



Department for Work and Pensions

Social Security Administration Act 1992

Work-related upper limb disorders

Report by the Industrial Injuries Advisory Council in accordance with Section 171 of the Social Security Administration Act 1992 reviewing the prescription of the work-related upper limb disorders.



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Presented to Parliament by the Secretary of State for Work and Pensions
By Command of Her Majesty
July 2006

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INDUSTRIAL INJURIES ADVISORY COUNCIL

Secretary of State for Work and Pensions

Dear Secretary of State

Our review has considered the evidence relating to the prescribed work-related upper limb disorders: cramp of the hand or forearm; beat hand; beat elbow; traumatic inflammation of the tendons of the hand or forearm, or of the associated tendon sheaths; and carpal tunnel syndrome. Beat knee was also included as part of the review of the beat conditions. We also considered prescription for the upper limb disorders epicondylitis and shoulder tendonitis, and collected evidence about repetitive strain injury and fibromyalgia.

We recommend that the current terms of prescription for carpal tunnel syndrome in relation to exposure to vibratory tools remain appropriate. However, we have amended the wording to clarify the timing of the relevant occupational exposure. Following reviews of research evidence, and expert consultation, we recommend that the terms of prescription for carpal tunnel syndrome (PD A12) be extended to include work involving frequent palmar flexion and dorsiflexion of the hand at the wrist.

The current terms for the existing prescribed diseases reviewed remain appropriate although we have recommended updating terminology of the beat diseases and cramp of the hand and forearm to more modern, medically recognised disease labels. We do not recommend adding epicondylitis, shoulder tendonitis, repetitive strain injury or fibromyalgia to the list of the prescribed diseases. There is currently insufficient evidence to extend prescription to these disorders but we will continue to monitor future research.

Yours sincerely,

Professor A J Newman Taylor

Chairman

Date: July 2006

Summary

1. The Industrial Injuries Advisory Council's review of work-related upper limb disorders has investigated prescription of cramp of the hand or forearm (PD A4), beat hand (A5), beat elbow (A7), traumatic inflammation of the tendons of the hand or forearm, or of the associated tendon sheaths (A8) and carpal tunnel syndrome (A12), epicondylitis, shoulder tendonitis and fibromyalgia. Beat knee (A6) was also investigated as part of the review of the prescribed beat conditions. Following discussions at an expert workshop, a commissioned review of the literature and public consultation, the Council recommends a number of changes to the terms of prescription related to the reviewed disorders.
2. Carpal tunnel syndrome is currently prescribed in relation to work with vibratory tools. The terms of prescription remain appropriate, although the schedule should make plain that symptoms would be expected to occur during the employment involving exposure to vibratory tools.
3. The Council recommends that the terms of prescription of A12 be extended to include work involving frequent palmar flexion (flexing) and dorsiflexion (extension) of the wrist. In this context, 'frequent' should be defined as a cycle repetition of at least once every 30 seconds. To fulfil the terms of prescription the worker must be engaged in the qualifying wrist action for at least 20 hours per week, and must have undertaken such work for at least 12 months in the 24 months preceding onset of symptoms. The Council anticipates that cases would normally present to medical attention during, or within six months of leaving the relevant employment.
4. The current coverage for the existing prescribed diseases considered in this review remain appropriate. Insufficient new evidence was found to justify change, although the terminology of the schedule should be updated. Reference to the term 'beat' in relation to A5, A6 and A7 (a historical description referring to occupational bursitis and/or cellulitis, which is no longer widely recognised by the medical profession) should be removed; while that of cramp of the hand or forearm (PD A4) should be replaced by 'task-specific focal dystonia'.
5. For several other disorders considered within the review and not currently prescribed (epicondylitis, shoulder tendonitis, fibromyalgia, non-specific diffuse arm pain/repetitive strain injury), insufficient research evidence was found to recommend prescription.
6. A variety of scientific and pragmatic limitations were identified in the evidence base, including lack of consensus about case definitions, diagnostic criteria, and to a greater or lesser extent specific well-defined associations with occupation. However, the Council recognises the importance of upper limb symptoms in the working population and the continuing need to monitor research developments.

Introduction

7. Pain in the arm and upper limb is common in the general population. For example, in one recent survey of working aged adults, 11% of men and 15% of women reported pain lasting more than 6 months in the previous 12 months, and in that period 13-17% had consulted a GP, 5-7% had seen a specialist, and 6-12% reported difficulty with everyday activities.
8. Such symptoms are often attributed to work activities, as evidenced by surveys and surveillance reporting schemes sponsored by the Health and Safety Executive (HSE). For example, according to a survey of self-reported work-related illness, in 2004/5 an estimated 375,000 people in Great Britain suffered a musculoskeletal disorder of the upper limbs or neck that they considered work-related.
9. This report concerns the prescription of upper limb disorders (ULD) within the Industrial Injuries Disablement Benefit (IIDB) Scheme. It reviews the current terms of prescription and recent evidence gathered by the Industrial Injuries Advisory Council (IIAC), and frames recommendations for some changes to the prescription schedule.

The Industrial Injuries Disablement Benefit Scheme

10. The IIDB Scheme provides a benefit that can be paid to an employed earner because of an industrial accident or prescribed disease. The benefit is non-contributory and 'no-fault', and is paid in addition to other incapacity and disability benefits, although it is taken into account when determining the level of payment for income-related benefits. It is tax-free and administered by the Department for Work and Pensions (DWP).

The Role of the Industrial Injuries Advisory Council

11. IIAC is an independent statutory body set up in 1946 to advise the Secretary of State for Social Security on matters relating to the IIDB Scheme. The major part of the Council's time is spent considering whether the list of prescribed diseases for which benefit may be paid should be enlarged or amended.

The legal requirements for prescription

12. The Social Security (Contributions and Benefits) Act 1992 states that the Secretary of State may prescribe a disease where he is satisfied that the disease:
 - a) ought to be treated, having regard to its causes and incidence and any other relevant 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 the employment can be established or presumed with reasonable certainty.
13. 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.
14. In seeking to address the question of prescription for any particular condition, the Council first looks for a workable definition of the disease. The Council then searches for a practical way to demonstrate in the individual case that the disease can be attributed to occupational exposure with reasonable confidence.
15. For this purpose, reasonable confidence is interpreted as being based on the balance of probabilities. It may be possible to ascribe a disease to a particular occupational exposure from the specific clinical features of the disease. For example, a disease may only occur due to occupational exposures (e.g. coal workers' pneumoconiosis) or there may be specific tests for work causation (as is often the case for occupational asthma). However, many disorders that concern the Council have non-occupational counterparts in the general population, and cannot be distinguished reliably on clinical grounds alone.

Epidemiological evidence of a doubling of risk

16. Under such 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 disease by a factor of two or more.
17. The requirement for, at least, a doubling of risk is not arbitrary. It 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, and a 50% chance that it would have occurred even without the exposure. Below the threshold of a doubling of risk only a minority of cases in an exposed population would be caused by the hazard, and individual cases, therefore, could not be attributed to exposure on the balance of

probabilities. Ideally, the epidemiological evidence should be drawn from several independent studies, and be sufficiently robust that further research at a later date would be unlikely to require a revision of the prescription schedule.

18. Certain other practical conditions need to be met before IAC can recommend prescription:

- the disease must be serious enough to cause a meaningful degree of disability;
- the disease must be capable of definition and diagnosis with some reasonable degree of confidence;
- the diagnosis should be possible without the need to subject claimants to expensive or invasive tests or procedures; and
- it should be feasible to confirm the exposures in the schedule within the constraints of the Scheme.

Background to this report

19. Five ULDs are currently prescribed – PD A4 (cramp of the hand or forearm), PD A5 (beat hand), PD A7 (beat elbow), PD A8 (traumatic inflammation of the tendons of the hand or forearm, or of the associated tendon sheaths) and PD A12 (carpal tunnel syndrome (CTS) in users of vibratory tools). The current terms of prescription for these conditions can be found at Appendix 1. Their review arises as a part of IAC's commitment to ensure the currency of the prescription list.

20. The Council has taken the opportunity additionally to review 'beat knee' (PD A6), a currently prescribed disorder of the lower limb similar in character to beat hand and beat elbow; and to consider two related representations from the DWP, concerning impingement syndrome of the shoulder, and fibromyalgia (a more generalised pain syndrome).

Method of investigation

21. A preliminary review by the Council's Research Working Group identified a number of obstacles to prescription (described in paragraphs 28-29, 32 and 35).

22. Due to the complex subject matter, the Council convened a special meeting on the prescription of ULDs to which it invited experts in the fields of epidemiology, rheumatology, ergonomics and musculoskeletal medicine, as well as representatives of the court of Commissioners and The Appeals Service. The experts were asked to consider specific concerns about the diagnosis of upper limb disorders, their attribution to work and the definition and the assessment of qualifying exposures within the scheme (see box). The experts also considered the prescription of fibromyalgia.

Main questions posed in the Expert Workshop

- a. Which upper limb disorders (that are serious enough to cause meaningful disability) are capable of clear definition and diagnosis with a reasonable degree of confidence?
- b. Which criteria should be employed to diagnose these conditions? Are there any objective tests that would assist with diagnosis?
- c. What evidence exists to suggest a doubling or more than doubling of risk under defined circumstances of occupational exposure?
- d. What are these exposures? How are they defined? How can they be confirmed?

23. Following the lead of the workshop, the Council commissioned an independent literature review in 2004/5 and published the report it received on its website for a three-month period. External comments were invited and considered.

24. Additionally, a press release was issued in February 2004, asking individuals and organisations to send IIAC evidence relating to work-related upper limb disorders (WRULD) for consideration during the review.

25. Finally, the topic of WRULD was discussed at two open meeting workshops of the Council (in Glasgow and Cardiff in 2004) and in two question and answer open meeting presentations (in Newcastle in 2005 and in Canterbury in 2006).

Diagnosis of work-related upper limb disorder

26. The term work-related upper limb disorder covers a large group of heterogeneous disorders. According to NIOSH (the National Institute of Occupational Safety and Health in the US) some 165 different disease labels should be considered.

27. For certain disorders, such as CTS, there is acceptable medical consensus both on definition and approaches to diagnosis.

28. For other disorders there is important disagreement - differences of practice and terminology, and in some cases even dispute about the range of disorders that exist. The problem is exemplified by 'repetitive strain injury' (RSI), where fundamental differences of opinion about the meaning of the term, the range of disorders covered, and its pathophysiological basis and diagnosis have led to several conflicting decisions in courts of law.

29. The Council was concerned that prescription might be hampered by the inconsistent use of diagnostic labels; the wide mix of diagnoses; the disagreement between clinicians about diagnosis and attribution; and the limited availability of objective tests to resolve diagnostic

difficulties (hence, the first two questions that were posed to the Workshop - see box).

30. Two promising standardised British and European assessment protocols were described at the meeting, both products of multidisciplinary consensus; but it was recognised that as research tools in limited use their application to decisions within the Scheme and to the research evidence of doubling of risk was strictly limited.
31. Of more direct significance, the workshop identified three ULDs – CTS, epicondylitis and tenosynovitis – as ones where there was both a reasonable measure of agreement on diagnosis and a reasonable body of research evidence that might underpin prescription.

Exposure assessment

32. Another important issue, discussed by the workshop, was that of corroborating qualifying exposures under the Scheme. The Council was concerned that the relevant ergonomic events are complex to define and assess; that direct workplace observation would be unfeasible as a means of adjudicating applications; that reliance on self-report could be problematic; and that research reports could be heterogeneous in their choice both of outcome definitions and exposure metrics.
33. Balanced against this, some research reports use job title as a surrogate for ergonomic exposures – a simpler metric to corroborate within the Scheme (although potentially a less valid one to the extent that exposures may vary among those sharing a common job title).
34. Moreover, prescription defined by physical activity has proved possible within the scheme for PD A8, through expert assessment by medical advisors to the DWP.

Occupational Attribution

35. The Council was concerned that the strength of evidence on attribution might be limited by the likely inconsistency between investigations in their choice of outcome definitions and exposure metrics; also by the reliance in much research on pain rather than disease as the health endpoint.
36. Experts at the workshop suggested that in general the effect of individual exposures might be too small to create a doubling of risk, although their combination could exceed this threshold. However, they believed that there was sufficient evidence of attribution for certain disorders - notably, hand-wrist tendonitis, epicondylitis and CTS.

The commissioned review

37. The review, *Evidence on the Prescription of Upper Limb Disorders: A Report for the Industrial Injuries Advisory Council*, was commissioned from the MRC Epidemiology Resource Centre, University of Southampton. For reasons outlined in paragraphs 31 and 36 it was based on the currently prescribed conditions and on epicondylitis.
38. Even for these topics the research literature is considerable. To focus inquiries it was agreed that the review would take as its starting point two comprehensive reviews published by NIOSH and Taylor Francis books in 1995 and 1997. The commissioned review aimed to synthesise the findings of these reports and interpret them from the viewpoint of prescription; to check their completeness; and to update them by a forward search for later relevant research.
39. All of the unique references to CTS, tenosynovitis, epicondylitis and cellulitis/bursitis were retrieved from the two source reports. In addition, a systematic electronic search was made of the major bibliographic biomedical databases covering the period 1966 to 2004. After eliminating duplicates, non-relevant reports and foreign language publications, over 100 primary research reports were retrieved, among which over 50 featured in final deliberations and were summarised in 5 main tables, with a commentary and suggestions relevant to the question of prescription.
40. Below we describe each of the conditions investigated, summarise the findings of the commissioned review, and outline IIAC's recommendations, which are based upon these and other considerations, including workshop discussions and invited comments. We also discuss the potential prescription of impingement syndrome of the shoulder and fibromyalgia.

Consideration of specific conditions

Carpal tunnel syndrome

41. CTS occurs when the median nerve (which runs from the forearm into the hand) becomes squeezed at the wrist. This nerve controls sensations to the thumb, fingers (other than the little finger), and a part of the palm, and also small muscles in the hand that operate the fingers and thumb.
42. The carpal tunnel is a narrow, rigid passageway of ligament and bones at the base of the hand. The median nerve and several tendons pass through it. The nerve may become compressed if the contents of the canal swell (e.g. through thickening of inflamed tendons or because of endocrine or hormonal factors, fluid retention during pregnancy or menopause, rheumatoid arthritis, the development of a cyst or tumour in the canal), or the bony architecture becomes disturbed (e.g.

fractures, congenital disorders). Women are more likely than men to develop CTS, perhaps because the tunnel tends to be smaller. The condition is quite common in the general population.

43. The symptoms of CTS include burning, tingling, or numbness in the palm of the hand and the fingers, especially the thumb and the index and middle fingers, night time pain that disturbs sleep, decreased grip strength, and in chronic or untreated cases, wasting of the muscles at the thumb base. Disability arises from poor hand function.
44. Regarding CTS, the commissioned review found that the current terms of prescription in users of hand-held powered vibratory tools are supported by the evidence and remain appropriate, with no strong case for revision. Ideally, research data would enable the level of qualifying exposure to be more closely defined, but at present such detail is not available. However, we would expect symptoms to begin in the job in which hand-held powered vibratory tools were used, and so the Council recommends that the terms of prescription should reflect this.
45. The review found insufficient evidence to extend the terms of prescription on the basis of *job title*, but a reasonable body of research evidence supporting prescription on the basis of *activity* in the job.
46. Specifically, evidence was found that flexing and extending of the wrist, when repeated over much of the work time, was associated with a more than doubling of risk of CTS. The reviewers commented: "A reasonable choice [for the exposure schedule], based upon a conservative reading of the research evidence, might be repeated bending and/or flexing of the wrist (every 30 seconds or more often) for at least 20 hours per week".
47. Independently, a doubling of risk was found in connection with the regular use of a forceful grip. The reviewers considered that this exposure was potentially much harder to verify within the Scheme.
48. The review identified a few studies of CTS and use of the computer keyboard or mouse, and these did not provide support for prescription.
49. The Council was advised that CTS, if associated with work, was likely to develop for the first time during employment, not afterwards; and that there was some evidence that the duration of qualifying employment should exceed a year.
50. After considering the evidence, the Council recommends prescription for CTS in those whose occupation involves repeated palmar flexion and dorsiflexion of the wrist (see Appendix 2 for a diagram of the relevant action) for at least 20 hours per week and who have undertaken such work for at least 12 months in aggregate in the 24 months prior to the onset of symptoms.

51. A cycle time of once or more often in every 30 seconds can be considered sufficiently 'frequent' to qualify for prescription. The Council anticipates that presentation to medical attention would normally occur during, or within six months of leaving the relevant exposed employment.

Epicondylitis

52. **Lateral epicondylitis** (otherwise known as 'tennis elbow') is a condition in which the outer part of the elbow (lateral epicondyle) becomes painful and tender. This is the commonest specific rheumatic disorder of the elbow. It occurs mostly in patients aged 30 to 50 years.

53. Symptoms may arise from unaccustomed, forceful, repetitive use of the muscles that extend the fingers and wrist. Up to a half of athletes in racquet sports may suffer from tennis elbow at some stage. However, cases occur in people who are not active in such sports. Some affected people may hold jobs that require repetitive and vigorous use of the forearm muscles, but some arise in the absence of a recognizable precipitating activity.

54. Patients often complain of severe, burning pain over the outer elbow, which can spread to the forearm. The pain may gradually worsen over weeks or months and is aggravated by gripping or lifting even light objects.

55. Even with treatment, the pain of lateral epicondylitis may persist for several months.

56. **In medial epicondylitis** ('golfers elbow') pain occurs, instead, at the origin of the flexors on the medial epicondyle of the humerus (inner aspect of the elbow). The pain is made worse by bending (flexing) the wrist. As with tennis elbow, some cases can be linked with recreational activity and symptoms tend to be persistent.

57. Research studies tend not to distinguish between medial and lateral epicondylitis. Considering either or both, the commissioned review found only limited evidence on which to prescribe for epicondylitis. The strongest case existed for meat cutters, although the number of studies on which prescription could be based was small.

58. The Council has concluded there is insufficient evidence at present to recommend prescription.

Tenosynovitis

59. Tenosynovitis is inflammation of the protective lining and lubricating sheath (synovium) that surrounds a tendon. Tendonitis is inflammation of the tendon itself. Peritendonitis is inflammation around a tendon. In familiar usage and quite often in research investigations these names are used interchangeably, although in strict anatomical terms such usage is imprecise.
60. Many tendons surround the wrist joint. Wrist tendonitis may affect one or several of these. Painful inflammation of the tendons on the thumb side of the wrist is called De Quervain's tenosynovitis (tenovaginitis).
61. The most common symptom is pain over the area of inflammation. In De Quervain's tenosynovitis (tenovaginitis) it is worse with the use of the hand and thumb, especially with any forceful grasping, pinching, or twisting. Swelling may be present and some decreased motion of the thumb. Tenderness is present over the first dorsal compartment (near the thumb base). Sometimes the tendons crackle when the wrist and thumb are moved.
62. The commissioned review commented as follows on tenosynovitis: "The [research] evidence base is limited and existing terms of prescription may owe more to clinical accounts and older reports in which the onset of classical tenosynovitis is well documented following exceptional hand-wrist work. Thus, many cases occurred in the 1940s when people were required to undertake unaccustomed work in factories and in agriculture as part of the war effort. Attribution to work was favoured by the clinical time course: typically symptoms appeared following return to work after a long lay off, or following a change to unfamiliar work requiring new, rapid movements. Classically, cases would develop shortly after such exposures and resolve within a few weeks" "When viewed in these terms and relative to the literature described, the current schedule for A8 still seems reasonably appropriate. *The Guide to Industrial Injuries Benefits* cites routine assembly work as an example of a qualifying occupation and this is supported by several research reports."
63. Ideally, research evidence would enable the time course of exposure to be defined in the detail suggested in relation to CTS. In reality, the evidence base is less complete. The Council considers that the current terms of prescription remain appropriate.

Beat conditions

64. The term 'beat' refers broadly to occupational bursitis (inflammation or infection of a bursa) and/or cellulitis (inflammation or infection of the deeper layers of the skin and subcutaneous tissues).
65. **Beat hand (A5)** arises when the skin's integrity is broken. The subcutaneous tissues of the palmar aspects of the hand, thumb, or

fingers are infected and local cellulitis develops, which may extend to the fascial spaces and tendon sheaths. Any environmental factor which reduces the resistance of healthy tissues to infection can predispose an individual to beat hand, e.g. the use of rough tool handles; work in wet conditions leading to maceration of the skin.

66. In **beat elbow (A7)**, the tissues around the elbow are swollen and painful and there may be signs of acute infection. There is frequently an associated inflammatory reaction in the bursa over the olecranon process (bony point of the elbow). The condition is often associated with a history of local injury. Evidence of an abrasion of the skin may be seen. There may be chronic painless enlargement of the olecranon bursa (observed in miners who work in thin seams and who therefore rest on their elbows).
67. In **beat knee (A6)**, the prepatellar bursa (a lubricating sac located between the skin and the patella or knee cap) becomes inflamed, with a marked increase of fluid within its space. Common findings may include knee pain, swelling and redness, and difficulty in walking and kneeling. Historically the disease has been linked with occupations that require excessive kneeling.
68. The current terms of prescription cover those with beat disorders who engage in manual labour that causes severe or prolonged friction or pressure local to the affected area.
69. There is only limited research interest in these disorders. The commissioned literature review found no relevant epidemiological reports relevant to A5 and A7.
70. However, eight studies, one review and several case reports, were identified with relevance to A6. The findings support the prescription. The reviewers commented that “most of the evidence relates to floor and carpet layers”, among whom a clear doubling of risk has been found in several research inquiries.
71. The qualifying word ‘beat’, used in the naming of prescribed diseases A5, A6 and A7 to denote repeated trauma at work, is not widely used or understood in modern clinical practice, being a historical description confined to the field of occupational medicine.
72. The Council feels that it remains appropriate to prescribe for this group of conditions with the current coverage unchanged, but that the terms ‘beat hand’, ‘beat knee’ and ‘beat elbow’, could be removed from the Schedule without loss of clarity.

Cramp of the hand or forearm

73. Writer's cramp is defined as a task-specific focal dystonia of the hand. Dystonia is an involuntary, sustained muscle contraction causing

twisting movements and abnormal postures; 'focal' means that only one part of the body is affected.

74. Two types of writer's cramp have been described - simple and dystonic. People with 'simple' writer's cramp have difficulty with only one specific task - for example, writing or playing the piano or violin. A person may pick up a pen but within writing a few words, dystonic postures of the hand impede the speed and accuracy of writing, such that the pen may be excessively gripped and ultimately fall from the hand. In dystonic writer's cramp, similar symptoms manifest with other activities, such as shaving or using eating utensils. Aching and pain are not common. Symptoms usually begin between 30 and 50 years of age and affect both sexes.
75. The exact cause of the condition is not known. But abnormal functioning of the basal ganglia (deep brain structures involved with the initiation and regulation of movement) may be implicated. Cases of inherited writer's cramp have been reported.
76. Historically, outbreaks of writer's cramp have been described in writers, scribes, and telegraphers. One famous outbreak, for example, affected British civil servants in the 1830s. Whether these were pure cases of dystonia (as opposed to other dysfunctional problems of the upper limb) and whether cause by work, or merely work limiting, cannot be stated with certainty.
77. The commissioned review identified a series of clinical case reports (under various terms e.g. occupational cramp, focal limb dystonia and musician's cramp), including some speculating on mechanisms and some exploring treatments; musicians were the most frequent focus of investigation. But no epidemiological studies were found with risk estimates and suitable control comparators.
78. While recognising the limitations of the literature, the Council finds insufficient new evidence to remove A4 (cramp of the hand or forearm due to repetitive movements) from the current prescription list. The term 'cramp' is an ambiguous one, so the description of the condition should be replaced in the Schedule by the words 'task-specific focal dystonia'.

Shoulder tendonitis

79. Tendonitis of the shoulder is an inflammation of the rotator cuff and/or biceps tendon. It often results from a tendon being pinched by surrounding structures (impingement syndrome of the shoulder). Common symptoms include pain and tenderness around the shoulder, and inability to hold the arm in certain positions.

80. The condition has been linked with certain sports that require the arm to move over the head repeatedly, such as racket sports, baseball, weight lifting, and some forms of swimming. Some evidence exists linking shoulder pain and tendonitis with occupation.

81. According to the expert workshop, there is only limited consensus on approaches to diagnosis and case definition. Hence, shoulder tendonitis was not considered within the scope of the commissioned review.

Repetitive strain injury

82. The term 'repetitive strain injury' (RSI), although widely used, is an unhelpful one for the purposes of prescription for two main reasons. Firstly, the meaning and coverage of the terms (which disorders are included and which are not) is unclear; and secondly, the name presupposes the cause – that is, repetition. The first ambiguity does much to hamper free communication and agreement between specialists and precise reporting and interpretation of research findings. The second is problematic because some conditions that may be caused by repetition can also be caused by non-occupational factors, or even occupational factors other than repetition, such as posture or force.

83. A clearer but less often adopted approach is to separate diagnosis from cause. Following this general principle, the present report has considered several disorders of the upper limb and their relation to repetition and other physical risk factors at work, as set out in earlier sections.

84. For some people 'RSI' means diffuse non-specific arm pain (arm pain without a clear diagnosis) in workers with physically repetitive jobs. This is not covered elsewhere in the report and was not included within the scope of the commissioned review. It was, however, discussed by the workshop. The problem with proceeding further is that the condition is considered a diagnosis of exclusion (defined by what it is not, rather than what it is), and so the lack of a well-accepted and robust criterion for diagnosis makes it problematic to entertain prescription within the Scheme. This is not to suggest that such problems do not exist. The Council is mindful of the need to continue monitoring the evidence which might support prescription.

Fibromyalgia

85. **Fibromyalgia** is a chronic illness characterized by widespread musculoskeletal aches, pain and stiffness, and soft tissue tenderness. The regions most commonly affected are the neck, back, shoulders, pelvic girdle and hands, but any body part can be involved. Pain is often profound, widespread and chronic. General fatigue and sleep disturbance are common accompaniments.

86. Diagnosis relies on self-report of widespread and long-lasting symptoms in patients found on examination to have multiple tender points. Criteria for diagnosis have been proposed by the American College of Rheumatology (based upon a certain number of tender points), but recent evidence suggests that both the distribution of pain and the number of tender areas represent a biological continuum in the general population, with no clear division between health and disease. Thus, in the absence of specific tests, diagnosis is relatively subjective.
87. Expert evidence on fibromyalgia was presented at the Council's workshop. This highlighted a lack of research on the relation between fibromyalgia and occupational activity. The Council has therefore concluded that prescription cannot be recommended given the present state of knowledge. However, it will continue to monitor research in this area.

Recommendations

88. The Council recommends prescription of CTS in those (i) whose occupation involves repeated palmar flexion and dorsiflexion of the wrist for at least 20 hours per week and (ii) who have undertaken such work for at least 12 months in aggregate in the 24 months prior to the onset of symptoms. Such symptoms should arise during this employment. 'Repeated' in this context means once or more often in every 30 seconds. The Council anticipates that presentation to medical attention would normally occur during, or within six months of leaving the relevant exposed employment.
89. The Council recommends that the terms of prescription of A12 be amended to make clear that the symptoms of CTS should develop during the occupation for which the scheduled exposure is defined.
90. In the case of A4, the Council recommends that the words 'cramp of the hand or forearm' be replaced by 'task-specific focal dystonia'; and for PD A5, A6 and A7 that reference to 'beat hand', 'beat knee' and 'beat elbow' respectively should be removed from the Schedule. However, the occupational coverage of these diseases should remain unchanged.
91. The Council considers that the current terms of prescription for PD A8 are appropriate.
92. The Council has investigated the case for prescribing for other upper limb disorders, including epicondylitis, shoulder tendonitis and diffuse 'RSI', but finds the evidence insufficiently compelling at present. However, it will continue to monitor the research evidence that might enable prescription. A list of the Council's recommendations is included at Appendix 3.

Prevention

93. The risk of ULDs can be minimised by good working practices and the introduction of control measures to reduce exposure to associated risk factors. The main risk factors are high repetition, awkward working postures, high force and lack of time for recovery. Typically, ULD problems can be identified by reviewing health and injury records, reports by employees, or other evidence, such as ad-hoc modifications to work stations and use of support bandages.
94. Problems should be pro-actively identified and then eliminated at source if this is practical, i.e. does the task have to be performed in the way it is, or could it be automated? Employees exposed to the task have first hand knowledge of the factors that cause or contribute to their problem. They should contribute to the design of risk reduction strategies for a specific task or tasks on which they work.
95. Risk reduction strategies should consider changes to the task, the individual or work group and the working environment. Often a combination of changes to all three aspects is the most effective strategy.
96. Changes to the task may include redesign of the workstation or the equipment used to perform the task. Job rotation between employees is often used to decrease an employee's exposure to a specific risk if that risk cannot be eliminated.
97. Changes to the individual or work groups may involve providing the correct training and information in order for them to perform their tasks. However, provision of training should be used to complement other risk reduction strategies and not as the only control measure.
98. Changes to the working environment may involve modifying the working temperature or an employee's exposure to draughts or cold air movements. Lighting levels can also be modified to improve the working environment. Changes to the physical and psychosocial environment may be required which may involve a review of work organisation, working hours, the scheduling of breaks and working relations.

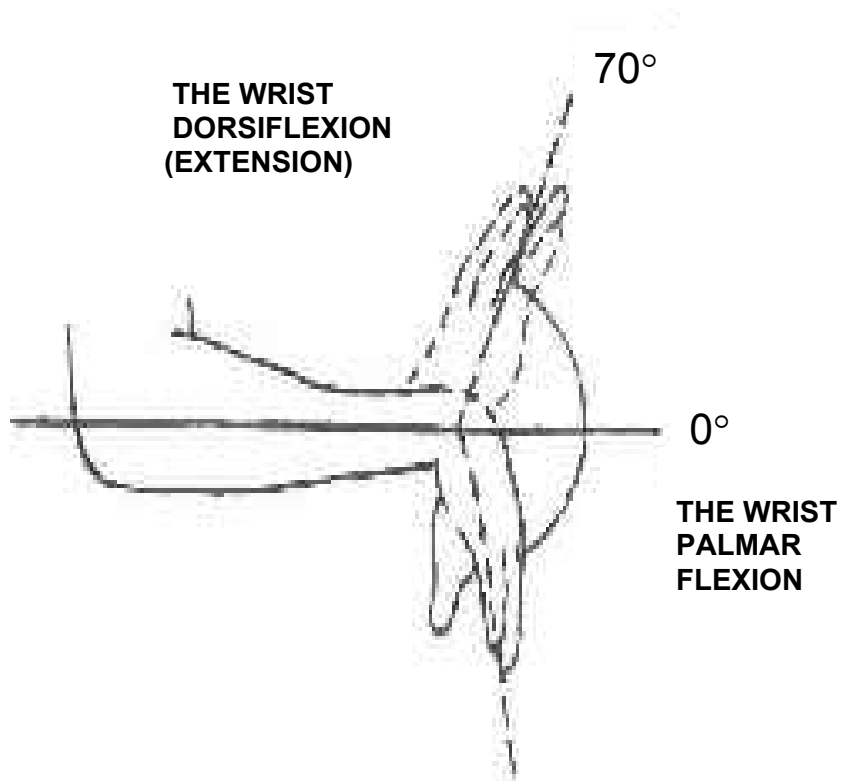
Appendix 1

CURRENT TERMS OF PRESCRIPTION RELEVANT TO THIS REPORT

Disease number	Name of disease or injury	Type of job
A4	Cramp of the hand or forearm due to repetitive movements.	Prolonged periods of handwriting, typing or other repetitive movements of the fingers, hand or arm.
A5	Subcutaneous cellulitis of the hand (<i>beat hand</i>).	Manual labour causing severe or prolonged friction or pressure on the hand.
A6	Bursitis or subcutaneous cellulitis arising at or about the knee due to severe or prolonged external friction or pressure at or about the knee (<i>beat knee</i>).	Manual labour causing severe or prolonged external friction or pressure at or about the knee.
A7	Bursitis or subcutaneous cellulitis arising at or about the elbow due to severe or prolonged external friction or pressure at or about the elbow (<i>beat elbow</i>).	Manual labour causing severe or prolonged external friction or pressure at or about the elbow.
A8	Traumatic inflammation of the tendons of the hand or forearm, or of the associated tendon sheaths.	Manual labour, or frequent or repeated movements of the hand or wrist.
A12	Carpal tunnel syndrome.	The use of hand-held powered tools whose internal parts vibrate so as to transmit that vibration to the hand, but excluding those which are solely powered by hand.

Appendix 2

DIAGRAM OF PALMAR FLEXION AND DORSIFLEXION



Appendix 3

RECOMMENDED TERMS OF PRESCRIPTION RELEVANT TO THIS REPORT

Disease number	Name of disease or injury	Type of job
A4	Task-specific focal dystonia.	Prolonged periods of handwriting, typing or other repetitive movements of the fingers, hand or arm.
A5	Subcutaneous cellulitis of the hand.	Manual labour causing severe or prolonged friction or pressure on the hand.
A6	Bursitis or subcutaneous cellulitis arising at or about the knee due to severe or prolonged external friction or pressure at or about the knee.	Manual labour causing severe or prolonged external friction or pressure at or about the knee.
A7	Bursitis or subcutaneous cellulitis arising at or about the elbow due to severe or prolonged external friction or pressure at or about the elbow.	Manual labour causing severe or prolonged external friction or pressure at or about the elbow.
A8	Traumatic inflammation of the tendons of the hand or forearm, or of the associated tendon sheaths.	Manual labour, or frequent or repeated movements of the hand or wrist.
A12	Carpal tunnel syndrome.	a) The use, at the time the symptoms first develop, of hand-held powered tools whose internal parts vibrate so as to transmit that vibration to the hand, but excluding those which are solely powered by hand; or b) Repeated palmar flexion and dorsiflexion of the wrist for at least 20 hours per week in those who have undertaken such work for at least 12 months in aggregate in the 24 months prior to the onset of symptoms.



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