showed that there was between a two-fold to 10-fold increased risk of OA of the hip in farmers. In this research the problem of 'volunteering' bias was limited since the comparisons were made among people who had not been selected on the basis of their care-seeking for hip disease.

23. The consistent demonstration of a greater than doubling of risk in multiple surveys from more than one country and across a range of study designs allowed the attribution of OA of the hip in farmers to their occupation on the balance of probabilities.
24. Verification of OA of the hip is straightforward since there are well-defined diagnostic criteria. Professor Palmer showed pictures of X-rays of normal hips and an osteoarthritic hip. An osteoarthritic hip is characterised by a narrowing of the joint space between the pelvic socket (acetabulum) and the head of the femur (thigh bone), and roughened joint surfaces. Bony spikes and bone cysts may also be present. Thus the disease can be confirmed, can be disabling, and has been shown to be at least twice as common in farmers as in other comparable groups.
25. The Council then had to consider an exact definition of the occupational criteria for exposure – the definition of farming and whether particular types of farming carried special risks. No evidence was found on which to restrict prescription to a defined sub-category of farming activity; evidence was additionally found on the necessary duration of exposure.
26. OA of the hip in farmers fulfilled the criteria necessary to attribute a disease that is common in the general population to a particular occupation. Thus, IIAC recommended that OA of the hip be added to the list of prescribed diseases for those a) employed for at least 10 years in aggregate as a farm worker or farm manager and b) having osteoarthritis of the hip* or having had it prior to hip surgery (*as diagnosed by a specialist and based on a painful hip with restricted movement and on a hip joint radiograph).
27. As part of the review, OA of the hip in other occupations (such as those involved in heavy lifting) was also considered, but the strength of evidence was much lower than for farming. IIAC regularly monitors emerging scientific literature on this and other issues and reviews the terms of prescription where necessary. Future advances in research may enable the prescription for OA of the hip to be widened. The case of OA in farmers illustrates the nature and level of evidence the Council needs in prescribing for the “tough” cases as defined in paragraph 13.

The facts behind the Scheme: some statistics on IIDB

Mr Fergus Whitty

Representative of employed earners

28. Mr Whitty presented a talk focusing on the size, efficiency and scope of the Industrial Injuries Scheme.
29. In 2000, there were nearly 220,000 claims in payment for occupational accidents and over 60,000 claims for prescribed diseases. The number of claims in payment has stayed broadly consistent over the past decade; in 2010, there were just over 200,000 claims for accidents and closer to 70,000 claims for prescribed diseases.
30. The numbers of new claims has been gradually reducing over the past few years; with just over 70,000 new claims in 2003 (with around 20,000 new accident claims and just under 40,000 prescribed disease claims), compared to 30,000 in 2012 (with around 20,000 new accident claims and just over 20,000 new claims for prescribed diseases). A spike in claims activity was observed in 2008-2010 due to introduction of the newly prescribed disease, osteoarthritis of the knee in underground coal miners.
31. Reduced Earnings Allowance (REA) was abolished 28 years ago. Mr Whitty stated that REA was a hidden strength of the Industrial Injuries Scheme that enabled workers to relocate and remain in work without suffering financial hardship. There are still around 50-60 new claims for Reduced Earnings Allowance (REA) per year for accidents that occurred before 1990, or prescribed occupational diseases contracted before this date.
32. Only 'employed earners' are covered under the Scheme; the self-employed are not covered. Many of the prescribed diseases on the scheduled list reflect the industrial heritage of the Scheme. However, there are a growing number of modern occupational diseases being recognised and prescribed, such as osteoarthritis of the knee. Industries other than coal mining are being increasingly recognised such as Real Estate, renting and business activities, as well as manufacturing and transport
33. An assessment of less than 14% disablement does not normally attract benefit, unless the disability is caused by pneumoconiosis, byssinosis or diffuse mesothelioma. Claims assessed at between 14-19% disablement are paid at the 20% rate. Assessments over 20% are rounded up or down to the nearest 10%. Benefit can only be paid in respect of noise-induced hearing loss if the assessment is 20% or more. From April 2014 weekly payments start at £33.20 for 20% rising in 10% increments to £166.00 for 100%
34. Recently there has been consolidation of the offices that process Industrial Injuries claims. This has resulted in administration

improvements in claim processing wait times: from 175 days in 2007 to 48 in 2014.

35. In a consultation in January 2007, the DWP estimated that cost of the Industrial Injuries Scheme was £776,000,000. Administration costs made up 2% (£16,600,000) of the total cost. The high ratio of benefits to claimants versus costs to administer the Scheme compares favourably with civil litigation and shows how efficient the Scheme is at providing no-fault compensation for 'employed earners' in the UK.

Comments, questions and answers from the ‘Welcoming Remarks’, ‘IIAC’s approach to Decision Making’ and ‘The facts behind the Scheme: some statistics on IIDB’ sessions

36. ***Mr John Thomson (National Union of Mineworkers; NUM) –What is the Council’s view about decision makers and medical assessors having the information about a claimants award and claim history? Departmental policy is that several smaller awards cannot add up to more than the scheduled disablement listed for an amputation. Assessments are made by comparing a normal person of the same age and sex and subsequent assessments should not be influenced by a claimant’s case notes from previous awards.*** The Council will pass this query about IIDB policy to the DWP.
37. ***Professor Andrew Waterson (University of Stirling) – IIAC’s approach to prescription and the attribution to occupation is based upon the doubling of risk of the disease from an exposure. Categorisation of a disease as occupational in other countries depends on different approaches to the assessment of risk. How much are decisions on prescription driven by the opinions of experts and decisions made in the law courts?*** Occupational compensation schemes in other countries are based on a range of different methods. Some provide compensation for claimants where there is any accepted excess risk of a disease from an exposure and awards are based on a sliding scale with higher amounts for greater risks and vice versa. Other schemes rely on expert assessments in the individual case. However, where non-occupational diseases are clinically indistinguishable from occupational diseases this is particularly challenging and even the opinion of experts may not be grounded in science. IIAC’s approach is a reasonable approach to fulfilling the Council’s legal requirements for prescription where the framework is based upon the legally recognised concept of “more likely than not”.
38. ***Mr Chris Skidmore (NUM) – Why do medical assessor’s decisions seem to carry more weight than those of the claimant’s own GP or consultant? Some NUM members have medical reports for their Vibration White Finger which specify what they expect the patient to be able to do and whether to avoid specific tools or cold conditions. However, the specialist’ advice is not taken into account during the claimant’s assessment.*** Medical assessors have particular experience and specialist training in disability assessment. Other medical practitioners, such as GPs and consultants, although well-equipped clinically, may not be familiar with the rules by which the Scheme operates, or the Scheme’s definitions and its legal focus on functional effects in disability assessment. Decision-makers and medical assessors value and do not disregard evidence from a GP or consultant, but the advice from these healthcare professionals is in a different context (e.g. treatment, prevention) rather than for the purposes of medical assessment under the IIDB Scheme. However, the Council will consider this point during its review of medical assessments. (Action point)

39. ***Mr Alan Cummings (Durham Miners' Association) – Reduced earnings allowance (REA) used to be paid for life, but it can only be paid until a claimant is 65 years old. Increasingly workers must continue to work after 65 years old. Should the age-restrictions on REA be lifted to recognise this?*** The Council has long been supportive of REA as a benefit which can help people continue to work. However, the changes were introduced as part of the most recent welfare reforms and are unlikely to alter.

Presentations

Presumption – background to the review

Professor Keith Palmer Chair of IIAC

40. The Social Security Contributions and Benefits Act 1992 details the legal requirements for prescription, such that a disease must be
 - a risk of occupation and not a risk common to all persons, and
 - attribution in the individual case must be capable of being established or *presumed* with reasonable certainty
41. As mentioned in Professor Palmer's earlier presentation, for a disease to be capable of being *presumed* to be due to the occupation IIAC generally seeks evidence that there is a greater than doubled risk of a condition from an exposure. Imagine the two groups of equal size (for example 1000 in each group), an exposed group and a non-exposed group discussed in paragraph 15, and that there are 100 cases of a disease in the exposed group and 50 cases of the disease in the non-exposed group. The risk of the disease in the exposed group is doubled compared to the non-exposed group (100 per 1000 vs. 50 per 1000). Also, the total risk in the exposed group can be split into two parts (i) the 50% that is due to the background risk common to all persons (ii) the 50% excess risk that is due to exposure. In the exposed group, only 50 cases are due to the exposure and 50 would have occurred anyway due to background risks, but in principle all the exposed cases get the 'benefit of presumption' when a disease and an exposure is prescribed.
42. However, the Social Security and Contributions Benefit Act concerns whether a disease is prescribed or not. There is a second part of the legislation that allows presumption to be applied during consideration of an individual claim for IIDB (Regulation 4, Social Security (Industrial Injuries) (Prescribed Diseases) Regulation 1985). Prompted by a comment from an attendee at a Public Meeting the Council has been reviewing Regulation 4 which governs the circumstances under which a claimant's condition can be presumed to be due to the nature of their employment (sometimes referred to as 'the causation question').
43. Presumption is an important feature of the Scheme, which plays a central role in administrative efficiencies by enabling decision makers to accept that a disease is due to work without further evidence gathering. This simplifies the process by lifting the burden from the claimant and the decision maker, especially in circumstances where the evidence may be difficult to come by. Claims processing is quicker and cost savings can be made. The administrative efficiency of the IIDB Scheme is demonstrated by considering the proportion of total costs that are paid to claimants - 95% for the IIDB Scheme, compared to 60% for civil law.

Cases for IIDB are generally settled in months rather than years as is the case for civil claims.

44. A complicating factor is that presumption does not apply to all prescribed diseases (PDs), and some PDs have time rules that are specific to them. The current 'standard' time rule of presumption states that claimants are given the benefit of presumption if their disease occurred whilst in the relevant job or within a month of leaving that job. The rules also allow the decision-maker the opportunity to rebut the claim if there is 'proof to the contrary' that the disease was caused by non-occupational exposures.

45. The rules of presumption are set out in Regulation 4:

(1) Where a person has developed a disease which is prescribed,.....other than the diseases numbered....., that disease shall, unless the contrary is proved, be presumed to be due to the nature of his employed earner's employment if that employment was in any occupation set against that disease....and he was so employed on, or at any time within one month immediately preceding, the date on which....he is treated as having developed the disease.

46. Some of the prescribed diseases where the 'standard' time rule applies are:

- PD A1 Leukaemia, cancer of the bone, female breast, testis and thyroid
- PD A6 Beat knee
- PD A14 Osteoarthritis of the knee
- PD C3 Poisoning by phosphorus
- PD D3 Mesothelioma

47. PDs with non-standard time rules for presumption include the following:

PD	Disease	Presumed if onset....
A10	Noise induced hearing loss	> 10 yrs exposed and worked in a job within 5 years of a claim
B5	Tuberculosis	6+ weeks into a job and not > 2 years after leaving it
D2	Byssinosis	Within a job or any time after leaving it

48. Furthermore, presumption does not apply at all for other diseases, such as PD A12 (carpal tunnel syndrome), PD C13 (liver cirrhosis), PDC22a (nasal cancer) and PD C27 (liver toxicity).

49. The normal (standard) time rules favour diseases that have a rapid onset, such as beat knee and poisoning by phosphorus, conditions which usually occur during work. However, the time limit is inappropriate for occupational cancers, osteoarthritis of the knee or mesothelioma

where the onset of the disease generally occurs many years after the first exposure.

50. Why has this happened? Regulation 4 was written many years ago when most PDs had a rapid onset. But since then, many so-called long-latency diseases such as cancer have been added to the Schedule. Regulation 4 is a valuable rule, but one that now needs updating.
51. Why isn't presumption universal? Some prescriptions, due to the nature of the evidence the prescription is based upon, are open-ended (for example, using broad descriptors such as "frequent and prolonged" and "contact with" rather than specific time or exposure criteria). If presumption applied for open-ended prescriptions then claims for trivial exposures would have to be accepted, which could undermine the evidence-based integrity of the Scheme. Some claims, such as specialist chemical poisonings, need expert input to ascertain attribution to occupation. Eligibility for presumption is not universal to allow flexibility to address rare exceptions and trivial exposures.
52. How much does it matter that Regulation 4 is outdated? Fortunately, the impact is not great. Claims ineligible for presumption can still be awarded benefit, although presumption negates the need for detailed evidence gathering by the claimant and decision maker, facilitating easier processing of the claim. Having said this the DWP is aware of the issues surrounding the time limits for presumption and certain long latency diseases, and has reassured the Council that, in practical terms, decision makers have borne this in mind when processing claims, acting as if the time rules of presumption were open-ended.
53. However, in the Council's view, the law needs to be modernised to bring it in line with best practice and to cement that good practice.
54. The Council's review of presumption focuses on three areas: time rules, coverage and rebuttal. IIAC had begun to review rebuttal and anticipates making its recommendations to Minister later during the 2014-2015 period. A technical note about occupational attribution and multi-causal diseases, a topic linked to the rebuttal review, will also be published during the same period.
55. In June 2014, the review of presumption, coverage and time rules was published (Cm. 8880). IIAC considered whether the presumption rule should apply for each prescribed disease in turn, and if the rule should apply, what the time limit should be based on current evidence. To this end, literature searches were undertaken, sample IIDB cases were reviewed and the Council consulted with numerous experts in relevant fields and DWP officials. In the following presentation Mr Richard Exell went on to outline the main recommendations detailed in the report.

Presumption – what is changing, and what this means in practice

Mr Richard Exell Representative of employed earners

56. Mr Exell discussed the recommendations IIAC has made to the Secretary of State about coverage and time rules for presumption. The number of claimants that would be affected by the changes would be quite small, but the changes were important to bring the law up-to-date with scientific evidence and current Departmental practice.
57. Of 71 currently scheduled prescribed diseases, 49 were already covered by the presumption regulations; 44 by the 'standard' time rule (i.e. the disease must have started in the job or within one month of leaving it) and five by disease-specific time rules. The vast majority of claimants are already covered by the presumption as 92% of all new claims and assessments and 94% of the current caseload originates from the 49 already presumed diseases. Thus, IIAC's review of coverage for presumption required only "light adjustment", considering the remaining 22 prescribed diseases which comprise of just 6% of the current caseload.
58. IIAC has recommended that presumption apply, where it previously did not, for carpal tunnel syndrome (PD A12) in relation to repetitive hand-wrist movements, nickel-related lung cancer (PD C22a) and to tuberculosis for hospital, lab and mortuary workers (PD B5). (Presumption would not apply to community-based healthcare workers or non-healthcare workers). PD C22a and PD B5 are rarely claimed diseases.
59. The time rules will not change for 41 of the 71 currently prescribed diseases, accounting for 61% of all new claims and 70% of new awards. For 27 prescribed diseases, IIAC has recommended full (to "in the job or at any time after it") extensions of the time limits for 23 diseases, and partial (to "in the job or within X months after leaving it") extensions for four diseases. The changed time rules involve the following groups:
 - Long latency diseases, such as cancers, cataracts, osteoarthritic conditions and pleural thickening, that take time to develop from the date of the first exposure
 - Diseases with delayed effects, such as hepatitis B where liver disease can occur after the initial acute viral infection
 - Diseases with delayed diagnosis, such as several of the B diseases
 - Diseases with longer incubation periods, such as hepatitis A and brucellosis
60. What does this mean for claimants? The primary impact of IIAC's recommendations will be to 'tidy up' an out-of-date regulation. The commonest prescribed diseases are already covered by presumption

and the proposed time rules are typically applied already for many diseases, even though the law does not stipulate it. The impact of these changes is likely to be small in terms of new potential claims or re-claims but will bring the regulations up to date with modern scientific knowledge and ensure that good practice is regularised in legislation.

61. Should the recommendations be accepted and implemented by the Minister, the Department aims to communicate the changes to claimants and their representatives via guidance in the form a decision tree and an at-a-glance summary and via a claimant helpline. The information highlights that the changes to presumption would not affect those claimants whose claim had previously been turned down because the disease was not due to the occupation. The sample decision tree and the at-a-glance summary were included in attendees' meeting packs.

Comments, questions and answers on the 'Presumption-background to review' and 'Presumption – what is changing, and what this will mean in practice' presentations

62. **Mr Alan Cummings (Durham Miners Association) – We welcome to new changes to extend the time limits for presumption for osteoarthritis of the knee (PD A14). However we are aware of two or three cases where decision makers have turned down osteoarthritis of the knee (PD A14) on the basis of presumption as the condition developed after the claimants had left work. The cases went to an Upper Tier Tribunal but were still turned down.** Professor Palmer commented that the Council was aware that there had formerly been problems of this kind and this was being taken up in the current review on presumption and rebuttal. Members asked Mr Bennett to send the Council any evidence about these cases. (Action point)
63. **Mr Neil Walker (DWP IIDB Policy) IIAC's recommendations are currently being considered by Minister. If he accepts the recommendations, regulations will likely to come into force later this year.**
64. **Ms Kathy Jenkins – Why has IIAC restricted the eligibility for presumption for tuberculosis (PD B5) to healthcare workers working in hospitals, laboratories and mortuaries only?** There is good evidence of a greater than doubled risk of tuberculosis in healthcare workers working in these specific settings. IIAC looked at the risks of TB in community-based healthcare workers and non-healthcare workers but the evidence for a doubling of risk was limited when compared to the healthcare workers working in hospitals, laboratories and mortuaries. Community-based healthcare workers and non-healthcare workers are still eligible for PD B5 (as cases undoubtedly can occur), but presumption will not apply.
65. **Ms Kathy Jenkins –The standard time rule for presumption applies to Hand Arm Vibration Syndrome (HAVS) (PDA11). The Department for Energy and Climate Change's (previously the Department for Trade and Industry's) Coal Health Compensation Scheme compensates claimants for HAVS up to one year after they leave work. Why has IIAC not recommended extensions to the standard time limits for presumption for PD A11?** The one year time limit used by the Coal Health Compensation Scheme was introduced to cover the theoretical possibility that a bout of cold weather was necessary to trigger the symptoms of HAVS following the cessation of use of vibratory tools. However, IIAC did not find empirical evidence to support this stance. Rarely, it may take until the next cold spell for HAVS to develop after leaving a job with exposure to vibratory tools, but this would be the exception rather than the rule. The rules of presumption should cover what occurs in the majority of cases, rather than isolated incidents. Although presumption would not apply in claimants who develop HAVS one month or more after leaving work, a claim for PD A11 can still be made.

66. **Professor Andrew Waterson (University of Stirling) – In Scotland there has been cases of Lyme disease in game keepers. What is the Council’s view about presumption for this disease?** Currently presumption applies to Lyme disease (PD B14) with the standard time rule (disease onset whilst in the job or within a month of leaving it). Lyme disease usually presents as an acute infection, but sometimes late-onset effects can manifest. IIAC considered amending the time rule for presumption to account for both acute and chronic Lyme disease. However, chronic Lyme disease is difficult to diagnose in the absence of a confirmed previous acute Lyme disease. Since presumption applies to acute cases of Lyme disease and the chronic effects of Lyme disease can still be recognised during medical assessments for PD B14 there was therefore no compelling reason to amend the legislation.
67. **(National Union of Mineworkers) – To qualify for PD D12 (Chronic Bronchitis and Emphysema) a claimant must have worked for 20 years underground in a coal mine. Since privatisation, coal miners have been working longer daily hours and a pro rata calculation should be made to take this into account when considering claims for PD D12.** IIAC recently reviewed this topic, considering the research evidence the original prescription was based upon and consulting with experts in the field. When PD D12 was first prescribed it was recognised that the prescription was somewhat ‘rough and ready’. It was noted that it was not possible to take into account the many differences that could affect a claimant’s exposure and lung function, such as different coal mines, different levels of dust exposure and periods of sickness absence. IIAC must also work within the boundaries of the evidence available. Thus, it would not be scientifically valid to be precise about hours versus days worked, when considered in the context of the inherent variability already taken into account in the prescription for PD D12.
68. **Mr Bob Fitzpatrick (NUM) – Dust exposures vary from pit to pit depending on the conditions in the coal mine. Should the qualifying period of time for PD D12 be shortened to 15 years for miners working in high exposure pits?** Decisions must be based on the scientific studies available. For certain coal mines the National Coal Board records may hold data about dust exposure in certain pits. In theory, for certain coal miners it would be possible to obtain a detailed occupational history and work out the individual’s personal risk for chronic bronchitis and emphysema. However, this would be very complicated and difficult to do in practical terms, and would not be possible for every claimant. The current approach to prescription for PD D12 is based on the available evidence and is a pragmatic and sensible way of compensating this condition.
69. **Professor Andrew Waterson (University of Stirling) – What will the Council’s review of multicausality cover?** This review will cover how the Scheme considers whether a claimant’s disease is occupational in the face of other non-occupational causes.
70. **Mr Alan Cummings (Durham Miners’ Association) – We are aware of a case where an individual claimed for PD A12 (carpal tunnel**

syndrome) which developed in 1994-1995 following exposure to vibrating tools occurring before the local coal mine closed in 1993. The claimant failed the Alans and Phalens test and was informed that they did not qualify for PD A12 as their carpal tunnel syndrome was constitutional not occupational. IIAC members asked Mr Cummings to send the evidence about this case to the Secretariat for consideration during the review of presumption and rebuttal. (action point)

71. **Ms Susan Donnelly (HMI Health and Safety) - With current methods of health and safety controls, there should be systems in place to prevent those exposed to high levels of dust working longer durations to reduce the risks to their health.**
72. **Mr Alan Cummings (Durham Miners Association) – Smoking is a major risk factor for chronic bronchitis and emphysema. The current prescription for PD D12 (chronic bronchitis and emphysema) does not differentiate between smokers and non-smokers. We have had cases of ex-miners with 19 years and 265 days of exposure who were non-smokers being turned down for PD D12. Should there be a reduction in the 20 year time limit for non-smokers?** Prescription is based upon ‘the balance of probabilities’ of a risk in groups of exposed workers compared to the general population. In individual cases the prescription will be generous for some, but will be less generous for others who fall just short. The line must be drawn somewhere. Individuals can always consider civil litigation.
73. **Mr Dave Hatfield (NUM) – The occupational categories for occupational asthma (PD D7) are broad. However, we are aware of coal miners diagnosed by their GP with asthma but being turned down for PD D7 as the medical assessor does not think the claimant has the condition.** Based on clinical tests, it is generally possible to tell whether an individual has asthma due to a specific cause. Roof bolts can cause asthma in rare cases, but coal dust itself is not a cause of asthma.

Multicausal diseases

Professor Neil Pearce Independent member

74. Professor Neil Pearce gave a presentation about consideration of multi-causal diseases.
75. A disease may 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. For some diseases attribution to occupation flows from specific clinical features of the individual case. For example, the proof that an individual's asthma is caused by his 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 which they encounter only at work. It can be that a particular disease only occurs as a result of an occupational hazard (e.g. coal workers' pneumoconiosis) or that cases of it rarely occur outside the occupational context (e.g. mesothelioma), or that the link between exposure and illness is fairly abrupt and clear-cut (e.g. several of the chemical poisonings and infections covered by the Scheme).
76. Increasingly, however, prescription has proved possible for diseases that are not only caused by occupation but common in the population at large, and which, when caused by occupation, are *clinically indistinguishable* from the same disease occurring in someone who has not been exposed to a hazard at work. Examples include lung cancer, chronic obstructive pulmonary disease and osteoarthritis of the knee. Other factors at play in the population (e.g. smoking, recreational knee injury) account for a proportion of such cases and no clinical features in the claimant allow reliable attribution to employment. Prescription for such diseases involves identifying – using epidemiological research evidence – the work circumstances in which the average risk of disease is increased by a factor of two or more.
77. The requirement for at least a doubling of risk follows from the fact that if a hazardous exposure doubles risk, for every 50 cases that would normally occur in an unexposed population, an additional 50 would be expected if the population were exposed to the hazard. Thus, out of every 100 cases that occurred in an exposed population, 50 would do so only as a consequence of their exposure while the other 50 would have been expected to develop the disease, even in the absence of the exposure. Therefore, for any individual case occurring in the exposed population, there would be a 50% chance that the disease resulted from exposure to the hazard. Below the threshold of a doubling of risk only a minority of cases in an exposed population would be caused by the hazard; above it, a majority would be

78. How should occupational diseases with multiple causes be considered? Suppose we wish to study whether a particular factor (e.g. smoking) can cause a particular disease (e.g. lung cancer). However, there is another factor (e.g. asbestos exposure) which may also cause the disease and/or modify the effect of the main exposure of interest (e.g. smoking). What is the probability that asbestos exposure caused a case of lung cancer?
79. To illustrate this issue, Professor Pearce presented data from a hypothetical study of the risk of lung cancer per 2,000 members of the population over a defined period of exposure in relation to exposure to cigarette smoke and asbestos (Table 1). The risk difference due to asbestos is 40 cases per 2,000 in those exposed to asbestos¹ and 10 cases per 2,000 in those with no asbestos exposure. For every 40 cases of lung cancer in workers who have been exposed to asbestos 10 would have happened anyway (for other reasons) and 30 could have happened because of the asbestos exposure. All of the cases look the same. For any individual case we do not know whether or not it was caused by asbestos. On average, 30 out of 40 cases (or 75%) were caused by asbestos. For any individual case, the 'probability of causation' is 75%.
80. The effect of smoking was illustrated using additional hypothetical data. Among non-smokers, for every 4 cases of lung cancer in 1000 workers exposed to asbestos, one would have happened anyway and three are due to the asbestos exposure. The probability of causation is 75%. Among the smokers, for every 36 cases of lung cancer in workers exposed to asbestos nine would have happened anyway and 27 are due to the asbestos exposure. The probability of causation is 75%. Smoking is, therefore, irrelevant in deciding whether a case is attributable to asbestos exposure; non-smokers have a low risk and asbestos multiplies this by four times; smokers have a high risk, and asbestos multiplies this by four times.
81. In New Zealand a study of occupational cancers found 30-40 cases of being reported per year. This was far fewer than the 300 estimated cases of occupational cancer expected annually from research models. To understand this discrepancy the researchers set up a cancer registry where an occupational health nurse took a detailed occupational history from the individual and calculated the risk that the disease was due to their work. Patients would then be notified if there was an increased risk that their cancer was occupational and could seek appropriate compensation. Often patients returned to their GP asking why they had not been informed about the possible occupational nature of their cancer raised. If the patient was a smoker the GP would not usually investigate other causes for a patient's cancer. However, although smoking is a key risk factor for cancer the risks from occupational exposures are still important.
82. What is the risk from the combination of smoking and asbestos to produce cases of lung cancer? If we take the 36 hypothetical cases of

¹ This examples assumes that the exposure to asbestos is relatively heavy, rather than minimal.

lung cancer from the study mentioned previously: 1 case (3%) occurred through unknown “background” exposures (U), 8 cases (22%) occurred through mechanisms involving smoking alone (and not asbestos) together with unknown background exposures (U’), 3 cases (8%) through mechanisms involving asbestos exposure alone (and not smoking) together with unknown background exposures (U’), , and 24 cases (67%) occurred through mechanisms involving both factors together with unknown background exposures (U’’). This means that 89% of the cases (22% + 67%) could have been prevented by preventing smoking, whereas 75% (8% + 67%) could have been prevented by preventing asbestos exposure. Thus, the attributable risks for the individual factors of smoking (89%) and asbestos (75%) add up to more than 100%; this is because of the cases that occur through mechanisms involving both exposures and which consequently could be prevented by preventing either exposure. A clinician without an understanding of epidemiology could conclude that as 89% of cases of lung cancer are due to smoking that only 11% of cases must be due to other factors, including asbestos, and discount the effect of other exposures on causation as irrelevant if the patient has smoked. However, as can be seen from this example, this is not the case; risks can add up to more than 100%.

83. Professor Pearce then presented a second example to demonstrate multicausal diseases using the issue of osteoarthritis (OA) of the knee in miners, knee injury and hypothetical data.

	Risks per 1000 people	
	History of knee injury	No history of knee injury
Mining	40/1000	5/1000
No work in mining	10/1000	1/1000

84. In those with no history of knee injury for every five cases of knee OA in miners, one would have happened anyway and four are due to the mining work; the probability of causation is 80%
85. In those with a history of knee injury for every 40 cases of knee OA in miners; ten would have happened anyway and 30 are due to the mining work; the probability of causation is 75%
86. Miners with no history of previous non-occupational knee injury have a low risk for OA knee and mining multiplies this risk five times. Miners with a previous knee injury history have a high risk for OA knee, and mining multiplies this by four times. As the risks in miners with or without a previous knee injury are more than doubled, a history of knee injury is irrelevant in deciding whether a case is attributable to mining work.
87. The examples cited by Professor Pearce were hypothetical examples, but are close to what has been reported in real studies. In both of these examples, the effects of the two factors (asbestos-smoking, mining-knee injury) multiplied together, so that the relative risk for the occupational exposure (asbestos, mining) was the same whether or not exposure to the other risk factor (smoking, knee injury) had occurred.

88. Are there any exceptions where multiple causes do not multiply together to produce a risk larger than either factor acting on its own? Exceptions probably do exist, but only rarely. It can occur that the risk is different in different sub-groups (e.g. in smokers and non-smokers). However, this would only affect decisions regarding the causation question within the IIDB Scheme if there was firm evidence that the risk was less than doubled in a particular subgroup. Generally high quality, robust evidence on sub-groups is rarely available and IIAC must consider the risk in the overall occupational group.
89. This is a current topic of review for IIAC in the context of how presumption and the ability to rebut a claim is considered. It is anticipated that this review will be completed towards the end of 2014.

Cancers which are difficult to prescribe

Professor Damien McElvenny Independent member

90. In order to prescribe a disease it must be a recognised risk to workers in that occupation and the link must be capable of being established or reasonably presumed in the individual case. Unless the disease can be prescribed based on unique clinical features, there must be epidemiological evidence that the risk of the disease is more than doubled in suitably exposed workers compared to a suitable comparator group. The evidence must be robust and ideally from several independent studies.
91. Some cancers can be challenging to prescribe because:
 - they are often relatively rare; even in quite large studies there may only be a few cases of interest present
 - can take decades to appear, often long after the exposure stops
 - has other causes, e.g. smoking
92. Case control (population) studies use a defined number of cases (those with the disease) and controls (those without the disease) and investigates the exposure history between these two groups. This study design can overcome the challenges listed above. However, as cancer can develop many years after the exposure it can be difficult to get accurate information about a case's occupational history; cases may be more likely to recall being exposed to the exposure under investigation when they haven't been or if exposed to overestimate their exposure - this is known as recall bias and can be an impediment to obtaining accurate risk estimates.
93. Cohort studies follow a group of workers and their occupational exposures over time, and then identify how many develop the cancer of interest. However, this type of *prospective* research may take decades to yield results. This is often overcome by looking at the work histories of a *historic cohort*, to allow time for long-latency events to accumulate. However this type of study is only possible where personnel employment records exist. Often desirable information (e.g. on confounding factors such as tobacco smoking) is missing, because it was not part of records that were compiled for other purposes. Retrospective assessment of occupational exposures often relies on expert assessment in the absence of good data. The original sample group of workers must be large enough to provide sufficient statistical power to be able to obtain a risk estimate.
94. IIAC identifies which cancers to review through enquiries from MPs and claimant's or their representatives, through suggestions from Council members or through keeping abreast of relevant publications such as the International Agency for Research on Cancer monographs or the

Health and Safety Executive's research on the occupational burden of cancer produced by Dr Lesley Rushton.

95. Professor McElvenny presented examples of cancers that IAC had recently considered: oesophageal cancer and cervical cancer in dry cleaners and breast cancer in shift workers which were not prescribed, and lung cancer in coke oven workers which was recommended for prescription.

Oesophageal cancer and cervical cancer in dry cleaners

96. For oesophageal cancer the Council identified eight high-quality, key research studies. One of these studies reported a relative risk for oesophageal cancer of 2.4, with accompanying evidence of a dose response relationship which supports a causal association between the disease and the exposure. Another study gave a relative risk for oesophageal cancer of 2.2 in dry cleaners but there was no data on the effect of confounders (e.g. smoking and alcohol consumption) and the data on exposure was crude. The remaining six studies did not support an association between oesophageal cancer and dry cleaning, reporting risks that were not statistically significant.
97. The case for prescription for cervical cancer was weaker than for oesophageal cancer. Of ten studies reviewed only two produced an increased risk (i.e. relative risks of 1.3 and 1.6), but which was less than doubled. The remaining eight studies reported risks that were not statistically significant.
98. On the balance of evidence, prescription was not warranted for either oesophageal cancer or cervical cancer in dry cleaners.

Breast cancer and shift work

99. IAC last reviewed shift work and breast cancer in 2009². At that time the majority of studies showed a moderately increased risk for breast cancer in shift workers. We recently revisited this topic and identified four new studies giving relative risks of 1.1, 1.4, 1.4 and 2.5 (with more than 20 years exposure). Whilst there have been improvements in the evidence base it is still insufficient to be able to warrant recommending prescription for this condition.

Lung cancer and coke oven work

100. During a review about lung cancer, the Council identified evidence of excess risks from working near coke ovens. Five key studies were critically appraised.
101. One study reported a significant dose-response relationship with relative risks of 9.2, 11.8 and 15.7 with increasing exposure. A further study showed a doubled risk which was again increased with increasing exposure; the risk was greatest in workers employed at the top of a coke

² Breast cancer in shift workers was originally considered for prescription as it had recently been listed as an occupational disease eligible for compensation in Denmark. It should be noted that other countries do not the same doubling of risk threshold when recommending a disease for prescription.

oven. Another study showed greater than doubled risks of lung cancer in two out of five exposure categories.

102. Two studies produced statistically non-significant associations between lung cancer and coke oven work. However, of these, one was study based on small numbers and the cohorts were followed up for a relatively short time, thus, the cases of lung cancer may not have had time to develop. The other study, whilst overall statistically insignificant reported a dose-response relationship where the relative risks were greater than doubled (i.e. 2.3/2.1 for more than ten years work as a coke oven worker and 2.4 for at least 5 years exposure as a top coke oven worker). After considering the totality of the evidence IAC recommended prescription for lung cancer in coke oven workers, where at least five years work at the top of a coke oven, or at least 15 years of general coke oven work.
103. The risk of occupational cancer is an active area of interest for the Council. In the last five years IAC has reviewed 16 different cancers and exposure scenarios. This has resulted in two new prescriptions for lung cancer in coke oven workers and sinonasal cancer due to hexavalent chromium exposure. Where there has been insufficient evidence to recommend prescription, the Council is committed to keeping cancers and their associated exposures under review, especially if they are areas of active research where emerging research may alter the Council's previous conclusions. The Council is always open to receiving enquiries and new evidence about any occupational disease or exposure. Stakeholders are kept informed about conditions which have not resulted in prescription, the evidence and IAC's conclusions via information notes and position papers which can be found on the Council's website (www.gov.uk/government/organisations/industrial-injuries-advisory-council).

Comments, questions and answers from the 'Cancers that are difficult to prescribe' session

104. **Mr Alan Cummings (Durham Miners Association) – There have been a small number of underground mine workers who have died from lung cancer and were exposed to diesel fumes whilst operating frame or shift tractors. The DMA welcomes IAC's review about the occupational risk of diesel fumes.** IAC is currently looking at the evidence in relation to HGV drivers, bus drivers and railroad workers, but will then be moving on to look at the evidence in relation to diesel exhaust in underground miners.
105. **Professor John Cherrie (Institute of Occupational Medicine) – Is IAC aware of recent research of liver cholangiocarcinoma (bile duct cancer) in Japanese workers exposed to dichloropropane during printing processes?** – A study has recently reported that the risks of this rare form of bile duct cancer were increased by 29-fold in workers exposed to dichloropropane compared to controls. It is as yet unclear whether this is due to a dichloropropane exposure or a contaminant. IAC is aware of the research in this area and will be looking closely at the evidence.
106. **Kathy Jenkins – The Danish list of occupational diseases closely follows the recommendations made by IARC. What is IAC's opinion of this?** IARC bases its recommendations about its list of occupational diseases on different criteria than IAC; it does not utilise the doubling of risk approach which the Council has adopted to fulfil its legal requirements for prescription. The purpose of the IARC list is to identify risks in the context of health, safety and prevention, rather than for compensation purposes.

Vibration-related Dupuytren's contracture

Dr Karen Walker-Bone Independent member

107. Dupuytren's disease is a connective tissue disorder of the hand and fingers in which, in advanced cases, the fingers of the hand become permanently flexed into the palm (contracture). It was first described in the journal *The Lancet* in 1831 by a French anatomist and military surgeon called Baron Guillaume Dupuytren. It is a benign condition affecting the ring or little fingers, although sometimes the middle or index fingers may be involved. It affects men more than women, is more common with advancing age and often runs in families.
108. The onset of Dupuytren's disease is characterised by the formation of nodules in the palm. These nodules are not painful but the connective tissue becomes thickened. As the disease progresses nodular changes spread towards the finger joint and become like a cord which starts to pull on the fingers. Eventually the fingers may be permanently pulled down into flexion; the condition is known as Dupuytren's contracture at this stage. The rate of progression from the initial formation of nodules to the permanent flexion of the fingers varies from person to person.
109. A number of risk factors are associated with Dupuytren's contracture including being a descendent of Viking lineage, being epileptic or having liver disease and alcohol consumption. Many people who develop Dupuytren's contracture have no risk factors at all. IIAC became aware of accumulating evidence suggestive of a link between Dupuytren's contracture and occupation and decided to mount a review.
110. Dupuytren's contracture can be quite disabling as fixed flexion of the fingers can cause functional impairment when undertaking a number of everyday activities such as lifting shopping bags, writing, cutting food and washing.
111. The mainstay of treatment is surgery. The National Health Service offers treatment once the finger joint(s) are permanently flexed into the palm, as surgical intervention at this stage obtains the best results. However, Dupuytren's contracture may recur following surgery and full function of the hand and fingers is not always possible.
112. In January 2011, an MP contacted IIAC on behalf of a constituent asking the Council to consider prescribing Dupuytren's contracture in relation to coal mining. IIAC had last considered this condition in 2006 where the Council reported 'good evidence for an association' with vibration but insufficient evidence to recommend prescription. During its latest review of the evidence IIAC found that there was evidence of increased risk of Dupuytren's contracture with both exposure to hand-transmitted vibration and manual work. 'Manual work' is too broadly defined in research papers to be practical in defining the terms of prescription. Thus, the

Council focused its review on the risks Dupuytren's contracture from exposure to hand-transmitted vibration.

113. As discussed previously in the Public Meeting unless a disease can be prescribed based on unique clinical features, there must be epidemiological evidence that the risk of the disease is more than doubled in exposed workers compared to a suitable control. Dupuytren's contracture has established, non-occupational causes and the clinical features of the disease are not unique when it arises from occupational versus non-occupational causes. Thus, IIAC sought reliable evidence of greater than doubled risk in workers exposed to hand-transmitted vibration to be able to recommend prescription.
114. The risks of Dupuytren's contracture in workers exposed to hand-transmitted vibration were more than doubled in six research studies (Bovenzi *et al.* 1994, Lucas *et al.* 2008, Descatha *et al.* 2012, Thomas *et al.* 1992, Coco *et al.* 1987 and Palmer *et al.* 2013). Demonstration of good agreement between increasing exposure and increased risk of the disease was also clearly evident.
115. Two studies did not show a greater than doubled risk of Dupuytren's contracture from vibration exposure. A study by Seidler *et al.* 2011 reported relative risks of only 1.3 in miners working with vibrating tools for greater than 20 hours per week for at least 20 years. Another study of 97,537 British miners and ex-miners aged 25-95 years claiming compensation for hand-arm vibration syndrome (HAVS) found no relationship with Dupuytren's contracture and years of exposure to vibration when analysed 'per year'. This analytic approach assumes a steady linear relationship between exposure year on year and the risk of Dupuytren's contracture. However, if risks rise abruptly and then level out this form of analysis can potentially miss an association. The Council contacted Burke *et al.* to request an alternative data analysis to clarify this matter, but the raw data was unavailable.
116. A meta-analysis by Descatha *et al.* in 2011 combined the results of many of these studies (those with positive and negative associations) produced an overall odds ratio (an estimate of risk) of 2.88 for Dupuytren's contracture from work exposed to hand-transmitted vibration. When only the studies of the highest quality were combined the odds ratio was 2.14.
117. In practical terms, in order to recommend prescription the Council sought to define the relevant exposure. There was insufficient data on tools and activities from the research studies reviewed to model this prescription on the specific list of vibrating tools listed for PD A11 (Hand Arm Vibration Syndrome). Therefore, the exposure criteria was modelled on that of PD A12 (a) (carpal tunnel syndrome): 'the use of hand-held powered tools whose internal parts vibrate so as to transmit vibration to the hand but excluding those powered solely by the hand'.
118. IIAC also considered the matter of defining the disease and its severity. Diagnosis is clinically simple and straight forward. However, the loss of function is minimal in the early stages of the disease (Dupuytren's

disease) where there is nodule formation and thickening of the palm but without fixed flexion of the finger(s). The Council, therefore, concluded that it was only appropriate for Dupuytren's contracture characterised by one or more of the fingers of the hand becoming permanently bent into the palm to be recommended for prescription. A simple 'table-top test' where the claimant's ability to place their palm flat on a table-top could be used to assess for fixed flexion deformity. The Council also recommended that surgery or other treatment that could correct the deformity should prompt the consideration of the need for a re-assessment.

119. The Council published its review in 'Dupuytren's contracture due to hand-transmitted vibration' (May 2014, Cm. 8860) recommending that 'Dupuytren's contracture be added to the list of prescribed diseases for which IIDB is payable following work for 10 or more years in aggregate which involves use of hand-held powered tools whose internal parts vibrate so as to transmit vibration to the hand for at least two hours a day on three or more days a week'. The Minister is currently considering whether to accept and implement the Council's recommendations.

Comments, questions and answers from the 'Vibration-related Dupuytren's contracture' session

120. **Mr Alan Cummings (Durham Miners' Association) – We welcome IAC's recommendations to prescribe Dupuytren's contracture as there are many miners with this condition. However, the presence of nodules and cord thickening in the palm without fixed flexion is associated with pain and grip problems according to our members. Whilst the impairment may not be significant and the level of disablement potentially awarded may be low for the early stages of the disease small assessments can make a difference to payments for claimants when aggregated with other assessments.** The Council asked Mr Cummings to send in evidence to support his comment that Dupuytren's disease was a cause of pain and functional impairment. (action point)
121. **(NUM Scotland) – We also welcome IAC's recommendation to prescribe Dupuytren's contracture for workers exposed to hand-transmitted vibration.**

Chronic Obstructive Pulmonary Disease

Professor Anthony Seaton Independent member

122. Professor Seaton gave a presentation about Chronic Obstructive Pulmonary Disease (COPD) and the science behind the prescription of PD D12 (Chronic Bronchitis and Emphysema).

The Lungs

123. The lungs have two compartments: the conducting airways and the gas exchanging parts of the lung. The conducting airways are the trachea and its branches, the bronchi and smaller bronchioles, which lead into the alveoli, blind sacs where gas exchange (oxygen with carbon dioxide) occurs. The lungs have several mechanisms to remove inhaled dusts and pollutants. However if these are overwhelmed the dust accumulates in the lungs.

COPD

124. COPD is an umbrella term for a number of respiratory diseases, which include chronic bronchitis and emphysema. It is common in the general population and the main risk factor is smoking.
125. Bronchitis is an airway disease associated with coughing and the production of phlegm. Emphysema is an alveolar disease which causes breathlessness. Emphysema is a pathological change in lung structure characterised by destruction of the alveolar walls and decreased lung elasticity. These changes result in an overall loss of alveolar surface area where gas exchange takes place, reducing the uptake of oxygen from the air.

Diagnosis of COPD

126. COPD is diagnosed by measuring the reduction in the forced expiratory volume in one second (FEV₁). Spirometry is a physiological test of lung function that measures the volume of air an individual can blow from full lungs out in one second using maximum effort.

Pneumoconiosis and COPD research

127. The lungs of a coal miner is likely to have a large number of small black nodules (accumulations of dust and cells) from the inhalation of coal dust, concentrated particularly around the end of the airways and in the lymph nodes – this condition is known as simple coal worker's pneumoconiosis and is not associated with impairment or disability. The severity of simple pneumoconiosis can be graded according to the profusion of nodules seen on a chest radiograph, which is a reflection of the coal dust which has accumulated in the lungs. With increasing coal dust accumulation simple pneumoconiosis can progress resulting in the formation of large areas of fibrosis (Progressive Massive Fibrosis; PMF) which may be a cause of significant disability and premature death.

128. In the 1930s it was discovered that the lungs of miners with pneumoconiosis commonly showed destruction of alveoli or emphysema, and it was suggested that coal dust could be a cause of this. Emphysema was especially prevalent in coal miners. At this time the links between COPD and smoking was established. From the 1950s to the 1990s the question of whether COPD in miners was caused by coal dust, cigarettes or both was debated. During that time, the prevailing consensus amongst the medical profession was that coal dust could only be a cause of COPD when accompanied by PMF; COPD that developed in the absence of PMF was due to smoking.
129. However, an Institute of Occupational Medicine study of 50,000 coal miners showed that coal dust exposure was associated with an increased risk of mortality from bronchitis and emphysema, impairment of FEV₁, and pathological emphysema. The evidence was strengthened by the clear dose response relationship evident in miners of different age ranges. In 1988, IAC reviewed the evidence.
130. It was also demonstrated that the proportion of coal miners with a FEV₁ less than 65% of the expected level was doubled in those with high, as compared to low, exposure to coal dust in both smokers and non-smokers.
131. The researchers showed that (in those with pneumoconiosis) the risk of having emphysema to a significant degree was increased with increasing coal dust exposure.

Prescription of COPD

132. The Council reviewed prescription for bronchitis and emphysema in several reports over the years. In 1988 there was insufficient evidence to satisfy IAC's requirement to demonstrate a greater than doubled risk of the disease from exposure to coal dust. Following the publication of new research, IAC recommended prescription for chronic bronchitis and emphysema in 1992 for coal miners with a one litre loss of lung function who had worked underground for at least 20 years *and* who had a specified grade (category 1/1) of pneumoconiosis. In 1996, the Council recommended that the requirement for radiographic evidence of pneumoconiosis be removed. Following a representation by an attendee at a Public Meeting, IAC reviewed evidence relating to COPD in surface screen coal workers. In 2007, the Council recommended that surface screen workers be included in the prescription for PD D12. There was insufficient evidence to recommend extending the occupational categories for PD D12 to any other trades, e.g. welding.

Effect of bronchodilator treatment on assessments of lung function

133. In 2006 an Upper Tier Tribunal judgement meant that the effects of bronchodilator treatments should be taken into account during assessments for PD D12. This was because bronchodilator treatment could potentially affect a claimant's ability to demonstrate the required threshold loss of lung function. How such treatment should be taken into account was not specified, which led to the potential for inconsistencies in claims assessments for chronic bronchitis and

emphysema. Recently the Department for Work and Pensions asked the Council to review this matter.

134. The Council concluded that there was no single scientifically valid adjustment factor that could be applied which would cover the wide range of treatments claimants may be taking. Furthermore, a response to treatment by a bronchodilator would suggest that the condition being treated was asthma rather than chronic bronchitis and emphysema. During its original recommendations to add PD D12 to the list of prescribed diseases, IIAC highlighted several variables in the evidence which could not be practically accounted for within the terms of prescription, such as different dust levels between mines and periods of absence. It would not be justifiable to specify an adjustment factor to account for the variables introduced through claimant's taking treatments.

135. A one litre loss of lung function is the level at which it is more likely than not that the disease is related to coal dust exposure. A clear cut off is necessary to reduce charges of injustice either way.

Has the problem of COPD in miners and others gone away?

136. There is now little deep coal mining undertaken in the UK, so miners' diseases are becoming less prevalent but the risks remain in those mines that continue. IIAC has considered COPD in other occupations exposed to dust and fumes, but currently the evidence is insufficient to recommend extending prescription for PD D12. The Council will continue to monitor any further evidence on occupational causes of COPD.

Comments, questions and answers from the 'Chronic Obstructive Pulmonary Disease: the science between the prescription' session

137. **Mr Alan Cummings (Durham Miners' Association) – We have had a case of an ex-miner with vascular dementia who had been suffering from breathlessness for a number of years and was being treated with steroids. He made a claim for PD D12, had difficulty performing the FEV₁ test and failed to demonstrate the required loss of lung function by only a small margin.** IIAC cannot comment on individual cases. FEV₁ assessments are not straightforward and require the medical assessor's expertise to help the claimant perform the test effectively. Maximum effort is needed to obtain an accurate lung function assessment. Claimants should be sensitively encouraged to perform the test using their maximum effort.
138. **Mr Chris Skidmore (NUM) – The NUM still deals with at least one new claim for PD D1 (pneumoconiosis) a week. We would like IIAC to consider using CT scan results where available, in addition to chest radiographs for diagnosing PD D1.** CT images produce very accurate images of the lungs and are increasingly used instead of, or to supplement chest radiographs. Simple pneumoconiosis, which could be seen by a CT scan is not associated with lung function impairment. CT scans can highlight non-significant findings and expose the patient to a significant dose of radiation. It would not be appropriate to recommend a requirement for a CT scan in the terms of prescription for PD D1.
139. **Mr Chris Skidmore (NUM) – Why is there no period of re-review to check a claimant's assessment for PD D1 has not changed?** Claimants always have the option to request a review of their assessment.

Open forum and Closing remarks

Ms Clare Sullivan Representative of employed earners

140. Ms Clare Sullivan opened the floor to the attendees, inviting questions and comments on any aspect of IIAC's work or the presentations heard during the meeting.
141. **Mr Dave Hatfield (NUM) – The Cotes formula is used to calculate lung functions for the FEV₁ test. This formula was based on research using a population of Caucasian males. This population is not representative of the range of ethnicities found in claimants today. Should the formula be changed?** In a clinical setting an offset of around 10% may be applied for non-Caucasian's to take into account ethnic differences. IIAC last considered the use of the Cotes formula in 2011 after receiving a query from the NUM. At that time, the Council concluded that the Cotes formula remained appropriate.
142. **Professor John Cherrie (Institute of Occupational Medicine) – What is IIAC's opinion about occupational asthma in cleaners?** Evidence is suggestive of an increased risk of asthma in cleaners. It is not clear what the causal agent responsible and how much cleaning is necessary for the development of asthma. Action: The Council will review evidence on this matter.
143. **Mr John Thomson (NUM) – As people get older they tend to get shorter. How is this taken into account in the FEV₁ test?** The formula to calculate a person's predicted lung function takes into account a person's height at the time of the test.
144. Ms Sullivan thanked all attendees for listening and engaging with the Council in such a lively and informed way. She noted that Public Meetings offer the Council a great opportunity to listen to the queries and comments from claimants' representatives. Attendees were encouraged to send the Council any evidence on new occupational diseases or exposures, or existing issues, individuals or organisations for IIAC to consider.
145. Council members extended an invitation to all attendees to attend the next Public Meeting which would be at another location (to be decided) in the UK in July 2015. The details of the meeting would appear on the IIAC website.

List of delegates

Surname	First name	Organisation
Baker	Paul	IIAC Member
Bennett	Alex	Midlothian Council
Burns	Jessica	Regional Tribunal Judge
Cavilla	Ian	Atos Healthcare
Cherrie	John	Institute of Occupational Medicine
Cooper	Angela	DWP
Cullinan	Paul	IIAC Member
Cummings	Alan	Durham Miners' Association
Darnton	Andrew	Health & Safety Executive
Donnelly	Susan	HMI Health & Safety (Occupational Health)
Douglas	Jackie	The Colt Foundation
Exell	Richard	IIAC Member
Faupel	Paul	IIAC Member
Fitzpatrick	Bob	NUM
Fryatt	Alison	DWP
Gibson	John	NUM
Gow	George	Atos Healthcare
Hackett	Gary	NUM
Haddow	Clare	Occupational Health Service
Hadfield	Dave	NUM
Hegarty	Catherine	IIAC Secretariat
Henderson	Des	NUM
Hooper	Dave	Durham Miners' Association
Jenkins	Kathy	
Johnson	Alan	Durham Miners' Association
Kelly	Jimi	NUM
Khan	Sayed	IIAC Member
Kitchen	Chris	NUM
Lamb	Keith	Durham Mechanics Trust
Lunney	James T	District Tribunal Judge
Madan	Ira	IIAC Member
McElvenny	Damien	IIAC Member
McGavin	Jim	NUM Scotland
Murphy	Rebecca	IIAC Secretariat
Musgrove	Steve	NUM
Olliver	Nik	Edinburgh College
O'Sullivan	Lucy	IIAC Secretariat
Palmer	Keith	IIAC Chairman
Parkinson	Alison	Occupational Health & Safety Tutor
Pearce	Neil	IIAC Member
Seaton	Anthony	IIAC Member
Shelton	Marianne	IIAC Secretariat
Skidmore	Chris	NUM
Sullivan	Claire	IIAC Member
Sutton	Frankie	NUM Scotland
Thomson	John H	NUM
Turner	Andrew	IIAC Member

Valentine	Chris	Occupational Portfolio Doctor
Walker	Neil	DWP
Walker-Bone	Karen	IIAC Member
Watkin	Terry	Durham Mechanics Trust
Watterson	Andrew	University of Sterling
Whitty	Fergus	IIAC Member
Whitworth	Joseph	Durham Miners' Association