WorkCover Guidelines for the evaluation of permanent impairment

WorkCover SA
Better together

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Contents

Foreword

The *WorkCover Guidelines for the evaluation of permanent impairment*, known as the WorkCover Guidelines, are published under section 43A of the *Workers Rehabilitation and Compensation Act 1986* (the Act) for the purpose of assessing the degree of permanent impairment that arises from a compensable disability in accordance with section 43A of the Act. The focus of the workers compensation legislation is injury management, which aims to assist the worker to recover and return to the workforce and community. These guidelines are intended to ensure an objective, fair and consistent method for evaluating a level of permanent impairment.

The Act requires that permanent impairment assessments are made in accordance with the WorkCover Guidelines. Only legally qualified medical practitioners who are trained in the use of the WorkCover Guidelines and are accredited with the Corporation to assess the degree of permanent impairment arising from a compensable disability can undertake permanent impairment assessments.

The WorkCover Guidelines are based on the American Medical Association's *Guides to the evaluation of permanent impairment, 5th edition* (AMA5) and the *WorkCover Guide for the evaluation of permanent impairment, 3rd edition* published by WorkCover NSW (the WorkCover NSW Guides). AMA5 is the most authoritative and widely used source for the purpose of evaluating permanent impairment. However, extensive work by eminent medical specialists, representing all medical colleges, has gone into reviewing AMA5 to ensure alignment with Australian clinical practice.

The WorkCover Guidelines apply to the assessment of permanent impairment when a worker's entitlement to lump sum compensation is being determined, from and after 1 April 2009.

1 Introduction

1.1 The WorkCover Guidelines are published under section 43A(3) of the *Workers Rehabilitation and Compensation Act 1986* (the Act).

1.2 These guidelines are based on the American Medical Association's *Guides to the evaluation of permanent impairment, 5th edition* (AMA5) and the *WorkCover Guide for the evaluation of permanent impairment, 3rd edition* published by WorkCover NSW (the WorkCover NSW Guides).

1.3 The WorkCover Guidelines adopt AMA5 in most cases. Where there is any deviation, the difference is defined in the WorkCover Guidelines. Where differences exist, the WorkCover Guidelines are to be used as the modifying document. The procedures contained in the WorkCover Guidelines are to prevail if there is any inconsistency with AMA5.

1.4 The WorkCover Guidelines are to be used wherever there is a need to establish the level of permanent impairment that results from a work-related injury or disease (compensable disability). The assessment of permanent impairment is conducted for the purposes of determining a lump sum payment in accordance with the statutory benefits under the Act.

1.5 Evaluating permanent impairment involves clinical assessment on the day of assessment, determining:

- whether the worker's compensable disability has resulted in impairment
- whether the compensable disability has reached Maximum Medical Improvement (MMI)
- whether the resultant impairment is permanent
- the degree of permanent impairment that results from the compensable disability and
- the proportion of permanent impairment due to any previous disability (compensable or otherwise).

This is in accordance with diagnostic and other objective criteria as detailed in the WorkCover Guidelines.

1.6 By the time a permanent impairment assessment is required, the question of liability for the primary compensable disability would normally have been determined. Exceptions could be those disabilities which are of slow onset. The person who makes the referral for an assessment of permanent impairment is to confirm the medical conditions/ compensable disability for which liability has either been accepted or is under dispute. If an assessor identifies an impairment for a medical condition not previously identified, the assessor is to describe the causal connection, if any, between the compensable disability for which liability is accepted and the newly identified impairment.

1.7 Permanent impairment assessors are expected to be familiar with chapters 1 and 2 of AMA5 in addition to the information contained in this introduction.

1.8 In the case of a compensable disability, where different permanent impairment assessors are required to assess different body systems, the case manager will appoint a lead assessor to calculate the final percentage of whole person impairment (% WPI) resulting from the individual assessments. In the case of a dispute, Medical Panels SA will determine by its own procedures how it will answer the medical question arising in such dispute.

Development of the WorkCover Guidelines

1.9 The WorkCover NSW Guides were developed by groups of medical specialists brought together by WorkCover NSW to review the various editions of the *Guides to the evaluation of permanent impairment* published by the American Medical Association. The groups included specialists who were nominated by the Labor Council of New South Wales (now Unions NSW).

1.10 WokCoverSA established a Permanent Impairment Working Party (PIWP) to assist with the development of the WorkCover Guidelines suitable for the South Australian environment. The working party comprised of representatives from the various health professional associations, employer and employee stakeholder groups and Employers Mutual representatives.

1.11 The Corporation relied on a national permanent impairment expert to help develop the WorkCover Guidelines. Stakeholders were also consulted throughout the development process.

1.12 AMA5 is used for most body systems, with the exception of vision where, on medical specialists' advice, assessments are conducted according to the American Medical Association's *Guides to the evaluation of permanent impairment, 4th edition* (AMA4). The Pain chapter (chapter 18, AMA5) and the Mental and Behavioural Disorders chapter (chapter 14, AMA5) are also omitted. The Act excludes entitlement for psychiatric impairment.

1.13 The Pain chapter is excluded entirely at the present time. Page 20, AMA5 states: "The impairment ratings in the body organ system chapters make allowance for expected accompanying pain."

The impact on activities of daily living of a condition, including pain is taken into account in many areas of AMA5.

No separate assessment should be made for chronic pain. Impairments that may be accompanied by chronic pain are assessable as described in chapters 3–17, AMA5, as modified by the WorkCover Guidelines. For a fuller explanation see Note: Evaluation of permanent impairment arising from chronic pain (p78).

1.14 The WorkCover Guidelines will be reviewed and updated as subsequent editions of the American Medical Association's *Guides to the evaluation of permanent impairment* become available. The WorkCover Guidelines will also be reviewed if anomalies or difficulties in their use become apparent.

1.15 The WorkCover Guidelines are meant to assist legally qualified medical practitioners who are accredited with the Corporation to assess levels of permanent impairment. They are not meant to provide a 'recipe approach' to the assessment of permanent impairment. Legally qualified medical practitioners (assessors) are required to exercise their clinical judgment to determine whether the compensable disability has resulted in an impairment and whether the impairment is permanent. The degree of permanent impairment that results from the compensable disability must be determined using the tables, graphs and methodology in the WorkCover Guidelines and AMA5. Section 1.5 of Chapter 1 of AMA5 (p10) applies to the conduct of assessments and expands on this concept.

Body systems covered by the WorkCover Guidelines

1.16 Most body systems, structures and disorders included in AMA5 are included in the WorkCover Guidelines. However, the Pain chapter (Chapter 18, AMA5) and the Mental and Behavioural Disorders chapter (Chapter 14, AMA5) are excluded. The visual system assessment adopts AMA4, not AMA5. Evaluation of permanent impairment due to hearing loss adopts the methodology indicated in these guides (Chapter 9) with some reference to Chapter 11, AMA5 (pp245–251), but uses National Acoustic Laboratory (NAL) tables from the NAL Report No 118, *Improved procedure for determining percentage loss of hearing*, January 1988.

Multiple impairments

1.17 Impairments arising from disabilities which occurred on different dates are to be assessed chronologically by the date of disability (refer to section 43(9)(a) of the Act).

1.18 Impairments from unrelated disabilities or causes are to be disregarded when making an assessment (refer to section 43(9)(b) of the Act).

1.19 Impairments resulting from more than one disability caused by the same trauma are to be assessed together to assess the degree of permanent impairment of the worker (refer to section 43(6)(a) of the Act).

1.20 For the purpose of 1.19, the Combined Values Chart, AMA5 (pp604–606) is to be used to derive a %WPI that arises from multiple impairments. An explanation of its use is found on pp9–10, AMA5. When combining more than two impairments, the assessor should commence with the highest impairment and combine with the next highest and so on.

Permanent impairment – permanent

1.21 The meaning given to the word 'permanent' in various decisions of the courts includes:

a) for a long and indeterminate time but not necessarily forever

b) more likely than not to persist in the foreseeable future.

Permanent impairment – maximum medical improvement

1.22 Assessments are only to be conducted when the assessor considers that the degree of permanent impairment of the worker is fully ascertainable. The permanent impairment will be fully ascertainable where the assessor considers the worker has attained maximum medical improvement. This is generally considered to occur when the worker's condition has been medically stable for the previous three months and is likely to be stable for the foreseeable future, with or without further medical treatment (ie, further recovery or deterioration is not anticipated, but can include temporary fluctuations).

Refusal of treatment

1.23 If the worker has been offered, but refused or not undertaken, additional or alternative medical treatment the assessor considers is likely to improve the worker's condition, the assessor should evaluate the current condition and treat it as 'stable', without consideration of potential changes associated with the proposed treatment. The assessor may note the potential for improvement in the worker's condition in the evaluation report, and the reasons for refusal by the worker, but should not adjust the level of impairment on the basis of the worker's decision.

Future deterioration of a condition

1.24 If an assessor forms the opinion the worker's condition is stable for the foreseeable future, but it is expected to deteriorate in the long term, the assessor should make no allowance for this deterioration, but note its likelihood in the evaluation report.

Information required for assessments

1.25 On referral, the assessor should be provided with all relevant medical and allied health information, including results of all clinical investigations related to the disability in question.

1.26 AMA5 and these WorkCover Guidelines indicate the information and investigations that are required to arrive at a diagnosis and to measure permanent impairment. Assessors must apply the approach outlined in these guidelines. Referrers must consult these documents to gain an understanding of the information that should be provided to the assessor in order to conduct a comprehensive evaluation.

Medical assessors

1.27 An assessor will be a legally qualified medical practitioner who is accredited with the Corporation to provide permanent impairment assessment services in the relevant body system being assessed and who is listed as a trained assessor of permanent impairment on WorkCover's website, www.workcover.com.

1.28 Assessors may be the worker's treating practitioner or, an assessor engaged by a worker's representative or, an assessor engaged on behalf of the Corporation's claims agent or a self-insured employer to conduct an assessment for the purposes of assessing the level of permanent impairment.

1.29 Assessors accredited with the Corporation to provide permanent impairment services are required to use the WorkCover Guidelines current at the time of the assessment.

Code of conduct

1.30 Assessors are reminded that they have an obligation to act in an ethical, professional and considerate manner when examining workers for the determination of permanent impairment.

1.31 Effective communication is vital to ensure that the worker is well-informed and able to maximally cooperate in the process. Assessors should:

- ensure the worker understands who the assessor is and the assessor's role in the evaluation
- ensure the worker understands how the evaluation will proceed
- take reasonable steps to preserve the privacy and modesty of the worker during the evaluation
- not provide any opinion to the worker about their claim.

1.32 Complaints about an assessor received by the Corporation's Service Improvement Unit will be investigated. Each complaint will be dealt with in a professional and confidential manner, and the assessor will be provided with opportunity to explain the issue from their perspective.

1.33 Agreements between the Corporation and an assessor include specific and detailed requirements relevant to an assessor's code of conduct.

Adjustment for the effects of orthoses and prostheses

1.34 Impairment of vision should be measured with the worker wearing their prescribed corrective spectacles and/or contact lenses, if this was usual for the worker before the compensable disability. If, as a result of the compensable disability the worker has been prescribed corrective spectacles and/or contact lenses for the first time, or different spectacles and/or contact lenses than those prescribed previously, the difference should be accounted for in the assessment of permanent impairment.

Adjustment for the effects of treatment

1.35 Where the effective long-term treatment of a disability results in apparent substantial or total elimination of the worker's permanent impairment, but the worker is likely to revert to the original level of impairment if treatment is withdrawn, the assessor may increase the percentage of whole person impairment by 1, 2 or 3% WPI. This paragraph does not apply to the use of analgesics, anti-inflammatory medication for pain relief or other such symptom-relieving therapies such as physiotherapy treatment, massage etc as opposed to impairment-altering therapies such as the effects of insulin in reducing impairment that would otherwise be present in diabetes.

1.36 As previously indicated, where a worker has declined treatment which the assessor believes would be beneficial, the impairment rating should be neither increased or decreased.

Reports

1.37 A permanent impairment evaluation report should be accurate, comprehensive and fair. It should clearly address the question(s) being asked of the assessor. In general, the assessor will be requested to address issues such as:

- current clinical status, including the basis for determining maximum medical improvement
- the degree of permanent impairment that results from the disability
- the proportion of permanent impairment due to any previous injury or compensable disability, pre-existing condition or abnormality, if any.

1.38 The report should contain factual information based on the assessor's own history taking and clinical examination. If other reports or investigations are relied upon in arriving at an opinion, these should be appropriately referenced in the assessor's report.

1.39 The WorkCover Guidelines, as modified from time to time, are to be used in assessing permanent impairment under the Act. The report of the evaluation should provide a rationale consistent with the methodology and content of these WorkCover Guidelines. It should include a comparison of the key findings of the evaluation with the impairment criteria in these guidelines. If the evaluation was conducted in the absence of any pertinent data or information, the assessor should indicate how the impairment rating was determined with the limited data.

1.40 The assessed level of impairment is to be expressed as a percentage of whole person impairment (%WPI). Regional body impairments, where used (for example, percentage of upper extremity impairment) are to be indicated in the report and then converted to %WPI.

1.41 The report should include the assessor's conclusion and include the final %WPI. This is to be included in the final paragraph in the body of the report, and not as a separate report.

1.42 Reports are to be provided within 10 working days of the assessment being completed, or as agreed between the referrer and the assessor.

Ordering of additional investigations

1.43 As a general principle, the assessor should not order additional radiographic or other investigations purely for the purpose of conducting an assessment of permanent impairment.

1.44 If, however, the investigations previously undertaken are not as required by the WorkCover Guidelines or are inadequate for a proper assessment to be made, the assessor should consider the value of proceeding with the evaluation of permanent impairment without adequate investigations. The approval of the referring body for the additional investigation will be required to ensure the costs of the test are met promptly.

1.45 In circumstances where the assessor considers that further investigation is essential for a comprehensive evaluation to be undertaken and deferral of the evaluation would considerably inconvenience the worker (eg, when the worker has travelled from a country region specifically for the assessment), the assessor may proceed to order the appropriate investigations, provided there is no undue risk to the worker. The approval of the referring body for the additional investigation will be required to ensure the costs of the test are met promptly.

Unrelated condition or injury

1.46 Impairments from unrelated disabilities or causes are to be disregarded in making an assessment (refer to section 43A(9)(b) of the Act)

1.47 For the purposes of paragraph 1.46 and section 43A(9)(b) of the Act, a disability to which section 43(7) of the Act relates (an aggravation, acceleration, exacerbation, deterioration or recurrence of a prior compensable disability for which a worker has been paid compensation by way of a lump sum under section 43 of the Act, or a corresponding previous enactment) does not constitute an unrelated disability or cause.

Deductions for prior payment pursuant to section 43(7)

1.48 If the current compensable disability consists of an aggravation, acceleration, exacerbation, deterioration or recurrence of the previous compensable disability and the worker has been paid compensation by way of a lump sum under section 43 of the Act, or a corresponding previous enactment for that prior compensable disability, the medical practitioner is to provide a %WPI assessment for the current and prior compensable disabilities. A worker who has received lump sum compensation under section 43 of the Act or a corresponding previous enactment for such prior compensable disability, will have a reduction made from the lump sum payable pursuant to section 43 (if the %WPI exceeds 5%) by the amount of the previous lump sum payment as required by section 43(7) of the Act.

Subsequent work-related injuries

1.49 Where a worker has suffered a prior compensable disability and suffers a subsequent compensable disability (whether or not an aggravation, acceleration, exacerbation, deterioration or recurrence of the prior compensable disability) and no payment of a lump sum has been made under section 43 of the Act, or a corresponding previous enactment in respect of such prior compensable disability, an assessment of impairment will be made for each injury and lump sums paid based on the level of impairment and relevant prescribed sum(s).

1.50 Where the prior and subsequent compensable disabilities are suffered in the same calendar year the medical practitioner is to use the Combined Values Chart, AMA5 (pp 604-606) to devise a %WPI rating that arises from multiple impairments.

1.51 Where a worker who has suffered a prior compensable disability, and has received a lump sum payment under section 43 of the Act, or a corresponding previous enactment, in respect of such prior compensable disability, and then suffers a subsequent compensable disability (not an aggravation, acceleration, exacerbation, deterioration or recurrence of the prior work-related injury), the medical practitioner is to disregard the effect of the prior compensable disability in making an assessment of impairment resulting from the subsequent compensable disability (refer to section 43A(9)(b) of the Act).

Disputes over assessed levels of permanent impairment

1.52 A dispute about the level of permanent impairment, constitutes a 'medical question' for the purpose of the Act and may be referred to Medical Panels SA for an opinion, if not settled by agreement (refer to section 98E(p) of the Act).

1.53 A medical panel must form an opinion on the medical question within 60 days after referral of the medical question (refer to section 98H(1) of the Act).

1.54 An opinion of a medical panel is final and conclusive irrespective of who referred the matter to Medical Panels SA (refer to section 98H(4) of the Act).

1.55 A certificate as to its opinion will be issued by the medical panel to which a medical question is referred (refer to section 98H(2) of the Act).

1.56 The certificate must include a statement setting out the reason(s) for the medical panel's opinion and this opinion will be the basis on which the amount of lump sum compensation to which the worker is entitled for permanent impairment is calculated.

Conditions which are not covered by the WorkCover Guidelines/AMA5 – equivalent or analogous conditions

1.57 AMA5 (p11) states: "Given the range, evolution and discovery of new medical conditions, the *Guides* cannot provide an impairment rating for all impairments... In situations where impairment ratings are not provided, the *Guides* suggest that physicians use clinical judgment, comparing measurable impairment resulting from the unlisted condition to measurable impairment resulting from similar conditions with similar impairment of function in performing activities of daily living…

The physicians judgment, based upon experience, training, skill, thoroughness in clinical evaluation, and ability to apply the *Guides* criteria as intended, will enable an appropriate and reproducible assessment to be made of clinical impairment."

This approach applies to any condition that is not covered by AMA5 or the WorkCover Guidelines.

Inconsistent presentation

1.58 AMA5 (p19) states: "Consistency tests are designed to ensure reproducibility and greater accuracy. These measurements, such as one that checks the individual's... range of motion are good but imperfect indicators of people's efforts. The physician must use the entire range of clinical skill and judgment when assessing whether or not the measurements or test results are plausible and consistent with the impairment being evaluated. If, in spite of an observation or test result, the medical evidence appears insufficient to verify that an impairment of a certain magnitude exists, the physician may modify the impairment rating accordingly and then describe and explain the reason for the modification in writing." This paragraph applies to inconsistent presentation only. The requirements stated in paragraph 1.15 apply to all assessments.

Activities of daily living

1.59 Many tables in AMA5 give class values for particular impairments, with a range of possible impairment values within each class. Commonly, tables require assessors to consider the impact of the disability on activities of daily living in determining the precise impairment value. The activities of daily living which should be considered, if relevant, are listed in Table 1-2, AMA5 (p4).

1.60 The assessment of the impact of the disability on activities of daily living should be verified wherever possible by reference to objective assessments, for example, physiotherapist or occupational therapist functional assessments.

Rounding

1.61 Occasionally the methods of the WorkCover Guidelines will result in an impairment value which is not a whole number (eg, an assessment of a peripheral nerve impairment in the upper extremity). All such values must be rounded to the nearest whole number before moving from one level of impairment to the next (eg, from finger impairment to hand impairment, or from hand impairment to upper extremity impairment) or from a regional impairment to %WPI. Figures should also be rounded before using the Combined Values Chart, AMA5 (pp604-606). This will ensure that the final %WPI will always be a whole number. The usual mathematical convention is followed where rounding occurs – values of 0.4 or less are rounded down to the nearest whole number and values of 0.5 and above are rounded up to the next whole number.

Quality assurance

1.62 The degree of permanent impairment that results from a disability must be determined using the tables, graphs and methodology given in the WorkCover Guidelines, as presented in the training in the use of those guidelines. If it is not clear to either the claims agent/self-insured employer or worker's representative that a report has been completed in accordance with the WorkCover Guidelines, clarification may be sought from the accredited permanent impairment assessor who prepared the report.

An assessor who is identified as frequently providing reports that are not in accordance with the WorkCover Guidelines may be asked to show cause as to why their name should not be removed from the list of accredited permanent impairment assessor on the Corporation's website. A process for managing such assessors is available at www.workcover.com.

2 Upper extremity

Chapter 16, AMA5 applies to the assessment of permanent impairment of the upper extremities, subject to the modifications set out below.

Introduction

2.1 The upper extremities are discussed in Chapter 16, AMA5 (pp433–521). This chapter provides guidelines on methods of assessing permanent impairment involving these structures. It is a complex chapter that requires an organised approach with careful documentation of findings.

2.2 Evaluation of anatomical impairment forms the basis for upper extremity impairment assessment. The ratings reflect the degree of impairment and its impact on the ability of the person to perform activities of daily living. There can be clinical conditions where evaluation of impairment may be difficult, for example, lateral epicondylitis of the elbow. Such conditions are evaluated by their effect on function of the upper extremity, or, if all else fails, by analogy with other impairments that have similar effects on upper limb function.

The approach to assessment of the upper extremity and hand

2.3 Assessment of the upper extremity mainly involves clinical evaluation. Cosmetic and functional evaluations are performed in some situations. The impairment must be permanent and stable. The injured person will have a defined diagnosis that can be confirmed by examination.

2.4 The assessed impairment of a part or region can never exceed the impairment due to amputation of that part or region. For an upper limb, therefore, the maximum evaluation is 60% WPI, the value for amputation through the shoulder.

2.5 Active range of motion should be measured with several repetitions to establish reliable results. Only active motion is measured, not passive motion.

2.6 To achieve an accurate and comprehensive assessment of the upper extremity, findings should be documented on a standard form. Figures 16-1a and 16-1b, AMA5 (pp436–437) are extremely useful, both to document findings and to guide the assessment process.

2.7 The hand and upper extremity are divided into regions: thumb, fingers, wrist, elbow, and shoulder. Close attention needs to be paid to the instructions in Figures 16-1a and 16-1b, AMA5 (pp436–437) regarding adding or combining impairments.

2.8 Table 16-3, AMA5 (pp439) is used to convert upper extremity impairment to WPI.

Specific interpretation of AMA5 – The hand and upper extremity

Impairment of the upper extremity due to peripheral nerve disorders

2.9 If an upper extremity impairment results solely from a peripheral nerve injury, the assessor should not also evaluate impairment(s) to abnormal motion for that upper extremity, using Section 16.4, AMA5 (pp450–479). Section 16.5 should be used for evaluation of such impairments. For peripheral nerve lesions use Table 16-15, AMA5 (p492) together with Tables 16-10 and 16-11, AMA5 (pp482 and 484) for evaluation.

2.10 When applying Tables 16-10, AMA5 (pp482) and Table 16-11, AMA5 (p484) the assessor must use clinical judgement to estimate the appropriate percentage within the range of values shown for each severity grade. The maximum value is NOT applied automatically.

Impairment due to other disorders of the upper extremity

2.11 Section 16.7, AMA5 (pp498–507), on impairment of the upper extremity due to other disorders should be used only when other criteria, as presented in sections 16.2–16.6, AMA5 (pp 441–498) have not adequately encompassed the extent of the impairments. Impairments from the disorders considered in Section 16.7 are usually estimated using other criteria. The assessor must take care to avoid duplication of impairments.

2.12 Relevant imaging studies for carpal instability in Table 16-25, AMA5 (p503) should only be considered, if available, along with the clinical signs. X-ray examination should not be performed solely for this evaluation.

2.13 Strength evaluation, as a method of upper extremity impairment assessment should only be used in rare cases and its use justified when loss of strength represents an impairing factor not adequately considered by more objective rating methods. If chosen as a method, the caveats (detailed on p508, AMA5) under the heading '16.8a principles' need to be observed ie, decreased strength cannot be rated in the presence of decreased motion, painful conditions, deformities and absence of parts (eg, thumb amputation).

Conditions affecting the shoulder region

2.14 All shoulder assessments must have the following 'inclusion criteria':

- A clear history of a shoulder injury
- Symptoms consistent with a shoulder disorder (to be distinguished from symptoms due to referred pain from the neck)
  - Most shoulder disorders with an abnormal range of movement are assessed according to Section 16.4, AMA5 – Evaluating abnormal motion.
  - Rare cases of rotator cuff injury, where the loss of shoulder motion does not reflect the severity of the tear, and there is **no associated pain**, may be assessed according to Section 16.8c, AMA5 – Strength evaluation.
  - Other specific shoulder disorders, where the loss of shoulder motion does not reflect the severity of the disorder, **associated with pain**, should be assessed by comparison with other impairments that have similar effect(s) on upper limb function.

2.15 **Ruptured long head of biceps** shall be assessed as an upper extremity impairment (UEI) of 3% UEI or 2% WPI where it exists in isolation from other rotator cuff pathology. Impairment for ruptured long head of biceps cannot be combined with any other rotator cuff impairment.

2.16 **Impingement:** Diagnosis of impingement is made on the basis of positive findings on appropriate provocative testing and is only to apply where there is no loss of range of motion. Symptoms must have been present for at least 12 months. An impairment rating of 3% UEI or 2% WPI shall apply.

Fractures involving joints

2.17 Displaced fractures involving joint surfaces are generally to be rated by range of motion. If, however, this loss of range is not sufficient to give an impairment rating and movement is accompanied by pain and there is 2mm or more of displacement, allow 2% UEI (1% WPI).

3 Lower extremity

Chapter 17, AMA5 applies to the assessment of permanent impairment of the lower extremities, subject to the modifications set out below.

Introduction

3.1 The lower extremities are discussed in Chapter 17, AMA5 (pp523–564). This section is complex and provides a number of alternative methods of assessing permanent impairment involving the lower extremity. An organised approach is essential and findings should be carefully documented on a worksheet.

The approach to assessment of the lower extremity

3.2 Assessment of the lower extremity involves physical evaluation, which can use a variety of methods. In general, the method should be used that most specifically addresses the impairment present. For example, impairment due to a peripheral nerve injury in the lower extremity should be assessed with reference to that nerve rather than by its effect on gait.

3.3 There are several different forms of evaluation that can be used, as indicated in sections 17.2b to 17.2n, AMA5 (pp528–554). Table 17-2, AMA5 (p526) indicates which evaluation methods can be combined and which cannot. It may be possible to perform several different evaluations as long as they are reproducible and meet the conditions specified below and in AMA5. The most specific method of impairment assessment should be used.

3.4 It is possible to use an algorithm to aid in the assessment of lower extremity impairment. Use of a worksheet is essential. Table 3.3 of the WorkCover Guidelines is such a worksheet and may be used in assessment of permanent impairment of the lower extremity.

3.5 In the assessment process, the evaluation giving the highest impairment rating is selected. That may be a combined impairment in some cases, in accordance with the Table 17-2, AMA5 (p526) – Guide to the appropriate combination of evaluation methods table, using the Combined Values Chart, AMA5 (pp604–606).

3.6 When the Combined Values Chart is used, the assessor must ensure that all values combined are in the same category of impairment rating (ie, %WPI, lower extremity impairment percentage, foot impairment percentage and so on). Regional impairments of the same limb (eg, several lower extremity impairments) should be combined before converting to %WPI.

3.7 Table 17-2, AMA5 (p526) needs to be referred to frequently to determine which impairments can be combined and which cannot.

Specific interpretation of AMA5 – the lower extremity

Leg length discrepancy

3.8 When true leg length discrepancy is determined clinically (Section 17.2b, AMA5, p528), the method used must be indicated (eg, tape measure from anterior superior iliac spine to the medial malleolus). Clinical assessment of leg length discrepancy is an acceptable method but if full length computerised tomography films are available they should be used in preference. Such an examination should not be ordered solely for determining leg lengths.

3.9 When applying Table 17-4, AMA5 (p528), the element of choice should be removed and impairments for leg length discrepancy should be read as the higher figure of the range quoted (ie, 0, 3, 5, 7, or 8 for whole person impairment, or 0, 8, 13, 18 or 19 for lower limb impairment).

Note that the figures for lower limb impairment in Table 17-4, AMA5 (p528) are incorrect and the correct figures are shown below.

Table 17-4 Impairment due to limb length discrepancy

Discrepancy (cm)	Whole person (lower extremity) impairment (%)
0 – 1.9	0
2 – 2.9	2 – 3 (4 – 8)
3 – 3.9	4 – 5 (9 – 13)
4 – 4.9	6 – 7 (14 – 18)
5+	8 (19)

Gait derangement

3.10 Assessment of gait derangement is only to be used as a method of last resort. Methods of impairment assessment most fitting the nature of the disorder should always be used in preference. If gait derangement (Section 17.2c, AMA5, p529) is used it cannot be combined with any other evaluation in the lower extremity section of AMA5.

3.11 Any walking aid used by the subject must be a permanent requirement and not temporary.

3.12 In the application of Table 17-5, AMA5 (p529), delete item b, as the Trendelenburg sign is not sufficiently reliable.

Muscle atrophy (unilateral)

3.13 Section 17.2d, AMA5 (p530) is not applicable if the limb other than that being assessed is abnormal (eg, if varicose veins cause swelling, or if there is another injury or condition which has contributed to the disparity in size).

3.14 In the use of Table 17-6, AMA5 (p530) the element of choice should be removed in the impairment rating and only the higher figure used. Therefore, for the thigh, the whole person impairment should be assessed as 0, 2, 4, or 5%, or lower limb impairment as 0, 6, 11 or 12% respectively. For the calf, the equivalent figures have the same numerical values.

Note that the figures for lower limb impairment in Table 17-6, AMA5 (p530) are incorrect and the correct figures are shown below.

Table 17-6 Impairment due to unilateral leg muscle atrophy

Difference in circumference (cm)	Impairment degree	Whole person (lower extremity) impairment (%)
a. Thigh: The circumference is measured 10cm above the patella with the knee fully extended and the muscles relaxed.		
0 – 0.9	None	0 0
1 – 1.9	Mild	1 – 2 (2 – 6)
2 – 2.9	Moderate	3 – 4 (7 – 11)
3+	Severe	5 (12)

Difference in circumference (cm)	Impairment degree	Whole person (lower extremity) impairment (%)
b. Calf: The maximum circumference on the normal side is compared with the circumference at the same level on the affected side.		
0 – 0.9	None	0 0
1 – 1.9	Mild	1 – 2 (2 – 6)
2 – 2.9	Moderate	3 – 4 (7 – 11)
3+	Severe	5 (12)

Manual muscle strength testing

3.15 The Medical Research Council (MRC) gradings for muscle strength are universally accepted. They are not linear in their application, but ordinal. Only the six grades (0–5) should be used, as they are reproducible among experienced assessors. The descriptions in Table 17-7, AMA5 (p531) are correct. The results of electrodiagnostic methods and tests are not to be considered in the evaluation of muscle testing which can be performed manually. Table 17-8, AMA5 (p532) is to be used for this method of evaluation.

Range of motion

3.16 Although range of motion (ROM), Section 17.2f, AMA5 (pp533–538) appears to be a suitable method for evaluating impairment, it may be subject to variation because of pain during motion at different times of examination, possible lack of cooperation by the person being assessed and inconsistency. If there is such inconsistency then ROM cannot be used as a valid parameter of impairment evaluation.

3.17 If range of motion is used as an assessment measure, then tables 17-9 to 17-14, AMA5 (p537) are selected for the joint or joints being tested. If a joint has more than one plane of motion, the impairment assessments for the different planes should be added. For example, any impairments of the six principal directions of motion of the hip joint are added (p533, AMA5).

Ankylosis

3.18 Ankylosis is to be regarded as the equivalent to arthrodesis in impairment terms only. For the assessment of impairment when a joint is ankylosed (Section 17.2g, AMA5, pp538–543) the calculation to be applied is to select the impairment if the joint is ankylosed in optimum position (see Table 3.1 below), and then if not ankylosed in the optimum position by adding (not combining) the values of %WPI using tables 17-15 to 17-30, AMA5 (pp538–543).

Table 3.1 Impairment for ankylosis in the optimum position

Joint	Whole person	Lower extremity	Ankle or foot
Hip	20%	50%	–
Knee	27%	67%	–
Ankle	15%	37%	53%
Foot	4%	10%	14%

Note that the figures in Table 3.1 suggested for ankle impairment are greater than those suggested in the AMA5.

Also note that the whole person impairment from ankylosis of a joint, or joints, in a lower limb cannot exceed 40% whole person impairment or 100% lower limb impairment. If this figure is exceeded when the combination of a lower limb impairment is made then only 40% can be accepted as the maximum whole person impairment for a lower limb.

Ankylosis of the ankle in the neutral position equates with 15 (37) [53] % impairment as per Table 3.1. Table 3.1(a) is provided below as guidance to evaluate additional impairment owing to variation from the neutral position. The additional amounts at the top of each column are added to the figure for impairment in the neutral position. In keeping with AMA5 (p541), the maximum impairment for ankylosis of the ankle remains at 25 (62) [88] % impairment.

Table 3.1(a) Impairment for ankylosis in variation from the optimum position

	Whole person (%)	(lower extremity)	[foot]	impairment
Position	**2 (5) [7]**	**4 (10) [14]**	**7 (17) [24]**	**10 (25) [35]**
Dorsiflexion	5 - 9°	10 - 19°	20 - 29°	30° +
Plantar flexion		10 - 19°	20 - 29°	30° +
Varus	5 - 9°	10 - 19°	20 - 29°	30° +
Valgus		10 - 19°	20 - 29°	30° +
Internal rotation	0 - 9°	10 - 19°	20 - 29°	30° +
External rotation	15 - 19°	20 - 29°	30 - 39°	40° +

Arthritis

3.19 Impairment due to arthritis (Section 17.2n, AMA5, pp544–545) following a work-related injury is uncommon, but may occur in isolated cases. The presence of arthritis may indicate a pre-existing condition and this should be assessed in accordance with Chapter 1 of the WorkCover Guidelines.

3.20 The presence of osteoarthritis is defined as cartilage loss. Cartilage loss can be assessed by plain radiography, computed tomography (CT), magnetic resonance imaging (MRI) or by direct vision (arthroscopy).

3.21 Detecting the subtle changes of cartilage loss on plain radiography requires comparison with the normal side. All joints should be imaged directly through the joint space, with no overlapping of bones. If comparison views are not available, Table 17-31, AMA5 (p544) is used as a guide to assess joint space narrowing.

3.22 One should be cautious in making a diagnosis of cartilage loss on plain radiography if secondary features of osteoarthritis, such as osteophytes, subarticular cysts or subchondral sclerosis are lacking, unless the other side is available for comparison. The presence of an intra-articular fracture with a step in the articular margin in the weight-bearing area implies cartilage loss.

3.23 The accurate radiographic assessment of joints always requires at least two views. In some cases, further supplementary views will optimise the detection of joint space narrowing or the secondary signs of osteoarthritis.

Sacro-iliac joints: Being a complex joint, modest alterations are not detected on radiographs, and cross-sectional imaging may be required. Radiographic manifestations accompany pathological alterations. The joint space measures between 2mm and 5mm. Osteophyte formation is a prominent characteristic of osteoarthritis of the sacro-iliac joint.

Hip: An anteroposterior view of the pelvis and a lateral view of the affected hip are ideal. If the affected hip joint space is narrower than the asymptomatic side, cartilage loss is regarded as being present. If the anteroposterior view of pelvis has been obtained with the patient supine, it is important to compare the medial joint space of each hip as well as superior joint space, as this may be the only site of apparent change. If both sides are symmetrical, then other features, such as osteophytes, subarticular cyst formation, and calcar thickening should be taken into account to make a diagnosis of osteoarthritis.

Knee:

- **Tibio-femoral joint:** The best view for assessment of cartilage loss in the knee is usually the erect intercondylar projection, as this profiles and stresses the major weight-bearing area of the joint which lies posterior to the centre of the long axis. The ideal x-ray is a posteroanterior view with the patient standing, knees slightly flexed, and the x-ray beam angled parallel to the tibial plateau. Both knees can readily be assessed with the one exposure. In the knee it should be recognised that joint space narrowing does not necessarily equate with articular cartilage loss, as deficiency or displacement of the menisci can also have this effect. Secondary features, such as subchondral bone change and the past surgical history, must also be taken into account.
- **Patello-femoral joint:** Should be assessed in the 'skyline' view, again preferably with the other side for comparison. The x-ray should be taken with 30 degrees of knee flexion to ensure that the patella is load-bearing and has engaged the articular surface femoral groove.

Footnote to Table 17-31, AMA5 (p544) regarding patello-femoral pain and crepitation:

This item is only to be used if there is a history of direct injury to the front of the knee. This item cannot be used as an additional impairment when assessing arthritis of the knee joint itself, of which it forms a component. If patello-femoral crepitus occurs in isolation (ie, no other signs of arthritis) following direct trauma, then it can be combined with other diagnosis based estimates (Table 17-33). Signs of crepitus need to be present at least one year post injury.

Ankle: The ankle should be assessed in the mortice view (preferably weight-bearing), with comparison views of the other side, although this is not as necessary as with the hip and knee.

Subtalar: This joint is better assessed by CT (in the coronal plane) than by plain radiography. The complex nature of the joint does not lend itself to accurate and easy plain x-ray assessment of osteoarthritis.

Talonavicular and calcaneocuboid: Anteroposterior and lateral views are necessary. Osteophytes may assist in making the diagnosis.

Intercuneiform and other intertarsal joints: Joint space narrowing may be difficult to assess on plain radiography. CT (in the axial plane) may be required. Associated osteophytes and subarticular cysts are useful adjuncts to making the diagnosis of osteoarthritis in these small joints.

Great toe metatarsophalangeal: Anteroposterior and lateral views are required. Comparison with the other side may be necessary. Secondary signs may be useful.

Interphalangeal: It is difficult to assess small joints without taking secondary signs into account. The plantar–dorsal view may be required to get through the joints, in a foot with flexed toes.

3.24 If arthritis is used as the basis for assessing impairment assessment, the rating cannot be combined with gait disturbance, muscle atrophy, muscle strength or range of movement assessments. It can be combined with a diagnosis-based estimate. (Table 17-2, AMA5, p526.)

Amputation

3.25 Where there has been amputation of part of a lower extremity, Table 17-32, AMA5 (p545) applies. In that table, the references to 3 inches for below-the-knee amputation should be converted to 7.5cm.

Diagnosis-based estimates (lower extremity)

3.26 Section 17.2j, AMA5 (pp545–549) lists a number of conditions that fit a category of diagnosis-based estimates. They are listed in tables 17-33, 17-34 and 17-35, AMA5 (pp546–549). When using this table it is essential to read the footnotes carefully. The category of mild cruciate and collateral ligament laxity has inadvertently been omitted in Table 17-33, AMA5. The appropriate rating is 5 (12) % WPI (lower extremity).

3.27 It is possible to combine impairments from tables 17-33, 17-34 and 17-35 for diagnosis-related estimates with other components (eg, nerve injury) using the Combined Values Chart, AMA5 (pp604–606) after first referring to Table 17-2, AMA5 (p526) – Guide to the appropriate combination of evaluation methods table.

3.28 In the interpretation of Table 17-33, AMA5 (p547), reference to the hindfoot, intra-articular fractures, the words subtalar bone, talonavicular bone, and calcaneocuboid bone imply that the bone is displaced on one or both sides of the joint mentioned. To avoid the risk of double assessment, if avascular necrosis with collapse is used as the basis of impairment assessment, it cannot be combined with the relevant intra-articular fracture in Table 17-33, column 2. In Table 17-33, column 2, metatarsal fracture with loss of weight transfer means dorsal displacement of the metatarsal head.

The table given below for the impairment of loss of the tibia-os calcis angle is to replace Table 17-29, AMA5 (p542) and the section in Table 17-33 dealing with loss of tibia-os calcis angle. These two sections are contradictory, and neither gives a full range of loss of angle.

Table 3.2 Impairment for loss of the tibia-os calcis angle

Angle (degree)	Whole person (lower extremity) [foot] impairment (%)
110 – 100	5 (12) [17]
99 – 90	8 (20) [28]
Less then 90	+1 (2) [3] per ° up to 15 (37) [54]

3.29 Table 17-34 and Table 17-35, AMA5 (pp548–549) use a different concept of evaluation. A point score system is applied, and then the total of points calculated for the hip (or knee) joint is converted to an impairment rating from Table 17-33. Tables 17-34 and 17-35 refer to the hip and knee joint replacement respectively. Note that, while all the points are added in Table 17-34, some points are deducted when Table 17-35 is used.

3.30 In respect of 'distance walked' under 'b. Function' in Table 17-34, AMA5 (p548), the distance of six blocks should be construed as 600m, and three blocks as 300m.

Note that Table 17-35, AMA5 (p549) is incorrect. The correct table is shown below.

Table 17-35 Rating knee replacement results

	Number of points
a. Pain	
None	50
Mild or occasional	45
Stairs only	40
Walking and stairs	30
Moderate	
Occasional	20
Continual	10
Severe	0
b. Range of motion	
Add 1 point per 5° up to 125°	25 (maximum)
c. Stability	
(maximum movement in any position)	
Anterioposterior	
< 5 mm	10
5-9 mm	5
> 9 mm	0
Mediolateral	
5°	15
6-9°	10
10-14°	5
> 14°	0
Subtotal	
Deductions (minus) d, e, f	
d. Flexion contracture	
5-9°	2
10-15°	5
16-20°	10
> 20°	20
e. Extension lag	
< 10°	5
10-20°	10
> 20°	15
f. Alignment – valgus	
5-10°	0
0-4°	3 points per degree
11-15°	3 points per degree
> 15 °	20
Deductions subtotal	

Skin loss (lower extremity)

3.31 Skin loss (AMA5, p550) can only be included in the calculation of impairment if it is in certain sites and meets the criteria listed in Table 17-36, AMA5 (p550).

Peripheral nerve injuries (lower extremity)

3.32 When assessing the impairment due to peripheral nerve injury (AMA5, pp550–552) assessors should read the text in this section. Note the separate impairments for the motor, sensory and dysaesthetic components of nerve dysfunction in Table 17-37, AMA5 (p552) are to be combined.

3.33 Note the (posterior) tibial nerve is not included in Table 17-37, but its contribution can be calculated by subtracting ratings of common peroneal nerves from sciatic nerve ratings.

3.34 Peripheral nerve injury impairments can be combined with other impairments, but not those for gait derangement, muscle atrophy, muscle strength or complex regional pain syndrome, as shown in Table 17-2, AMA5 (p526).

Complex regional pain syndrome (lower extremity)

3.35 Section 17.2m, AMA5 (p553) – Causalgia and complex regional pain syndrome (reflex sympathetic dystrophy) should not be used. Complex regional pain syndrome involving the lower extremity should be evaluated in the same way as the upper limb using the method described in Section 16.5e, AMA5 (pp495–497). This section provides a detailed method that is in keeping with current terminology and understanding of the condition. Use of the same methods of impairment assessment for complex regional pain syndrome involving either the upper or lower extremity also will improve the consistency of these WorkCover Guidelines.

Peripheral vascular disease (lower extremity)

3.36 Lower extremity impairment due to vascular disorders (AMA5, pp553–554) is evaluated using Table 17-38, AMA5 (p554). Note that Table 17-38 gives values for lower extremity not whole person impairment. In that table there is a range of lower extremity impairments within each of the classes 1 to 5. As there is a clinical description of which conditions place a person's lower extremity in a particular class, the assessor has a choice of impairment rating within a class, the value of which is left to the clinical judgement of the assessor.

Measurement of selected joint motion

3.37 Valgus and varus knee angulation are to be measured in a weight-bearing position using a goniometer.

When measuring dorsiflexion at the ankle, the test is carried out initially with the knee in extension and then repeated with the knee flexed to 45°. The average of the maximum angles represents the dorsiflexion range of motion (Figure 17-5, AMA5, p535).

Table 3.3: Lower extremity worksheet

Item	Impairment	AMA5 table	AMA5 page	Potential impairment	Selected impairment
1	Limb length discrepancy	17–4	528		
2	Gait derangement	17–5	529		
3	Unilateral muscle atrophy	17–6	530		
4	Muscle weakness	17–8	532		
5	Range of motion	17–9 to 17–14	537		
6	Joint ankylosis	17–15 to 17–30	538–543		
7	Arthritis	17–31	544		
8	Amputation	17–32	545		
9	Diagnosis-based estimates	17–33 to 17–35	546–549		
10	Skin loss	17–36	550		
11	Peripheral nerve deficit	17–37	552		
12	Complex regional pain syndrome	Section 16.5e	495–497		
13	Vascular disorders	17–38	554		
	Combined impairment rating (refer to Table 17-2, AMA5, p526 for permissible combinations)				

Potential impairment is the impairment percentage for that method of assessment. Selected impairment is the impairment, or impairments selected that can be legitimately combined with other lower extremity impairments to give a final lower extremity impairment rating.

4 The spine

Chapter 15, AMA5 applies to the assessment of permanent impairment of the spine, subject to the modifications set out below.

Introduction

4.1 The spine is discussed in Chapter 15, AMA5 (pp373–431). That chapter presents two methods of assessment, the diagnosis-related estimates method and the range of motion method. Evaluation of impairment of the spine under WorkCover is only to be done using diagnosis-related estimates (DREs).

4.2 The method relies especially on evidence of neurological deficits and less common adverse structural changes such as fractures and dislocations. Using this method, DREs are differentiated according to clinical findings that can be verified by standard medical procedures.

4.3 The assessment of spinal impairment is made when the person's condition has stabilised and has reached maximal medical improvement (MMI), as defined in AMA5. If surgery has been performed, the outcome of the surgery as well as structural inclusions must be taken into consideration when making the assessment.

Assessment of the spine

4.4 The assessment should include a comprehensive, accurate history; a review of all pertinent records available at the assessment; a comprehensive description of the individual's current symptoms and their relationship to daily activities; a careful and thorough physical examination, and all findings of relevant laboratory, imaging, diagnostic and ancillary tests available at the assessment. Imaging findings that are used to support the impairment rating should be concordant with symptoms and findings on examination. The assessor should record whether diagnostic tests and radiographs were seen or whether they relied solely on reports.

4.5 The DRE model for assessment of spinal impairment should be used. The Range of Motion model (sections 15.8–15.13 inclusive, AMA5, pp398–427) should not be used.

4.6 If a person has spinal cord or cauda equina damage, including bowel, bladder and/or sexual dysfunction, he or she is assessed according to the method described in Section 15.7 and Table 15.6 (a) to (g), AMA5 (pp395–398).

4.7 If an assessor is unable to distinguish between two DRE categories, then the higher of those two categories should apply. The reasons for the inability to differentiate should be noted in the assessor's report.

4.8 Possible influence of future treatment should not form part of the impairment assessment. The assessment should be made on the basis of the person's status at the time of interview and examination, if the assessor is convinced that the condition is stable and permanent. Likewise, the possibility of subsequent deterioration, as a consequence of the underlying condition, should not be factored into the impairment evaluation. Commentary can be made regarding the possible influence, potential or requirements for further treatment, but this does not affect the assessment of the individual at the time of impairment evaluation.

4.9 All spinal impairments are to be expressed as a percentage of whole person impairment (%WPI).

4.10 Section 15.1a, AMA5 (pp374–377) is a valuable summary of history and physical examination, and should be thoroughly familiar to all assessors.

4.11 The assessor should include in the report a description of how the impairment rating was calculated, with reference to the relevant tables and/or figures used.

4.12 The optimal method to measure the percentage compression of a vertebral body is a well-centred plain x-ray. Assessors should state the method they have used. The loss of vertebral height should be measured at the most compressed part and must be documented in the impairment evaluation report. The estimated normal height of the compressed vertebra should be determined where possible by averaging the heights of the two adjacent (unaffected and normal) vertebra.

Specific interpretation of AMA5

4.13 The range-of-motion (ROM) method is not used, hence any reference to this is omitted (including Table 15-7, AMA5, p404).

4.14 Motion segment integrity alteration can be either increased translational or angular motion, or decreased motion resulting from developmental changes, fusion, fracture healing, healed infection or surgical arthrodesis. Motion of the individual spine segments cannot be determined by a physical examination, but is evaluated with flexion and extension radiography.

4.15 The assessment of altered motion segment integrity is to be based upon a report of trauma resulting in an injury, and not on developmental or degenerative changes.

4.16 When routine imaging is normal and severe trauma is absent, motion segment disturbance is rare. Thus, flexion and extension imaging is indicated only when a history of trauma or other imaging leads the physician to suspect alteration of motion segment integrity.

DRE definitions of clinical findings

4.17 DRE II is a clinical diagnosis based upon the features of the history of the injury and clinical features. Clinical features which are consistent with DRE II and which are present at the time of assessment include muscle guarding or spasm, asymmetric loss of range of movement or radicular symptoms not objectively present. Localised (not generalised) tenderness may be present. In the lumbar spine additional features include a reversal of the lumbosacral rhythm when straightening from the flexed position and compensatory

movement for an immobile spine such as all flexion from the hips. In assigning category DRE II, the assessor must provide detailed reasons why the category was chosen.

While imaging and other studies may assist assessors in making a diagnosis, the presence of a morphological variation from 'normal' in an imaging study does not make the diagnosis. Approximately 30% of people who have never had back pain will have an imaging study that can be interpreted as 'positive' for a herniated disc, and 50% or more will have bulging discs. The prevalence of degenerative changes, bulges and herniations increases with advancing age. To be of diagnostic value, imaging findings must be concordant with clinical symptoms and signs. In other words, an imaging test is useful to confirm a diagnosis, but an imaging result alone is insufficient to qualify for a DRE category.

4.18 The clinical findings used to place an individual in a DRE category are described in Box 15-1, AMA5 (pp382–383).

The reference to 'electrodiagnostic verification of radiculopathy' should be disregarded.

(The use of electrodiagnostic procedures such as electromyography is proscribed as an assessment aid for decisions about the category of impairment into which a person should be placed. It is considered that competent assessors can make decisions about which DRE category a person should be placed in from the clinical features alone. The use of electrodiagnostic differentiators is generally unnecessary).

4.19 Cauda equina syndrome and neurogenic bladder disorder are to be assessed by the method prescribed in the chapter on spines, Section 15.7, AMA5 (pp395–398). For an assessment of neurological impairment of bowel or bladder, there must be objective evidence of spinal cord, or cauda equina injury.

Applying the DRE method

4.20 Section 15.2a, AMA5 (pp 380–381) on specific procedures and directions, indicates the steps that should be followed to evaluate impairment of the spine (excluding references to the ROM method). Table 4.1 is a simplified version of that section, incorporating the amendments listed above.

Table 4.1 Procedures in evaluating impairment of the spine

History

Physical examination

↓

Diagnosis

↓

Use clinical findings to place an individual's condition in a DRE category according to Box 15.1, AMA5 (pp382-383)

↓

Choose the category that determines the percentage impairment:

Lumbar region	Table 15-3, AMA5 (p384)
Thoracic region	Table 15-4, AMA5 (p389)
Cervical region	Table 15-5, AMA5 (p392)

4.21 Common developmental findings, spondylolysis, spondylolisthesis and disc protrusions without radiculopathy occur in 7%, 3%, and up to 30% respectively in individuals up to the age of 40 (AMA5, p383). Their presence does not in itself mean that the individual has an impairment due to injury.

4.22 **Loss of sexual function** should only be assessed where there is other objective evidence of spinal cord, cauda equina or bilateral nerve root dysfunction. The ratings are described in Table 15-6, AMA5 (pp396–397). There is no additional impairment rating system for loss of sexual function in the absence of objective neurological findings. Loss of sexual function is not assessed as an activity of daily living.

4.23 **Radiculopathy** is the impairment caused by malfunction of a spinal nerve root or nerve roots. In general, in order to conclude that radiculopathy is present, two or more of the following criteria should be found, one of which must be major (major criteria in bold):

- **Loss or asymmetry of reflexes**
- **Muscle weakness that is anatomically localised to an appropriate spinal nerve root distribution**
- **Reproducible impairment of sensation that is anatomically localised to an appropriate spinal nerve root distribution**
- Positive nerve root tension (Box 15-1, AMA5, p382)
- Muscle wasting – atrophy (Box 15-1, AMA5, p382)
- Findings on an imaging study consistent with the clinical signs (AMA5, p382)

4.24 Note that radicular complaints of pain or sensory features that follow anatomical pathways but cannot be verified by neurological findings (somatic pain, non-verifiable radicular pain) do not alone constitute radiculopathy.

4.25 Global weakness of a limb related to pain or inhibition or other factors does not constitute weakness due to spinal nerve malfunction.

4.26 Vertebral body fractures and/or dislocations at more than one vertebral level are to be assessed as follows:

- Measure the percentage loss of vertebral height at the most compressed part for each vertebra
- Add the percentage loss at each level:
    - Total loss of more than 50% = DRE IV
    - Total loss of 25% to 50% = DRE III
    - Total loss of less than 25% = DRE II
- If radiculopathy is present then the person is assigned one DRE category higher

One or more end plate fractures in a single spinal region without measurable compression of the vertebral body are assessed as DRE category II.

Posterior element fractures (excludes fractures of transverse processes and spinous processes) at multiple levels are assessed as DRE III.

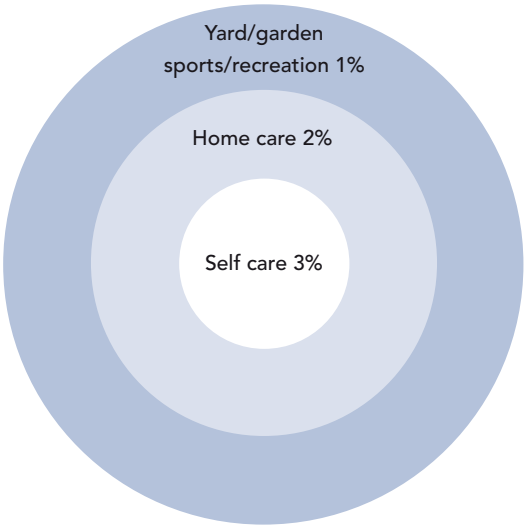
4.27 Displaced fractures of transverse or spinous processes at one or more levels are assessed as DRE Category II because the fracture does not disrupt the spinal canal (AMA5, p385) and do not cause multilevel structural compromise.

4.28 Within a spinal region separate spinal impairments are not combined. The highest value impairment within the region is chosen. Impairments in different spinal regions are combined using the combination tables.

If both C7 and T1 are fractured, only one region of the spine (the cervical) is assessed for whole person impairment. If both T12 and L1 are fractured, then only one region of the spine (the thoracic) is assessed.

4.29 Impact of ADL. Tables 15-3, 15-4 and 15-5, AMA5 give an impairment range for DRE's II-V. The bottom of the range is chosen initially, and a percentage of from 0-3% may be added for the impact of the injury on the worker's ADL. Hence, for example, for an injury which is rated DRE Category II, the impairment is 5%, to which may be added an amount of up to 3% for the effect of the injury on the worker's ADL. The determination of the impact on ADL is not solely dependent on self reporting, but is an assessment based on all clinical findings and other reports.

4.30 The following diagram should be used **as a guide** to determine whether 0, 1, 2, or 3% WPI should be added to the bottom of the appropriate impairment range. This is only to be added if there is a difference in activity level as recorded and compared to the worker's status prior to the injury.



4.31 The diagram is to be interpreted as follows:

Increase base impairment by:

- 3% WPI if worker's capacity to undertake personal care activities such as dressing, washing, toileting and shaving has been affected
- 2% WPI if the worker can manage personal care, but is restricted with usual household tasks such as cooking, vacuuming, making beds or tasks of equal magnitude such as shopping, climbing stairs or walking reasonable distances
- 1% WPI for those able to cope with the above, but unable to get back to previous sporting or recreational activities such as gardening, running and active hobbies etc.

4.32 The maximum amount that the base impairment due to spinal injury can be increased due to impact on ADL is 3% WPI. An additional amount for ADL can only be assessed for one spinal region, irrespective of the number of spinal regions injured.

4.33 **Effect of surgery:** Tables 15-3, 15-4 and 15-5, AMA5 (pp384, 389 and 392), do not adequately account for the effect of surgery upon the impairment rating for certain disorders of the spine.

- Surgical decompression for spinal stenosis is DRE III.
- Operations where the radiculopathy has resolved are considered under the DRE category III (tables 15-3, 15-4, 15-5, AMA5).
- Operations with surgical ankylosis (fusion) are considered under DRE category IV (tables 15-3, 15-4, 15-5, AMA5).
- Radiculopathy persisting after surgery is not accounted for by Table 15-3, AMA5 and incompletely by tables 15-4 and 15-5, which only refer to radiculopathy which has improved after surgery.

Therefore Table 4.2 was developed to rectify this anomaly. Table 4.2 indicates the additional ratings which should be combined with the rating determined using the DRE method where an operation for an intervertebral disc prolapse or spinal canal stenosis has been performed and where there is a residual radiculopathy following surgery.

Example 15-4, AMA5 (p386) should therefore be ignored.

Table 4.2: Modifiers for DRE categories where radiculopathy persists after surgery

Procedures	Cervical	Thoracic	Lumbar
Discectomy, or single-level decompression with residual signs and symptoms	3%	2%	3%
Second and further levels, operated on, with medically documented pain and rigidity	1% each additional level	1% each additional level	1% each additional level
Second operation	2%	2%	2%
Third and subsequent operations	1% each	1% each	1% each

In summary, to calculate whole person impairment (WPI) for persisting radiculopathy (as per definition) following surgery:

- select the appropriate DRE category from Table 15-3, 15-4, or 15-5
- determine a WPI value within the allowed range in Table 15-3, 15-4 or 15-5 according to the impact on the worker's activities of daily living
- combine this value with the appropriate additional amount from Table 4.2 to determine the final WPI.

4.34 **Disc replacement surgery.** The impairment resulting from this procedure is to be equated to that from a spinal fusion.

4.35 Impairment due to **pelvic fractures** should be evaluated with reference to the following table which replaces Table 15-19, AMA 5.

Table 4.3: Pelvic fractures

Disorder	%WPI
1. Non-displaced, healed fractures	0
2. Fractures of the pelvic bones (including sacrum)	
• maximum residual displacement <1cm	2
• maximum residual displacement 1 to 2 cm	5
• maximum residual displacement >2cm	8
• bilateral pubic rami fractures, as determined by the most displaced fragment	
- maximum residual displacement ≤2cm	5
- maximum residual displacement >2cm	8
3. Traumatic separation of the pubic symphysis	
• <1cm	5
• 1 to 2 cm	8
• >2cm	12
4. Sacro-Iliac joint dislocations or fracture dislocations	
• maximum residual displacement ≤1cm	8
• maximum residual displacement>1cm	12
5. Fractures of the coccyx	
• healed, (and truly) displaced fracture	1
• excision of the coccyx	5
Fractures of the acetabulum: Evaluate based on restricted range of hip motion	

The rating of WPI is evaluated based on radiological appearance at maximum medical improvement, whether or not surgery has been performed. Multiple disorders of the pelvis are not combined. The maximum WPI for pelvic fractures is 12%.

Very severe injuries which have been treated by open reduction and internal fixation, but are associated with residual symptoms, should be given an assessment commensurate with the severity of their original injuries, at the discretion of the assessor with reasons provided.

4.36 **Arthritis:** See sections 3.19–3.22 of Chapter 3 of the WorkCover Guidelines.

4.37 **Posterior spacing or stabilisation devices:** The insertion of such devices does not warrant any addition to WPI.

5 Nervous system

Chapter 13, AMA5 applies to the assessment of permanent impairment of the nervous system, subject to the modifications set out below.

Introduction

5.1 Chapter 13, AMA5 (pp305–356) on the central and peripheral nervous system, provides guidelines on methods of assessing permanent impairment involving the central nervous system. It is logically structured and consistent with the usual sequence of examination of the nervous system. Cerebral functions are discussed first, followed by the cranial nerves, station, gait and movement disorders, the upper extremities related to central impairment, the brain stem, the spinal cord and the peripheral nervous system, including neuromuscular junction and muscular system. A summary concludes the chapter.

5.2 If a person has spinal cord or cauda equina damage, including bowel, bladder and/or sexual dysfunction, he or she is assessed according to the method described in Section 15.7 and Table 15.6 (a) to (g), AMA5 (p395–398).

5.3 The relevant parts of the upper extremity, lower extremity and spine sections of Chapter 13, AMA5 should be used to evaluate impairments of the peripheral nervous system.

The approach to assessment of permanent neurological impairment

5.4 Chapter 13, AMA5 disallows combination of cerebral impairments. However, for the purpose of the WorkCover Guidelines, cerebral impairments should be evaluated and combined as follows:

- consciousness and awareness
- mental status, cognition and highest integrative function
- aphasia and communication disorders
- emotional and behavioural impairments.

The assessor should take care to be as specific as possible and not to double-rate the same impairment, particularly in the mental status and behavioural categories.

These impairments are to be combined using the Combined Values Chart, AMA5 (pp604–606). These impairments should then be combined with other neurological impairments indicated Table 13-1, AMA5 (p308).

5.5 It should be noted that sections 13.5 and 13.6, AMA5 (pp336–340) should be used for cortical motor or sensory impairments and therefore this section covers hemiplegia due to cortical injury. However, if a person has a spinal injury with spinal cord or cauda equine damage, including bowel, bladder and/or sexual dysfunction, he or she is assessed according to the method described in Section 15.7 and Table 15.6 (a) to (g), AMA5 (pp395–398), (see Section 4.19 of the WorkCover Guidelines).

5.6 Complex regional pain syndrome is to be assessed using the method indicated in Chapter 16, AMA5 (pp495–497) on the upper extremities.

5.7 Chapter 13, AMA5 on the nervous system lists many impairments where the range for the associated whole person impairment is 0–9% or 0–14%. Where there is a range of impairment percentages listed, the assessor should nominate an impairment percentage based on the complete clinical circumstances revealed during the consultation and in relation to all other available information.

Specific interpretation of AMA5

5.8 In assessing **disturbances of mental status and integrative functioning** (Section 13.3d, AMA5 pp319–322), and **emotional or behavioural disturbances** (Section 13.3f, AMA5, pp325–327), the assessor should make ratings of mental status impairments and emotional and behavioural impairments based on clinical assessment and the results of neuropsychometric testing. Clinical assessment should indicate at least one of the following:

- significant medically verified abnormalities in initial post injury Glasgow Coma Scale score
- significant duration of post traumatic amnesia
- significant intracranial pathology on CT scan or MRI.

Neuropsychological testing should be conducted by a registered psychologist who specialises in clinical neuropsychology.

5.9 Assessment of **arousal and sleep disorders** (Section 13.3c, AMA5, pp317–319) refers to assessment of primary sleep disorders following neurological injury. The assessor should make ratings of arousal and sleep disorders based on the clinical assessment that would normally have been done for clinically significant disorders of this type (ie, sleep studies or similar tests).

5.10 **Olfaction and taste**: the assessor should use Chapter 11, Section 11.4c, AMA5 (p262) and Table 11-10 (pp272–275) to assess olfaction and taste, for which a maximum of 5% WPI is allowable for total loss of either sense.

5.11 **Visual impairment** assessment using Chapter 8, AMA5 (pp209–222): An ophthalmologist should assess all impairments of visual acuity, visual fields, extra-ocular movements or diplopia.

5.12 **Trigeminal nerve** assessment using AMA5 (p331): Sensory impairments of the trigeminal nerve should be assessed with reference to Table 13-11, AMA5 (p331). The words 'sensory loss or dysaesthesia' should be added to the table after the words 'neuralgic pain' in each instance. Impairment percentages for the three divisions of the trigeminal nerve should be apportioned with extra weighting for the first division. If present, motor loss for the trigeminal nerve should be assessed in terms of its impact on mastication and deglutition (AMA5, p262).

5.13 **Spinal accessory nerve**: AMA5 provides insufficient reference to the spinal accessory nerve (cranial nerve XI). This nerve supplies the trapezius and sternomastoid muscles. For loss of use of the nerve to trapezius, the assessor should refer to Chapter 16, AMA5 on upper limb assessment, and a maximum of 10% impairment of the upper limb may be assigned. For additional loss of use of sternomastoid, a maximum of 3% upper limb impairment may be added.

5.14 **Assessment of sexual functioning** (Chapter 7, AMA5, pp143–171): Impotence should only be assessed as an impairment where there is objective evidence of spinal cord, cauda equina, or bilateral nerve root dysfunction, or lumbo-sacral plexopathy. There is no additional impairment rating for impotence in the absence of objective clinical findings.

5.15 Impairment due to miscellaneous peripheral nerves should be evaluated with reference to the following table (AMA5, p344).

Table 5.1 Criteria for rating miscellaneous peripheral nerves

	Whole person impairment rating			
Peripheral nerve	0%	1%	2% – 3%	4% – 5%
Greater occipital nerve	No neuralgia	Sensory loss only in an anatomic distribution	Mild to moderate neurogenic pain in an anatomic distribution	Severe neurogenic pain in an anatomic distribution
Lesser occipital nerve				
Greater auricular nerve				
Intercostal nerve				
Genitofemoral				
Ilioinguinal				
Iliohypogastric				
Pudendal				

6 Ear, nose, throat and related structures

Chapter 11, AMA5 applies to the assessment of permanent impairment of the ear (with the exception of hearing impairment), nose, throat and related structures, subject to the modifications set out below.

Introduction

6.1 Chapter 11, AMA5 (pp245–275) details the assessment of the ear, nose, throat and related structures. **With the exception of hearing impairment, which is dealt with in Chapter 9 of the WorkCover Guidelines**, Chapter 11, AMA5 should be followed in assessing permanent impairment, with the variations included below.

6.2 The level of impairment arising from conditions that are not work related needs to be assessed by the assessor and taken into consideration in determining the level of permanent impairment. The level at which pre-existing conditions and lifestyle activities such as smoking contribute to the level of permanent impairment requires judgement on the part of the clinician undertaking the impairment assessment. The manner in which any deduction for these is applied needs to be recorded in the assessor's report.

The ear

6.3 Equilibrium is assessed according to Section 11.2b, AMA5 (pp252–255), but add these words to Table 11-4, AMA5 (p253), Class 2:

"...without limiting the generality of the above, a positive Hallpikes test is a sign and an objective finding."

The face

6.4 AMA5 (pp255–259) relates to the face. Table 11-5, AMA5 (p256) should be replaced with Table 6.1, below, when assessing permanent impairment due to facial disorders and/or disfigurement.

Table 6.1: Criteria for rating permanent impairment due to facial disorders and/or disfigurement

Class 1 0%–5% impairment of the whole person	Class 2 6%–10% impairment of the whole person	Class 3 11%–15% impairment of the whole person	Class 4 16%–50% impairment of the whole person
Facial abnormality limited to disorder of cutaneous structures, such as visible simple scars (not hypertrophic or atrophic) or abnormal pigmentation (refer to Chapter 8, AMA5 for skin disorders)	Facial abnormality involves loss of supporting structure of part of face, with or without cutaneous disorder (eg, depressed cheek, nasal, or frontal bones)	Facial abnormality involves absence of normal anatomic part or area of face, such as loss of eye or loss of part of nose, with resulting cosmetic deformity, combine with any functional loss, eg, vision (Chapter 12, AMA5)	Massive or total distortion of normal facial anatomy with disfigurement so severe that it precludes social acceptance,
or mild, unilateral, facial paralysis affecting most branches or nasal distortion that affects physical appearance or partial loss or deformity of the outer ear	or near complete loss of definition of the outer ear	or severe unilateral facial paralysis affecting most branches or mild, bilateral, facial paralysis affecting most branches	or severe, bilateral, facial paralysis affecting most branches or loss of a major portion of or entire nose

Note: Tables used to classify the examples in Section 11.3, AMA5 (pp256–259) should also be ignored and assessors should refer to the modified table above for classification.

6.5 Example 11-11, AMA5 (p257): Add "visual impairment related to enophthalmos must be assessed by an ophthalmologist".

The nose, throat and related structures

Respiration (Section 11.4a, AMA5, pp259–261)

6.6 In regard to sleep apnoea (3rd paragraph, Section 11.4a, AMA5, p259), a sleep study and an examination by an ear, nose and throat specialist is mandatory before assessment by an approved assessor.

6.7 The assessment of sleep apnoea is addressed in Section 5.6, AMA5 (p105) and assessors should refer to this chapter, as well as sections 8.8–8.10 in the WorkCover Guidelines.

6.8 Table 11-6, AMA5, criteria for rating impairment due to air passage defects (p260): this table should be replaced with Table 6.2, below, when assessing permanent impairment due to air passage defects.

Table 6.2: Criteria for rating permanent impairment due to air passage defects

Percentage impairment of the whole person					
Class 1a	**Class 1**	**Class 2**	**Class 3**	**Class 4**	**Class 5**
0%–5%	**0%–10%**	**11%–29%**	**30%–49%**	**50%–89%**	**90%+**
There are symptoms of significant difficulty in breathing through the nose. Examination reveals significant partial obstruction of the right and/or left nasal cavity or nasopharynx or significant septal perforation	Dyspnea does not occur at rest and dyspnea is not produced by walking freely on a level surface, climbing stairs freely, or performance of other usual activities of daily living and dyspnea is not produced by stress, prolonged exertion, hurrying, hill-climbing, or recreational or similar activities requiring intensive effort* and examination reveals partial obstruction of the oropharynx, laryngopharynx, larynx, upper trachea (to the fourth cartilaginous ring), lower trachea, bronchi, or complete (bilateral) obstruction of the nose or nasopharynx	Dyspnea does not occur at rest and dyspnea is not produced by walking freely on a level surface, climbing one flight of stairs, or performance of other usual activities of daily living but dyspnea is produced by stress, prolonged exertion, hurrying, hill-climbing, or recreational or similar activities (except sedentary forms) and examination reveals partial obstruction of the oropharynx, laryngopharynx, larynx, upper trachea (to the fourth cartilaginous ring), lower trachea, bronchi, or complete (bilateral) obstruction of the nose or nasopharynx	Dyspnea does not occur at rest and dyspnea is produced by walking freely more than one or two level blocks, climbing one flight of stairs even with periods of rest, or performance of other usual activities of daily living and dyspnea is produced by stress, prolonged exertion, hurrying, hill-climbing, or recreational or similar activities and examination reveals partial obstruction of the oropharynx, laryngopharynx, larynx, upper trachea (to the fourth cartilaginous ring), lower trachea or bronchi	Dyspnea occurs at rest, although individual is not necessarily bedridden and dyspnea is aggravated by the performance of any of the usual activities of daily living (beyond personal cleansing, dressing or grooming) and examination reveals partial obstruction of the oropharynx, laryngopharyx, larynx, upper trachea (to the fourth cartilaginous ring), lower trachea, and/or bronchi	Severe dyspnea occurs at rest and spontaneous respiration is inadequate and respiratory ventilation is required and examination reveals partial obstruction of the oropharynx, laryngopharynx, larynx, upper trachea (to the fourth cartilaginous ring), lower trachea or bronchi

*Prophylactic restriction of activity, such as strenuous competitive sport, does not exclude subject from class 1.
Note: Individuals with successful permanent tracheostomy or stoma should be rated at 25% impairment of the whole person. Example 11-16, AMA5 (p261): Partial obstruction of the larynx affecting only one vocal cord is better linked to voice (Section 11.4e, AMA5).

6.9 When using Table 11-7, AMA5 (p262) on the relationship of dietary restrictions to permanent impairment, consider percentage impairment of the whole person – first category to be 0–19%, not 5–19%.

Speech (AMA5, pp262–264)

6.10 Regarding the first sentence of the 'Examining procedure' subsection (pp263–264): the examiner should have sufficient hearing for the purpose – disregard "normal hearing as defined in the earlier section of this chapter on hearing".

6.11 Examining procedure (pp263–264), second paragraph: "The examiner should base judgments of impairment on two kinds of evidence: (1) attention to and observation of the individual's speech in the office – for example, during conversation, during the interview, and while reading and counting aloud – and (2) reports pertaining to the individual's performance in everyday living situations". Disregard the next sentence: "The reports or the evidence should be supplied by reliable observers who know the person well."

6.12 Examining procedure (pp263–264): where the word 'American' appears as a reference, substitute 'Australian', and change measurements to the metric system (eg, 8.5 inch = 22cm).

The voice (Section 11.4e, AMA5, pp264–267)

6.13 Substitute the word 'laryngopharyngeal' for 'gastroesophageal' in all examples where it appears.

6.14 Example 11.25 (Impairment Rating, p269), second sentence: add the underlined phrase "Combine with appropriate ratings due to other impairments <u>including respiratory impairment</u> to determine whole person impairment."

Ear, nose, throat and related structures impairment evaluation summary

6.15 Table 11-10, AMA5 (pp272–275): Disregard this table, except for impairment of olfaction and/or taste, and hearing impairment as determined in the WorkCover Guidelines.

7 Urinary and reproductive systems

Chapter 7, AMA5 applies to the assessment of permanent impairment of the urinary and reproductive systems, subject to the modifications set out below.

Introduction

7.1 Chapter 7, AMA5 (pp143–171) provides clear details for assessment of the urinary and reproductive systems. Overall the chapter should be followed in assessing permanent impairment, with the variations included below.

7.2 For both male and female sexual dysfunction, identifiable pathology should be present for an impairment percentage to be given.

Urinary diversion

7.3 Table 7-2, AMA5 (p150) should be replaced with Table 7.1, below, when assessing permanent impairment due to urinary diversion disorders. This table includes ratings for neobladder and continent urinary diversion.

7.4 **Continent urinary diversion** is defined as a continent urinary reservoir constructed of small or large bowel with a narrow catheterisable cutaneous stoma through which it must be emptied several times a day.

Table 7.1: Criteria for rating permanent impairment due to urinary diversion disorders

Diversion type	% Impairment of the whole person
Ureterointestinal	10%
Cutaneous ureterostomy	10%
Nephrostomy	15%
Neobladder/replacement cystoplast	15%
Continent urinary diversion	20%

Bladder

7.5 Table 7-3, AMA5 (p151) should be replaced with Table 7.2, below, when assessing permanent impairment due to bladder disease. This table includes ratings involving urge and total incontinence (defined in paragraph 7.8).

Table 7.2: Criteria for rating permanent impairment due to bladder disease

Class 1 0%–15% WPI	Class 2 16%–40% WPI	Class 3 41%–70% WPI
Symptoms and signs of bladder disorder and requires intermittent treatment and normal functioning between malfunctioning episodes	Symptoms and signs of bladder disorder eg urinary frequency (urinating more than every two hours); severe nocturia (urinating more than three times a night); urge incontinence more than once a week and requires continuous treatment	Abnormal (ie under or over) reflex activity (eg intermittent urine dribbling, loss of control, urinary urgency and urge incontinence once or more each day) and/or no voluntary control of micturition; reflex or areflexic bladder on urodynamics and/or total incontinence eg, fistula

7.6 Example 7-16, AMA5 (p151) should be reclassified as an example of Class 2, as the urinary frequency is more than every two hours and continuous treatment would be expected.

Urethra

7.7 Table 7-4, AMA5 (p153) should be replaced with Table 7.3, below, when assessing permanent impairment due to urethral disease. This table includes ratings involving stress incontinence.

Table 7.3: Criteria for rating permanent impairment due to urethal disease

Class 1 0%–10% WPI	Class 2 11%–20% WPI	Class 3 21%–40% WPI
Symptoms and signs of urethral disorder and requires intermittent therapy for control	Symptoms and signs of urethral disorder; stress urinary incontinence more than three times a week and cannot effectively be controlled by treatment	Urethral dysfunction resulting in intermittent urine dribbling, or stress urinary incontinence at least daily

Urinary incontinence

7.8 Urge urinary incontinence is the involuntary loss of urine associated with a strong desire to void. Stress urinary incontinence is the involuntary loss of urine occurring with clinically demonstrable raised intra-abdominal pressure. It is expected that urinary incontinence of a regular or severe nature (necessitating the use of protective pads or appliances) will be assessed as follows:

Stress urinary incontinence	11–25% according to severity
(demonstrable clinically):	
Urge urinary incontinence:	16–40% according to severity
Mixed (urge and stress) incontinence:	16–40% according to severity
Nocturnal enuresis or wet in bed:	16–40% according to severity
Total incontinence	50–70%
(continuously wet eg, from fistula):	

Male reproductive organs

Penis

7.9 AMA5, p157: the box labelled 'Class 3, 21–35%' should read 'Class 3, 20% impairment of the whole person' as the descriptor 'No sexual function possible' does not allow a range. (The correct value is shown in Table 7-5). Note, however, that there is a loading for age, so a rate higher than 20% is possible.

Testicles, epididymides and spermatic cords

7.10 Table 7-7, AMA5 (p159) should be replaced with Table 7.4, below, when assessing permanent impairment due to testicular, epididymal and spermatic cord disease. This table includes rating for infertility and equates impairment with female infertility (see Table 7.5 in this chapter of the WorkCover Guidelines). Infertility in either sex must be considered to be of equal impact, age for age.

7.11 **Male infertility** is defined as azoospermia or other cause of inability to cause impregnation even with assisted contraception techniques.

7.12 Loss of sexual function **related to spinal injury** should only be assessed as an impairment where there is other objective evidence of spinal cord, cauda equina or bilateral nerve root dysfunction. The ratings described in Table 13-21, AMA5 (p342) are used in this instance. There is no additional impairment rating system for loss of sexual function in the absence of objective clinical findings.

Table 7.4: Criteria for rating permanent impairment due to testicular, epididymal and spermatic cord disease

Class 1 0%–10% WPI	Class 2 11%–15% WPI	Class 3 16%–35% WPI
Testicular, epididymal or spermatic cord disease symptoms and signs and anatomic alteration and no continuous treatment required and no seminal or hormonal function or abnormalities or solitary testicle	Testicular, epididymal or spermatic cord disease symptoms and signs and anatomic alteration and cannot effectively be controlled by treatment and detectable seminal or hormonal abnormalities	Trauma or disease produces bilateral anatomic loss of the primary sex organs or no detectable seminal or hormonal function or infertility

Female reproductive organs

Fallopian tubes and ovaries

7.13 Table 7-11, AMA5 (p167) should be replaced with Table 7.5, below, when assessing permanent impairment due to fallopian tube and ovarian disease. This table includes rating for infertility and equates impairment with male infertility (see Table 7.4, above). Infertility in either sex must be considered to be of equal impact, age for age.

7.14 **Female infertility:** a woman in the childbearing age is infertile when she is unable to conceive naturally. This may be due to anovulation, tubal blockage, cervical or vaginal blocking or an impairment of the uterus.

Table 7.5: Criteria for rating permanent impairment due to fallopian tube and ovarian disease

Class 1 0%–10% WPI	Class 2 11%–15% WPI	Class 3 16%–35% WPI
Fallopian tube or ovarian disease or deformity symptoms and signs do not require continuous treatment or only one functioning fallopian tube or ovary in the premenopausal period or bilateral fallopian tube or ovarian functional loss in the postmenopausal period	Fallopian tube or ovarian disease or deformity symptoms and signs require continuous treatment, but tubal patency persists and ovulation is possible	Fallopian tube or ovarian disease or deformity symptoms and signs and total tubal patency loss or failure to produce ova in the premenopausal period or bilateral fallopian tube or bilateral ovarian loss in the premenopausal period; infertility

8 Respiratory system

Chapter 5, AMA5 applies to the assessment of permanent impairment of the respiratory system, subject to the modifications set out below.

Introduction

8.1 Chapter 5, AMA5 provides a useful summary of the methods for assessing permanent impairment arising from respiratory disorders.

8.2 The level of impairment arising from conditions that are not work related needs to be assessed by the assessor and taken into consideration in determining the level of permanent impairment. The level at which pre-existing conditions and lifestyle activities such as smoking contribute to the level of permanent impairment requires judgement on the part of the assessor undertaking the impairment assessment. The manner in which any deduction for these is applied needs to be recorded in the assessor's report.

Examinations, clinical studies and other tests for evaluating respiratory disease (Section 5.4, AMA5)

8.3 Tables 5–2b, 5–3b, 5–4b, 5–5b, 5–6b and 5–7b, AMA5 give the lower limits of normal values for pulmonary function tests. These are used in Table 5-12 to determine the impairment classification for respiratory disorders.

8.4 Classes 2, 3 and 4 in Table 5-12 list ranges of whole person impairment. The assessor should nominate the nearest whole percentage based on the complete clinical circumstances when selecting within the range.

Asthma (Section 5.5, AMA5)

8.5 In assessing permanent impairment arising from occupational asthma, the assessor will require evidence from the treating physician that:

- at least three lung function tests have been performed over a six month period and that the results were consistent and repeatable over that period
- the worker has received maximal treatment and is compliant with his/her medication regimen.

8.6 Bronchial challenge testing should not be performed as part of the impairment assessment, therefore in Table 5-9, AMA5 (p104) ignore column 4 (PC20 mg/mL or equivalent, etc).

8.7 Permanent impairment due to asthma is rated by the score for the best post-bronchodilator forced expiratory volume in one second (FEV1) (score in Table 5–9, AMA5, column 2) plus % of FEV1 (score in column 3) plus minimum medication required (score in column 5). The total score derived is then used to assess the % impairment in Table 5-10, AMA5 (p 104).

Obstructive sleep apnoea (Section 5.6, AMA5)

8.8 This section needs to be read in conjunction with Section 11.4, AMA5 (p259) and Section 13.3c, AMA5 (p317).

8.9 Before permanent impairment can be assessed, the person must have appropriate assessment and treatment by an ear, nose and throat surgeon and a respiratory physician who specialises in sleep disorders.

8.10 Degree of permanent impairment due to sleep apnoea should be calculated with reference to Table 13-4, AMA5 (p317).

Hypersensitivity pneumonitis (Section 5.7, AMA5)

8.11 Permanent impairment arising from disorders included in this section are assessed according to the impairment classification in Table 5-12, AMA5.

Lung cancer (Section 5.9, AMA5)

8.12 Permanent impairment due to lung cancer should be assessed at least six months after surgery. Table 5-12 (not Table 5-11) should be used for assessment of permanent impairment.

8.13 Persons with residual lung cancer after treatment are classified in Respiratory Impairment Class 4 (Table 5-12).

Permanent impairment due to respiratory disorders (Section 5.10, AMA5)

8.14 Table 5-12, AMA5 (p107) should be used to assess permanent impairment for respiratory disorders. The pulmonary function tests listed in Table 5-12 must be performed under standard conditions. Exercise testing is not required on a routine basis.

8.15 An isolated abnormal diffusing capacity for carbon monoxide (DCO) in the presence of otherwise normal results of lung function testing should be interpreted with caution and its aetiology should be clarified.

9 Hearing

Chapter 11, AMA5 applies to the assessment of permanent impairment of hearing, subject to the modifications set out below.

Assessment of hearing impairment (hearing loss)

9.1 A worker may present for assessment of hearing loss for compensation purposes before having undergone all or any of the health investigations that generally occur before assessment of permanent impairment. For this reason and to ensure that conditions other than 'occupational hearing impairment' are precluded, the medical assessment should be undertaken by an ear, nose and throat specialist or other appropriately qualified specialist. The medical assessment needs to be undertaken in accordance with the hearing impairment section of Table 11-10, AMA5 (pp272–275). The assessor performing the assessment must examine the worker. The assessor's assessment must be based on medical history and ear, nose and throat examination, evaluation of relevant audiological tests and evaluation of other relevant investigations available to the assessor. Only ear, nose and throat specialist or other appropriately qualified specialist can issue permanent impairment reports.

9.2 Disregard sections 11.1b and 11.2, AMA5 (pp246–255), but retain Section 11.1a (p246) – Interpretation of Symptoms and Signs.

9.3 Some of the relevant tests are discussed in the hearing impairment evaluation summary in Table 11-10, AMA5 (pp272–275). The relevant row for these guides is the one headed 'Hearing impairment' with the exception of the last column headed 'Degree of impairment'. The degree of impairment is determined according to the WorkCover Guidelines.

9.4 The level of hearing impairment caused by non-work-related conditions is assessed by the assessor and considered when determining the level of work-related hearing impairment. While this requires medical judgement on the part of the examining assessor, any non-work-related deductions should be recorded in the report.

9.5 Disregard tables 11–1, 11–2, 11–3, AMA5 (pp247–250). For the purposes of the WorkCover Guidelines, National Acoustic Laboratory (NAL) tables from the NAL Report No. 118, *Improved procedure for determining percentage loss of hearing* (January 1988) are adopted as follows:

- Tables RB 500–4000 (pp11–16)
- Tables RM 500–4000 (pp18–23)
- Appendix 1 and 2 (pp8–9)
- Appendix 5 and 6 (pp24–26)
- Tables EB 4000–8000 (pp28–30)
- Table EM 4000–8000 (pp32–34)

In the presence of significant conduction hearing loss, the extension tables do not apply.

Table 11–3, AMA5 is replaced by Table 9.1 at the end of this chapter.

Hearing impairment

9.6 Impairment of a worker's hearing is determined according to evaluation of the individual's binaural hearing impairment.

9.7 **Permanent hearing impairment** should be evaluated when the condition is stable. Prosthetic devices (ie, hearing aids) must not be worn during the evaluation of hearing sensitivity.

9.8 **Hearing threshold level for pure tones** is defined as the number of decibels above standard audiometric zero for a given frequency at which the listener's threshold of hearing lies when tested in a suitable sound attenuated environment. It is the reading on the hearing level dial of an audiometer that is calibrated according to Australian Standard AS 2586–1983.

9.9 **Evaluation of binaural hearing impairment:** Binaural hearing impairment is determined by using the tables in the 1988 NAL publication with allowance for presbycusis according to the presbycusis correction table, if applicable, in the same publication.

The Binaural Tables RB 500–4000 (NAL publication, pp11–16) are to be used, except when it is not possible or would be unreasonable to do so. For the purposes of calculating binaural hearing impairment, the better and worse ear may vary as between frequencies.

Where it is necessary to use the monaural tables, the binaural hearing impairment (BHI) is determined by the formula:

$$BHI = \frac{[4 \times (\text{better ear hearing loss})] + \text{worse ear hearing loss}}{5}$$

9.10 **Presbycusis correction** (NAL publication, p24) only applies to occupational hearing loss contracted by gradual process – for example, occupational noise induced hearing loss and/or occupational solvent induced hearing loss.

9.11 **Binaural hearing impairment and severe tinnitus:** Up to 5% may be added to the work-related binaural hearing impairment for severe tinnitus caused by a work-related injury:

- after presbycusis correction, if applicable, and
- before determining whole person impairment.

Assessment of severe tinnitus is based on a medical specialist's assessment.

9.12 **Only hearing ear:** A worker has an 'only hearing ear' if he or she has suffered a non-work-related severe or profound sensorineural hearing loss in the other ear. If a worker suffers a work-related injury causing a hearing loss in the only hearing ear of x dBHL at a relevant frequency, the worker's work-related binaural hearing impairment at that frequency is calculated from the binaural tables using x dB as the hearing threshold level in both ears. Deduction for presbycusis if applicable and addition for severe tinnitus is undertaken according to this guide.

9.13 When necessary, binaural hearing impairment figures should be rounded to the nearest 0.1%. Rounding up should occur if equal to or greater than .05%, and rounding down should occur if equal to or less than .04%.

9.14 Table 9.1 is used to convert binaural hearing impairment, after deduction for presbycusis if applicable and after addition for severe tinnitus, to whole person impairment.

9.15 The method of subtracting a previous impairment for noise induced hearing loss, where the previous impairment was not assessed in accordance with the WorkCover Guidelines, is as shown in the following example:

- The current level of binaural hearing impairment is established by the relevant specialist.
- Convert this to whole person impairment (WPI) from Table 9.1 in the WorkCover Guidelines.
- Calculate the proportion of the current binaural hearing impairment that was accounted for by the earlier assessment and express it as a percentage of the current hearing impairment.
- The percentage of current hearing impairment that remains is the amount to be compensated.
- This needs to be expressed in terms of WPI for calculation of compensation entitlement.

Table 9.1: Relationship of binaural hearing impairment to whole person impairment

% Binaural hearing impairment			% Whole person impairment	% Binaural hearing impairment			% Whole person impairment
0.0	–	5.9	0	51.1	–	53.0	26
				53.1	–	55.0	27
6.0	–	6.7	3	55.1	–	57.0	28
6.8	–	8.7	4	57.1	–	59.0	29
8.8	–	10.6	5	59.1	–	61.0	30
10.7	–	12.5	6	61.1	–	63.0	31
12.6	–	14.4	7	63.1	–	65.0	32
14.5	–	16.3	8	65.1	–	67.0	33
16.4	–	18.3	9	67.1	–	69.0	34
18.4	–	20.4	10	69.1	–	71.0	35
20.5	–	22.7	11	71.1	–	73.0	36
22.8	–	25.0	12	73.1	–	75.0	37
25.1	–	27.0	13	75.1	–	77.0	38
27.1	–	29.0	14	77.1	–	79.0	39
29.1	–	31.0	15	79.1	–	81.0	40
31.1	–	33.0	16	81.1	–	83.0	41
33.1	–	35.0	17	83.1	–	85.0	42
35.1	–	37.0	18	85.1	–	87.0	43
37.1	–	39.0	19	87.1	–	89.0	44
39.1	–	41.0	20	89.1	–	91.0	45
41.1	–	43.0	21	91.1	–	93.0	46
43.1	–	45.0	22	93.1	–	95.0	47
45.1	–	47.0	23	95.1	–	97.0	48
47.1	–	49.0	24	97.1	–	99.0	49
49.1	–	51.0	25	99.1	–	100	50

9.16 Examples 11.1,11.2, 11.3, AMA5 (pp250–251) are replaced by examples 9.1–9.7, below.

Table 9.2: Medical assessment elements in examples

Element	Example No.
General use of binaural table – NAL 1988	1,2
'Better ear' – 'worse ear' crossover	1,2
Assessable audiometric frequencies	7 – also 1,2,4,5,6
Tinnitus	1,2,3,4
Presbycusis	All examples
Binaural hearing impairment	All examples
Conversion to whole person impairment	All examples
Gradual process injury	3
Noise-induced hearing loss	1,2,3,5,6,7
Solvent-induced hearing loss	3
Acute occupational hearing loss	4,5
Acute acoustic trauma	5
Pre-existing non-occupational hearing loss	6
Only hearing ear	6
NAL 1988 Extension Table Use	7
Multiple Causes of Hearing Loss	3,5,6
Head injury	4

Example 9.1: Occupational noise-induced hearing loss and severe tinnitus

A 60-year-old man, a boilermaker for 30 years, gave a history of progressive hearing loss and tinnitus. The assessor has assessed the tinnitus as severe. The external auditory canals and tympanic membranes were normal. Rinne test was positive bilaterally and the Weber test result was central. Clinical assessment of hearing was consistent with results of pure tone audiometry, which showed a bilateral sensorineural hearing loss. The assessor diagnosed noise induced hearing loss.

Pure tone audiometry

Frequency (Hz)	Left (dB HL)	Right (dB HL)	Binaural hearing impairment (%BHI)
500	15	10	0
1000	15	15	0
1500	15	20	0.4
2000	25	30	1.5
3000	50	45	4.2
4000	65	70	6.8
6000	30	30	-
8000	20	20	-
Total %BHI			12.9
Less Presbycusis correction of 0.8			12.1
Add 3.0% for severe tinnitus			15.1
Adjusted total %BHI			15.1
Resultant total BHI of 15.1% = 8% WPI (Table 9.1)			

Example 9.2: Occupational noise-induced hearing loss and mild tinnitus

A 55-year-old man, a steelworker for 30 years, gave a history of increasing difficulties with hearing and tinnitus. The assessor diagnosed occupational noise-induced hearing loss with mild tinnitus.

Pure tone audiometry

Frequency (Hz)	Left (dB HL)	Right (dB HL)	Binaural hearing impairment (%BHI)
500	15	15	0.0
1000	15	15	0.0
1500	20	25	1.0
2000	30	35	2.5
3000	50	45	4.2
4000	55	55	5.2
6000	30	30	-
8000	20	20	-
Total %BHI			12.9
No presbycusis correction			12.9
Adjusted total %BHI			15.9
Resultant total BHI of 12.9% = 7% WPI (Table 9.1)			

Comment: The assessor's opinion is that the tinnitus suffered by the worker is not severe and thus no addition to the binaural hearing impairment was made for tinnitus.

Example 9.3: Multiple gradual process occupational hearing loss

A 63-year-old male boat builder and printer gave a history of hearing difficulty and tinnitus. There had been marked chronic exposure to noise and solvents in both occupations for 35 years altogether. The assessor diagnosed bilateral noise-induced hearing loss and bilateral solvent-induced hearing loss with severe tinnitus.

The assessor's opinion is that the solvent exposure contributed to the hearing impairment as a gradual process injury. The total noise-induced and solvent-induced BHI was 17.5%.

The appropriate presbycusis deduction was applied. Then, the assessor added 2% to the after-presbycusis binaural hearing impairment for severe tinnitus.

Pure tone audiometry

Frequency (Hz)	Left (dB HL)	Right (dB HL)	Binaural hearing impairment (%BHI)
500	15	15	0.0
1000	15	15	0.0
1500	25	25	1.4
2000	35	40	3.8
3000	60	60	6.3
4000	60	60	6.0
6000	45	50	-
8000	40	40	-
Total noise-induced and solvent-induced BHI (%)			17.5
Presbycusis correction of 1.7%			15.8
2% addtion fro medically assessed severe tinnitus			17.8
Adjusted total %BHI			17.8
Resultant total BHI of 17.8% = 9% WPI (Table 9.1)			

Example 9.4: Occupational noise-induced hearing loss from head injury

A 62-year-old male worker sustained a head injury after falling from a ladder. He suffered left hearing loss and tinnitus unaccompanied by vertigo. The assessor assesses his tinnitus as severe. External auditory canals and tympanic membranes are normal. Rinne test is positive bilaterally and Weber test lateralises to the right. CT scan of the temporal bones shows a fracture on the left. Clinical assessment of hearing is consistent with pure tone audiometry, which shows a flat left sensorineural hearing loss and mild right sensorineural hearing loss.

Pure tone audiometry

Frequency (Hz)	Left (dB HL)	Right (dB HL)	Binaural hearing impairment (%BHI)
500	45	15	2.0
1000	50	15	2.8
1500	55	10	2.5
2000	50	15	1.7
3000	60	20	1.7
4000	60	25	1.5
6000	60	15	-
8000	60	20	-
Total %BHI			12.2
No correction for presbycusis applies			-
Add 4.0% for severe tinnitus			16.2
Adjusted total %BHI			16.2
Resultant total BHI of 16.2% = 8% WPI (Table 9.1)			

Example 9.5: Occupational noise-induced hearing loss with acute occupational hearing loss

A 65-year-old production worker for 10 years was injured in an explosion at work. He reported immediate post-injury otalgia and acute hearing loss in the left ear. The assessor diagnosed occupational noise-induced hearing loss and left acute acoustic trauma. The assessor had no medical evidence that, immediately before the explosion, the hearing in the left ear was significantly different from that in the right ear.

Pure tone audiometry

Frequency (Hz)	Left (dB HL)	Right (dB HL)	Binaural hearing impairment (%BHI)	BHI due to noise-induced hearing loss
500	30	15	1.0	0.0
1000	45	15	2.5	0.0
1500	55	15	2.5	0.0
2000	70	15	2.2	0.0
3000	80	25	2.4	0.7
4000	80	30	2.3	0.8
6000	>80	30	-	-
8000	>80	25	-	-
Total %BHI			12.9	
Occupational noise-induced BHI(%) before presbycusis correction				1.5
Occupational noise-induced BHI(%) after presbycusis correction of 2.4%				0
Acute acoustic trauma BHI (%)			11.4	
Presbycusis does not apply to acute acoustic trauma			-	
Resultant total BHI due to acute acoustic trauma of 11.4% = 6% WPI (Table 9.1)				

Example 9.6: Occupational noise-induced hearing loss in an only hearing ear

A 66-year-old woman has been a textile worker for 30 years. Childhood mumps had left her with profound hearing loss in the left ear. She gave a history of progressive hearing loss in her only hearing ear unaccompanied by tinnitus or vertigo. External auditory canals and tympanic membranes appeared normal. Rinne test was positive on the right and was false negative on the left. Weber test lateralised to the right. Clinical assessment of hearing is consistent with pure tone audiogram showing a profound left sensorineural hearing loss and a partial right sensorineural hearing loss. The assessor diagnosed noise induced hearing loss in the right ear.

Pure tone audiometry

Frequency (Hz)	Left (dB HL)	Right (dB HL)	Binaural hearing impairment (%BHI)	Occupational %BHI
500	>95	10	3.4	0
1000	>95	15	4.3	0
1500	>95	20	4.2	0.6
2000	>95	25	3.8	1.1
3000	>95	50	5.4	4.8
4000	>95	70	8.0	7.5
6000	>95	50	-	-
8000	>95	40	-	-
Total %BHI			29.1	
Total occupational %BHI				14.0
Presbycusis correction does not apply to a 66 year old woman				-
No addition for tinnitus				-
Adjusted total occupational %BHI				14.0
Total occupational BHI of 14% = 7% WPI (Table 9.1)				

Example 9.7: Occupational noise-induced hearing loss where there is a special requirement for ability to hear at frequencies above 4000 Hz

A 56-year-old female electronics technician who worked in a noisy factory for 20 years had increasing hearing difficulty. The diagnosis made was bilateral occupational noise-induced hearing loss extending to 6000 Hz or 8000 Hz. The assessor was of the opinion that there was a special requirement for hearing above 4000 Hz. There was no conductive hearing loss.

Pure tone audiometry

			Binaural hearing impairment (%BHI)	
Frequency (Hz)	**Left (dB HL)**	**Right (dB HL)**	**Using extension table – 4000, 6000 and 8000 Hz**	**Not using extension table**
500	10	10	0.0	0.0
1000	15	15	0.0	0.0
1500	20	25	1.0	1.0
2000	30	32	2.5	2.5
3000	45	45	4.1	4.1
4000	45	50	2.2	3.6
6000	60	55	1.6	-
8000	50	20	0.2	-
Total BHI (%) using extension table			11.6	
Total BHI (%) not using extension table				11.2
Presbycusis correction			0	
The assessing medical specialist is of the opinion that the binaural hearing impairment in this matter is 11.6% rather than 11.2%				
Adjusted total %BHI				11.6
Resultant Total BHI of 11.6% = 6% whole person impairment (Table 9.1)				

10 The visual system

Chapter 8, AMA4 applies to the assessment of permanent impairment of the visual system, subject to the modifications set out below.

Introduction and approach to assessment

10.1 The visual system must be assessed by an ophthalmologist.

10.2 Chapter 8, AMA4 (pp209–222) is adopted for the WorkCover Guidelines without significant change.

10.3 AMA4 is used rather than AMA5 for the assessment of permanent impairment of the visual system because:

- the equipment recommended for use in AMA5 is expensive and not owned by most privately practising ophthalmologists (eg, the Goldman apparatus for measuring visual fields)
- the assessments recommended in AMA5 are considered too complex, raising a risk that resulting assessments may be of a lower standard than if the AMA4 method was used
- there is little emphasis on diplopia in AMA5, yet this is a relatively frequent problem
- many ophthalmologists are familiar with the Royal Australian College of Ophthalmologists' impairment guide, which is similar to AMA4.

10.4 Impairment of vision should be measured with the injured worker wearing their prescribed corrective spectacles and/or contact lenses, if that was normal for the injured worker before the workplace injury. If, as a result of the workplace injury, the injured worker has been prescribed corrective spectacles and/or contact lenses for the first time, or different spectacles and/or contact lenses than those prescribed before injury, the difference should be accounted for in the assessment of permanent impairment.

10.5 The ophthalmologist should perform, or review, all tests necessary for the assessment of permanent impairment rather than relying on tests, or interpretations of tests, done by the orthoptist or optometrist.

10.6 An ophthalmologist should assess visual field impairment in all cases.

10.7 In Section 8.5, AMA4 (p222) on other conditions, the 'additional 10% impairment' referred to means 10% WPI, not 10% impairment of the visual system.

11 Haematopoietic system

Chapter 9, AMA5 applies to the assessment of permanent impairment of the haematopoietic system, subject to the modifications set out below.

Introduction

11.1 Chapter 9, AMA5 (pp191–210) provides guidelines on the method of assessing permanent impairment of the haematopoietic system. Overall, that chapter should be followed when conducting the assessment, with variations indicated below.

11.2 Impairment of end organ function due to haematopoietic disorder should be assessed separately, using the relevant chapter of the WorkCover Guidelines. The percentage whole person impairment due to end organ impairment should be combined with any percentage whole person impairment due to haematopoietic disorder, using the Combined Values Table, AMA5 (pp604–606).

Anaemia

11.3 Table 11.1 (below) replaces Table 9-2, AMA5 (p193).

Table 11.1: Classes of anaemia and percentage whole person impairment (WPI)

Class 1: **0–10% WPI**	**Class 2:** **11–30% WPI**	**Class 3:** **31–70% WPI**	**Class 4:** **71–100% WPI**
No symptoms and haemoglobin 100–120g/L and no transfusion required	Minimal symptoms and haemoglobin 80–100g/L and no transfusion required	Moderate to marked symptoms and haemoglobin 50–80g/L before transfusion and transfusion of 2 to 3 units required, every 4 to 6 weeks	Moderate to marked symptoms and haemoglobin 50–80g/L before transfusion and transfusion of 2 to 3 units required, every 2 weeks

11.4 The assessor should exercise clinical judgement in determining whole person impairment, using the criteria in Table 11.1. For example, if comorbidities exist which preclude transfusion, the assessor may assign Class 3 or Class 4, on the understanding that transfusion would under other circumstances be indicated. Similarly, there may be some claimants with Class 2 impairment who, because of comorbidity, may undergo transfusion.

11.5 Pre-transfusion haemoglobin levels in Table 11.1 are to be used as indications only. It is acknowledged that for some workers, it would not be medically advisable to permit the worker's haemoglobin levels to be as low as indicated in the criteria of Table 11.1.

11.6 The assessor should indicate a %WPI, as well as the class.

Polycythaemia and myelofibrosis

11.7 The level of symptoms (as in Table 11.1) should be used a guide for the assessor in cases where non-anaemic tissue iron deficiency results from venesection.

White blood cell diseases

11.8 In cases of functional asplenia, the assessor should assign 3% WPI. This should be combined with any other impairment rating, using the Combined Values Table, AMA5 (pp604–606).

11.9 Table 9-3, AMA5 (p200) should be used for rating impairment due to HIV infection or auto immune deficiency disease.

Haemorrhagic and platelet disorders

11.10 Table 9-4, AMA5 (p203) is to be used as the basis for assessing haemorrhagic and platelet disorders.

11.11 For the purposes of the WorkCover Guidelines, the criteria for inclusion in Class 3 of Table 9-4, AMA5 (p203) is:

- symptoms and signs of haemorrhagic and platelet abnormality
- requires continuous treatment
- interference with daily activities, requires occasional assistance.

11.12 For the purposes of the WorkCover Guidelines, the criteria for inclusion in Class 4 of Table 9-4, AMA5 (p203) is:

- symptoms and signs of haemorrhagic and platelet abnormality
- requires continuous treatment
- difficulty performing daily activities, requires continuous care.

Thrombotic disorders

11.13 Table 9-4, AMA5 (p203) is used as the basis for determining impairment due to thrombotic disorder.

12 The endocrine system

Chapter 10, AMA5 applies to the assessment of permanent impairment of the endocrine system, subject to the modifications set out below.

Introduction

12.1 Chapter 10, AMA5 provides a useful summary of the methods for assessing permanent impairment arising from disorders of the endocrine system.

12.2 Refer to other chapters in AMA5 for related structural changes – the visual system (Chapter 12), the skin (eg, pigmentation, Chapter 8), the central and peripheral nervous system (memory, Chapter 13), the urinary and reproductive system (infertility, renal impairment, Chapter 7), the digestive system (dyspepsia, Chapter 6), the cardiovascular system (chapters 3 and 4).

12.3 The clinical findings to support the impairment assessment are to be reported in the units recommended by the Royal College of Pathologists of Australia. (See Appendix 12.1 of this chapter).

12.4 Westergren erythrocyte sedimentation rate (WSR) is equivalent to ESR.

Adrenal cortex

12.5 First paragraph, AMA5 (p222) disregard the last sentence: "They also affect inflammatory response, cell membrane permeability, and immunologic responses, and they play a role in the development and maintenance of secondary sexual characteristics." Replace with: "Immunological and inflammatory responses are reduced by these hormones and they play a role in the development and maintenance of secondary sexual characteristics."

12.6 Example 10-18, AMA5 (pp224–225): see reference to ESR (12.4, above).

12.7 Example 10-20, AMA5 (p225) – History: For "hypnotic bladder" read "hypotonic bladder".

Diabetes mellitus

12.8 AMA5 (p231): refer to the Australian Diabetes Association Guidelines with regard to levels of fasting glucose. (Position statement from the Australian Diabetes Society, reprinted in Appendix 12.2 to this chapter).

12.9 AMA5 (p231): insert at the end of the second paragraph, "The goal of treatment is to maintain haemoglobin A lc within 1% of the normal range (4%–6.3%)".

Mammary glands

12.10 Example 10-45, AMA5 (p 239) on current symptoms: disregard the last sentence, "Both bromocriptine and cabergoline cause nausea, precluding use of either drug" and replace with: "Routine use of bromocriptine and cabergoline is normal in Australia. It is rare that nausea precludes their use."

Criteria for rating permanent impairment due to metabolic bone disease

12.11 AMA5 (p240): Impairment due to a metabolic bone disease itself is unlikely to be associated with a work injury and would usually represent a pre-existing condition.

12.12 Impairment from fracture, spinal collapse or other complications may arise as a result of a work injury associated with these underlying conditions (as noted in Section 10.10c, AMA5) and would be assessed using the other chapters indicated, with the exception of Chapter 18 on pain which is excluded from the WorkCover Guidelines.

Appendix 12 .1: Interpretation of pathology tests

From *Manual of use and interpretation of pathology tests, 3rd edition.* Reprinted with kind permission of the Royal College of Pathologists of Australasia

Reference ranges, plasma or serum, unless otherwise indicated		
Alanine aminotransferase (ALT)	(adult)	< 35 U/L
Albumin	(adult)	32–45 g/L
Alkaline phosphatase (ALP)	(adult, non-pregnant)	25–100 U/L
Alpha fetoprotein	(adult, non-pregnant)	< 10 g/L
Alpha-1-antitrypsin		1.7–3.4 g/L
Anion gap		8–16 mmol/L
Aspartate aminotransferase (AST)		< 40 U/L
Bicarbonate (total CO2)		22–32 mmol/L
Bilirubin (total)	(adult)	< 20 µmol/L
Calcium	(total)	2.10–2.60 mmol/L
	(ionised)	1.17–1.30 mmol/L
Chloride		95–110 mmol/L
Cholesterol (HDL)	(male)	0.9–2.0 mmol/L
	(female)	1.0–2.2 mmol/L
Cholesterol (total) *(National Heart Foundation [Australia] recommendation)*		< 5.5 mmol/L
Copper		13–22 µmol/L
Creatine kinase (CK)	(male)	60–220 U/L
	(female)	30–180 U/L
Creatinine	(adult male)	0.06–0.12 mmol/L
	(adult female)	0.05–0.11 mmol/L
Gamma glutamyl transferase (GGT)	(male)	< 50 U/L
	(female)	< 30 U/L
Globulin	adult	25–35g/L

Reference ranges, plasma or serum, unless otherwise indicated		
Glucose	(venous plasma) - (fasting)	3.0–5.4 mmol/L
	(venous plasma) - (random)	3.0–7.7 mmol/L
Lactate dehydrogenase (LD)	(adult)	110–230 U/L
Magnesium	(adult)	0.8–1.0 mmol/L
Osmolality	(adult)	280–300 m.osmoll/kg water
pCO2	(arterial blood)	4.6–6.0 kPa (35–45 mmHg)
PH	(arterial blood)	7.36–7.44 (36–44 nmol/L)
Phosphate		0.8–1.5 mmol/L
pO2	(arterial blood)	11.0–13.5 kPa (80–100 mmHg)
Potassium	(plasma)	3.4–4.5 mmol/L
	(serum)	3.8–4.9 mmol/L
Prolactin	(male)	150–500 mU/L
	(female)	0–750 mU/L
Protein, total	(adult)	62–80 g/L
Sodium		135–145 mmol/L
Testosterone and related androgens	See Table A (below)	

Therapeutic intervals		
Amitriptyline	150–900 nmol/L	60–250 µg/L
Carbamazepine	20–40 µmol/L	6–12 mg/L
Digoxin	0.6–2.3 nmol/L	0.5–1.8 µg/L
Lithium	0.6–1.2 mmol/L	
Nortriptyline	200–650 nmol/L	50–170 µg/L
Phenobarbitone	65–170 µmol/L	15–40 mg/L
Phenytoin	40–80 µmol/L	10–20 mg/L
Primidone	22–50 µmol/L	4.8–11.0 mg/L
Procainamide	17–42 µmol/L	4–10 mg/L
Quinidine	7–15 µmol/L	2.3–4.8 mg/L
Salicylate	1.0–2.5 mmol/L	140–350 mg/L
Theophylline	55–110 µmol/L	10–20 mg/L
Valproate	350–700 µmol/L	50–100 mg/L
Thyroid stimulating hormone (TSH)		0.4–5.0 mIU/L
Thyroxine (free)		10–25 pmol/L
Triglycerides (fasting)		< 2.0 mmol/L
Triiodothyronine (free)		4.0–8.0 pmol/L
Urate	(male)	0.20–0.45 mmol/L
	(female)	0.15–0.40 mmol/L
Urea	(adult)	3.0–8.0 mmol/L
Zinc		12–20 µmol/L

Table A: Reference intervals for testosterone and related androgens (serum)

	Male		Female	
	Pre-pubertal	**Adult (age related)**	**Pre-pubertal**	**Adult (age related)**
Free testosterone (pmol/L)		170–510		< 4.0
Total testosterone (nmol/L)	< 0.5	8–35	< 0.5	< 4.0
SHBG (nmol/L)	55–100	10–50	55–100	30–90 (250–500 in the 3rd trimester)
Dihydrotestosterone (nmol/L)		1–2.5		
Reference ranges, urine				
Calcium			2.5–7.5 mmol/24 hours	
Chloride (depends on intake, plasma levels)			100–250 mmol/24 hours	
Cortisol (free)			100–300 nmol/24 hours	
Creatinine		(child)	0.07–0.19 mmol/24 hours/kg	
		(male)	9–18 mmol/24 hours	
		(female)	5–16 mmol/24 hours	
HMMA		(infant)	< 10 mmol/mol creatinine	
		(adult)	< 35 µmol/24 hours	
Magnesium			2.5–8.0 mmol/24 hours	
Osmolality (depends on hydration)			50–1200 m.osmol/kg water	
Phosphate (depends on intake, plasma levels)			10–40 mmol/24 hours	
Potassium (depends on intake, plasma levels)			40–100 mmol/24 hours	
Protein, total			< 150 mg/24 hours	
		(pregnancy)	< 250 mg/24 hours	
Sodium (depends on intake, plasma levels)			75–300 mmol/24 hours	
Urate		(male)	2.2–6.6 mmol/24 hours	
		(female)	1.6–5.6 mmol/24 hours	
Urea (depends on protein intake)			420–720 mmol/24 hours	
Reference ranges, whole blood				
Haemoglobin (Hb)		(adult male)	130–180 g/L	
		(adult female)	115–165 g/L	
Red cell count (RCC)		(adult male)	4.5–6.5 x 1012/L	
		(adult female)	3.8–5.8 x 1012/L	
Packed cell volume (PCV)		(adult male)	0.40–0.54	
		(adult female)	0.37–0.47	
Mean cell volume (MCV)			80–100 fL	
Mean cell haemoglobin (MCH)			27–32 pg	
Mean cell haemoglobin concentration (MCHC)			300–350 g/L	
Leucocyte (White Cell) Count (WCC)			4.0–11.0 x 109/L	
Leucocyte differential count				
– Neutrophils			2.0–7.5 x 109/L	

Table A: Reference intervals for testosterone and related androgens (serum)

– Eosinophils		0.04–0.4 x 109/L
– Basophils		< 0.1 x 109/L
– Monocytes		0.2–0.8 x 109/L
– Lymphocytes		1.5–4.0 x 109/L
Platelet count		150–400 x 109/L
Erythrocyte sedimentation rate (ESR)	male 17–50 yrs	1–10 mm/hour
	male >50 yrs	2–14 mm/hour
	female 17–50 yrs	3–12 mm/hour
	female >50 yrs	5–20 mm/hour
Reticulocyte count		10–100 x 109/L (0.2–2.0%)
Reference ranges, plasma or serum, unless otherwise indicated		
Iron	(adult)	10–30 µmol/L
Iron (total) binding capacity (TIBC)		45–80 µmol/L
Transferrin		1.7–3.0 g/L
Transferrin saturation		0.15–0.45 (15–45%)
Ferritin	(male)	30–300 µg/L
	(female)	15–200 µg/L
Vitamin B12		120–680 pmol/L
Folate	(red cell)	360–1400 nmol/L
	(serum)	7–45 nmol/L
Reference ranges, citrated plasma		
Activated partial thromboplastin time (APTT)		25–35 seconds
– Therapeutic range for continuous infusion heparin		1.5–2.5 x baseline
Prothrombin time (PT)		11–15 seconds
International normalised ratio (INR)		
– Therapeutic range for oral anticoagulant therapy		2.0–4.5
Fibrinogen		1.5–4.0 g/L
Reference ranges, serum		
Rheumatoid factor (nephelometry)		< 30 IU/L
C3		0.9–1.8 g/L
C4		0.16–0.50 g/L
C-reactive protein		< 5.0 mg/L
Immunoglobulins:		
IgG		6.5–16.0g/L
IgA		0.6–4.0g/L
IgM		0.5–3.0g/L
Reference intervals for lymphocyte subsets		
		Adult
Total lymphocytes		1.5–4.0
CD3		0.6–2.4
CD4 (T4)		0.5–1.4
CD8 (T8)		0.2–0.7
CD19		0.04–0.5
CD16		0.2–0.4
CD4/C D8 ratio		1.0–3.2

Appendix 12.2: New classification and criteria for diagnosis of diabetes mellitus

Position Statement from the Australian Diabetes Society,* New Zealand Society for the Study of Diabetes,† Royal College of Pathologists of Australasia‡ and Australasian Association of Clinical Biochemists§

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Introduction

Recently, there has been major growth in knowledge about the aetiology and pathogenesis of different types of diabetes and about the predictive value of different blood glucose levels for development of complications. In response, both the American Diabetes Association (ADA) and the World Health Organization (WHO) have re-examined, redefined and updated the classification of and criteria for diabetes, which have been unchanged since 1985. While the two working parties had cross-representation, they met separately, and differences have emerged between their recommendations.

The ADA published its final recommendations in 1997,[1] while the WHO group published its provisional conclusions for consultation and comment in June 1998.[2]

The WHO process called for comments on the proposal by the end of September 1998, with the intention of finalising definitive classification and criteria by the end of December 1998 and of publishing these soon thereafter. However, WHO publications need to go through an internal approval process and it may be up to 12 months before the final WHO document appears.

A combined working party of the Australian Diabetes Society, New Zealand Society for the Study of Diabetes, Royal College of Pathologists of Australasia and Australasian Association of Clinical Biochemists was formed to formulate an Australasian position on the two sets of recommendations and, in particular, on the differences between them. This is an interim statement pending the final WHO report, which will include recommendations on diabetes classification as well as criteria for diagnosis. We see it as very important to inform Australasian health professionals treating patients with diabetes about these changes.

Key messages

Diagnosis of diabetes is not in doubt when there are classical symptoms of thirst and polyuria and a random venous plasma glucose level ≥ 11.1 mmol/L.

The Australasian Working Party on Diagnostic Criteria for Diabetes Mellitus recommends:

- Immediate adoption of the new criterion for diagnosis of diabetes as proposed by the American Diabetes Association (ADA) and the World Health Organization (WHO) – fasting venous plasma glucose level ≥ 7.0 mmol/L;
- Immediate adoption of the new classification for diabetes mellitus proposed by the ADA and WHO, which comprises four aetiological types – type 1, type 2, other specific types, and gestational diabetes – with impaired glucose tolerance and impaired fasting glycaemia as stages in the natural history of disordered carbohydrate metabolism.
- Awareness that some cases of diabetes will be missed unless an oral glucose tolerance test (OGTT) is performed. If there is any suspicion or other risk factor suggesting glucose intolerance, the OGTT should continue to be used pending the final WHO recommendation.

What are the new diagnostic criteria?

The new WHO criteria for diagnosis of diabetes mellitus and hyperglycaemia are shown in Box 1. The major change from the previous WHO recommendation[3] is the lowering of the diagnostic level of fasting plasma glucose to ≥7.0 mmol/L, from the former level of ≥7.8 mmol/L. For whole blood, the proposed new level is ≥6.1 mmol/L, from the former ≥6.7 mmol/L.

This change is based primarily on cross-sectional studies demonstrating the presence of microvascular[4] and macrovascular complications[5] at these lower glucose concentrations. In addition, the 1985 WHO diagnostic criterion for diabetes based on fasting plasma glucose level (≥7.8 mmol/L) represents a greater degree of hyperglycaemia than the criterion based on plasma glucose level two hours after a 75 g glucose load (≥11.1 mmol/L).[6] A fasting plasma glucose level of ≥7 mmol/L accords more closely with this 2 h post-glucose level.

Recommendation: *The ADA and the WHO committee are unanimous in adopting the changed diagnostic level, and the Australasian Working Party on Diagnostic Criteria recommends that healthcare providers in Australia and New Zealand should adopt it immediately.*

1: Values for diagnosis of diabetes mellitus and other categories of hyperglycaemia[2]

	Glucose concentration (mmol/L [mg/dL])			
	Whole blood		Plasma	
	Venous	Capillary	Venous	Capillary
Diabetes mellitus				
Fasting	≥6.1 (≥110)	≥6.1 (≥110)	≥7.0 (≥126)	≥7.0 (≥126)
or 2 h post-glucose load	≥10.0 (≥180)	≥11.1 (≥200)	≥11.1 (≥200)	≥12.2 (≥220)
or both				
Impaired glucose tolerance (IGT)				
Fasting (if measured)	< 6.1 (< 110)	< 6.1 (< 110)	< 7.0 (< 126)	< 7.0 (< 126)
and 2 h post-glucose load	≥6.7 (≥120) and < 10.0 (< 180)	≥7.8 (≥140) and < 11.1 (< 200)	≥7.8 (≥140) and < 11.1 (< 200)	≥8.9 (≥160) and < 12.2 (< 220)
Impaired fasting glycaemia (IFG)				
Fasting	≥5.6 (≥100) and < 6.1 (< 110)	≥5.6 (≥100) and < 6.1 (< 110)	≥6.1 (≥110) and < 7.0 (< 126)	≥6.1 (≥110) and < 7.0 (< 126)
2 h post-glucose load (if measured)	< 6.7 (< 120)	< 7.8 (< 140)	< 7.8 (< 140)	< 8.9 (< 160)

For epidemiological or population screening purposes, the fasting or 2 h value after 75 g oral glucose may be used alone. For clinical purposes, the diagnosis of diabetes should always be confirmed by repeating the test on another day, unless there is unequivocal hyperglycaemia with acute metabolic decompensation or obvious symptoms. Glucose concentrations should not be determined on serum unless red cells are immediately removed, otherwise glycolysis will result in an unpredictable underestimation of the true concentrations. It should be stressed that glucose preservatives do not totally prevent glycolysis. If whole blood is used, the sample should be kept at 0–4°C or centrifuged immediately, or assayed immediately. Table reproduced with permission from Alberti KGMM, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus. Provisional Report of a WHO Consultation. Diabet Med 1998; 15: 539–553.

2: Aetiological classification of disorders of glycaemia*

Type 1 (ß-cell destruction, usually leading to absolute insulin deficiency)

Autoimmune
Idiopathic

Type 2 (may range from predominantly insulin resistance with relative insulin deficiency to a predominantly secretory defect with or without insulin resistance)

Other specific types

Genetic defects of ß-cell function
Genetic defects in insulin action
Diseases of the exocrine pancreas
Endocrinopathies
Drug or chemical induced
Infections
Uncommon forms of immune-mediated diabetes
Other genetic syndromes sometimes associated with diabetes

Gestational diabetes

* As additional subtypes are discovered, it is anticipated they will be reclassified within their own specific category. Includes the former categories of gestational impaired glucose tolerance and gestational diabetes. Table reproduced with permission from Alberti KGMM, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus. Provisional Report of a WHO Consultation. Diabet Med 1998; 15: 539-553. Copyright John Wiley & Sons Limited.

Clinicians should note that the diagnostic criteria differ between clinical and epidemiological settings. In clinical practice, when symptoms are typical of diabetes, a single fasting plasma glucose level of ≥7.0 mmol/L or 2 h post-glucose or casual postprandial plasma glucose level of ≥11.1 mmol/L suffices for diagnosis. If there are no symptoms, or symptoms are equivocal, at least one additional glucose measurement (preferably fasting) on a different day with a value in the diabetic range is necessary to confirm the diagnosis. Furthermore, severe hyperglycaemia detected under conditions of acute infective, traumatic, circulatory or other stress may be transitory and should not be regarded as diagnostic of diabetes. The situation should be reviewed when the primary condition has stabilised.

In epidemiological settings, for study of high-prevalence populations or selective screening of high-risk individuals, a single measure – the glucose-level 2 h post-glucose load – will suffice to describe prevalence of impaired glucose tolerance (IGT).

What about the oral glucose tolerance test?

Previously, the oral glucose tolerance test (OGTT) was recommended in people with a fasting plasma glucose level of 5.5–7.7 mmol/L or random plasma glucose level of 7.8–11.0 mmol/L. After a 75 g glucose load, those with a 2 h plasma glucose level of < 7.8 mmol/L were classified as normoglycaemic, of 7.8–11.0 mmol/L as having IGT and of ≥11.1 mmol/L as having diabetes.

The new diagnostic criteria proposed by the ADA and WHO differ in their recommendations on use of the OGTT. The ADA makes a strong recommendation that fasting plasma glucose level can be used on its own and that, in general, the OGTT need not be used.[1] The WHO group[2] argues strongly for the retention of the OGTT and suggests using fasting plasma glucose level alone only when circumstances prevent the performance of the OGTT.

There are concerns that many people with a fasting plasma glucose level < 7.0 mmol/L will have manifestly abnormal results on the OGTT and are at risk of microvascular and macrovascular complications. This has major ramifications for the approach to diabetes screening, particularly when the Australian National Diabetes Strategy proposal,[7] launched in June 1998 by Dr Michael Wooldridge, then Federal Minister for Health and Aged Care, has early detection of type 2 diabetes as a key priority.

Recommendation: *The Australasian Working Party on Diagnostic Criteria has major concerns about discontinuing use of the OGTT and recommends that a formal recommendation on its use in diabetes screening be withheld until the final WHO recommendation is made. However, in the interim, the OGTT should continue to be used.*

Diabetes in pregnancy

The ADA has retained its old criteria for diagnosis of gestational diabetes.1 These differ from those recommended by both WHO2 and the Australian Working Party on Diabetes in Pregnancy8 and are generally not recognised outside the United States. The new WHO statement retains the 1985 WHO recommendation that both IGT and diabetes should be classified as gestational diabetes. This is consistent with the recommendations of the Australasian Diabetes in Pregnancy Society, which recommended a diagnostic 2 h venous plasma glucose level on the OGTT of ≥8.0 mmol/L. In New Zealand, a cut-off level of ≥ 9.0 mmol/L has been applied.8

How has the classification of diabetes changed?

The proposed new classification encompasses both clinical stages and aetiological types of hyperglycaemia and is supported by numerous epidemiological studies. The classification by aetiological type (Box 2) results from new knowledge of the causes of hyperglycaemia, including diabetes. The terms insulin-dependent and non-insulin-dependent diabetes (IDDM and NIDDM) are eliminated and the terms type 1 and type 2 diabetes retained. Other aetiological types, such as diabetes arising from genetic defects of ß-cell function or insulin action, are grouped as "other specific types", with gestational diabetes as a fourth category.

The proposed staging (Box 3) reflects the fact that any aetiological type of diabetes can pass or progress through several clinical phases (both asymptomatic and symptomatic) during its natural history. Moreover, individuals may move in either direction between stages.

Impaired glucose tolerance and impaired fasting glycaemia

Impaired glucose tolerance (IGT), a discrete class in the previous classification, is now categorised as a stage in the natural history of disordered carbohydrate metabolism. Individuals with IGT are at increased risk of cardiovascular disease, and not all will be identified by fasting glucose level.

In reducing the use of the OGTT, the ADA recommended a new category – impaired fasting glycaemia (IFG) – when fasting plasma glucose level is lower than that required to diagnose diabetes but higher than the reference range (< 7.0 mmol/L but ≥ 6.1 mmol/L). Limited data on this category show that it increases both risk of progressing to diabetes[9] and cardiovascular risk.[5] However, data are as yet insufficient to determine whether IFG has the same status as IGT as a risk factor for developing diabetes and cardiovascular disease and as strong an association with the metabolic syndrome (insulin resistance syndrome).

IFG can be diagnosed by fasting glucose level alone, but if 2 h glucose level is also measured some individuals with IFG will have IGT and some may have diabetes. In addition, the number of people with OGTT results indicating diabetes but fasting plasma glucose level < 7.0 mmol/L is unknown, but early data suggest there may be major variation across different populations.[10] A number of studies, including the DECODE initiative of the European Diabetes Epidemiology Group, have reported that individuals classified with IFG are not the same as the IGT group.[11-15] The European Group believes that, on available European evidence, the ADA decision to rely solely on fasting glucose level would be unwise.

Recommendation: *The Australasian Working Party on Diagnostic Criteria recommends immediate adoption of the new classification. However, clinicians should be aware that some cases of diabetes will be missed unless an OGTT is performed. Thus, if there is any suspicion or other risk factor suggesting glucose intolerance, the working party continues to recommend use of an OGTT pending the final WHO recommendation.*

3. Disorders of glycaemia: aetiological types and clinical stages

	Stages				
	Normoglycaemia	Hyperglycaemia			
		Impaired glucose tolerance and/or impaired fasting glycaemia	Diabetes mellitus		
	Normal glucose tolerance		Not insulin-requiring	Insulin-requiring	
Types				For control	For survival
Type1					
Autoimmune	←	—	—	—	→
Idiopathic					
Type 2					
Predominantly insulin resistance	←	—	—	—	- - - →
Predominantly insulin secretory defects					
Other specific types*	←	—	—	—	- - - →
Gestational diabetes*	←	—	—	—	- - - →

* In rare instances, patients in these categoies (eg, vacor toxicity, type 1 diabetes presenting in pregnancy) may require nsulin for survival. Table reproduced with permission from Alberti KGMM, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus amd its complicaions. Part 1: diagnosis and classification of diabetes mellituss. Provisional Report of a WHO consultation. Diabet Med 1998; 15: 539 553. Copyright John Wiley and Sons Limited.

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13 The skin

Chapter 8, AMA5 applies to the assessment of permanent impairment of the skin, subject to the modifications set out below.

13.1 Chapter 8, AMA5 (pp173–190) refers to skin diseases generally rather than work-related skin diseases alone. This chapter has been adopted for measuring impairment of the skin system, with the following variations.

13.2 Disfigurement, scars and skin grafts may be assessed as causing significant permanent impairment when the skin condition causes limitation in the performance of activities of daily living (ADL).

13.3 For cases of facial disfigurement, refer to Table 6.1 in the WorkCover Guidelines.

13.4 Table 8-2, AMA5 (p178) provides the method of classification of impairment due to skin disorders. Three components – signs and symptoms of skin disorder, limitations in activities of daily living and requirements for treatment – define five classes of permanent impairment. The assessor should derive a specific percentage impairment within the range for the class that best describes the clinical status of the worker.

13.5 The skin is regarded as a single organ and all non-facial scarring is measured together as one overall impairment rather than assessing individual scars separately and combining the results.

13.6 A scar may be present and rated as 0% WPI.

13.7 Table 13.1 for the evaluation of minor skin impairment (TEMSKI) is an extension of Table 8-2 in AMA5. The TEMSKI divides Class 1 of permanent impairment (0-9%) due to skin disorders into five categories of impairment. The TEMSKI may be used by trained assessors (who are not trained in the skin body system), for determining impairment from 0 – 4% in the Class 1 category that has been caused by minor scarring following surgery. Impairment greater than 4% must be assessed by an assessor who has undertaken the requisite training in the assessment of the skin body system.

13.8 The TEMSKI is to be used in accordance with the principle of 'best fit'. The assessor must be satisfied that the criteria within the chosen category of impairment best reflect the skin disorder being assessed. The skin disorder should meet most, but does not need to meet all, of the criteria within the impairment category in order to satisfy the principle of 'best fit'. The assessor must provide detailed reasons as to why this category has been chosen over other categories.

13.9 Where there is a range of values in the TEMSKI categories, the assessor should use clinical judgement to determine the exact impairment value.

13.10 The case examples provided in Chapter 8, AMA5 do not, in most cases, relate to permanent impairment that results from a work-related injury. The following examples are provided for information.

13.11 Work-related case study examples 13.1, 13.2, 13.3, 13.4, 13.5, 13.6 are included below, in addition to AMA5 examples 8.1–8.22 (pp178–187).

Table 13.1 for the evaluation of minor skin impairment (TEMSKI)

Criteria	0% WPI	1% WPI	2% WPI	3 - 4% WPI	5 - 9% WPI*
Description of the scar(s) and/or skin condition(s) (shape, texture, colour)	Claimant is not conscious or is barely conscious of the scar(s) or skin condition Good colour match with surrounding skin and the scar(s) or skin condition is barely distinguishable. Claimant is unable to easily locate the scar(s) or skin condition No trophic changes Any staple or suture marks are barely visible	Claimant is conscious of the scar(s) or skin condition Some parts of the scar(s) or skin condition colour contrast with the surrounding skin as a result of pigmentary or other changes Claimant is able to locate the scar(s) or skin condition Minimal trophic changes Any staple or suture marks are visible	Claimant is conscious of the scar(s) or skin condition Noticeable colour contrast of scar(s) or skin condition with surrounding skin as a result of pigmentary or other changes Claimant is able to easily locate the scar(s) or skin condition Trophic changes evident to touch Any staple or suture marks are clearly visible	Claimant is conscious of the scar(s) or skin condition Easily identifiable colour contrast of scar(s) or skin condition with surrounding skin as a result of pigmentary or other changes Claimant is able to easily locate the scar(s) or skin condition. Trophic changes evident to touch Any staple or suture marks are clearly visible	Claimant is conscious of the scar(s) or skin condition Distinct colour contrast of scar(s) of skin condition with surrounding skin as a result of pigmentary or other changes Claimant is able to easily locate the scar(s) or skin condition Trophic changes are visible Any staple or suture marks are clearly visible
Location	Anatomic location of the scar(s) or skin condition not clearly visible with usual clothing/ hairstyle	Anatomic location of the scar(s) or skin condition is not usually visible with usual clothing/ hairstyle	Anatomic location of the scar(s) or skin condition is usually visible with usual clothing/hairstyle	Anatomic location of the scar(s) or skin condition is visible with usual clothing/hairstyle	Anatomic location of the scar(s) or skin condition is usually and clearly visible with usual clothing/ hairstyle
Contour	No contour defect	Minor contour defect	Contour defect visible	Contour defect easily visible	Contour defect easily visible
ADL / Treatment	No effect on any ADL No treatment, or intermittent treatment only, required	Negligible effect on any ADL No treatment, or intermittent treatment only, required	Minor limitation in the performance of few ADL No treatment, or intermittent treatment only, required	Minor limitation in the performance of few ADL AND exposure to chemical or physical agents (for example, sunlight, heat, cold etc.) may temporarily increase limitation No treatment, or intermittent treatment only, required	Limitation in the performance of few ADL (INCLUDING restriction in grooming or dressing) AND exposure to chemical or physical agents (for example, sunlight, heat, cold etc.) may temporarily increase limitation or restriction No treatment, or intermittent treatment only, required
Adherence to underlying structures	No adherence	No adherence	No adherence	Some adherence	Some adherence

This table uses the principle of 'best fit'. You should assess the impairment to the whole skin system against each criteria and then determine which impairment category best fits (or describes) the impairment. A skin impairment will usually meet most, but does not need to meet all, criteria to 'best fit' a particular impairment category.

Example 13.1: Cumulative irritant dermatitis

Subject:	42-year-old man.
History:	Spray painter working on ships in dry dock. Not required to prepare surface but required to mix paints (including epoxy and polyurethane) with 'thinners' (solvents) and spray metal ships' surface. At end of each session, required to clean equipment with solvent. Not supplied with gloves or other personal protective equipment until after onset of symptoms. Gradual increase in severity in spite of commencing to wear gloves. Off work two months leading to clearance, but frequent recurrence, especially if the subject attempted prolonged work wearing latex or PVC gloves or wet work without gloves.
Current:	Returned to dry duties only at work. Mostly clear of dermatitis, but flares.
Physical examination:	Varies between no abnormality detected to mild dermatitis of the dorsum of hands.
Investigations:	Patch test standard + epoxy + isocyanates (polyurethanes). No reactions.
Impairment:	0%.
Comment:	No interference with activities of daily living (ADL).

Example 13.2: Allergic contact dermatitis to hair dye

Subject:	30-year-old woman.
History:	Hairdresser 15 years, with six-month history of hand dermatitis, increasing despite beginning to wear latex gloves after onset. Dermatitis settled to very mild after four weeks off work, but not clear. As the condition flared whenever the subject returned to hairdressing, she ceased and is now a computer operator.
Current:	Mild continuing dermatitis of the hands which flares when doing wet work (without gloves) or when wears latex or PVC gloves. Has three young children and impossible to avoid wet work.
Investigation:	Patch test standard + hairdressing series. Possible reaction to paraphenylene diamine.
Impairment:	5%.
Comment:	Able to carry out ADL with difficulty, therefore limited performance of some ADL.

Example 13.3: 'Cement dermatitis' due to chromate in cement

Subject:	43-year-old man.
History:	Concreter since age 16. Eighteen-month history of increasing hand dermatitis eventually on dorsal and palmar surface of hands and fingers. Off work and treatment led to limited improvement only.
Physical examination:	Fissured skin, hyperkeratotic chronic dermatitis.
Investigation:	Patch test. Positive reaction to dichromate.
Current:	Intractable, chronic, fissured dermatitis.
Impairment:	12%.
Comment:	Unable to obtain any employment because has chronic dermatitis and on disability support pension. Difficulty gripping items including steering wheel, hammer and other tools. Unable to do any wet work, (eg, painting). Former home handyman, now calls in tradesman to do any repairs and maintenance. Limited performance in some ADL.

Example 13.4: Latex contact urticaria/angioedema with cross reactions

Subject:	Female nurse, age 40.
History:	Six-month history of itchy hands minutes after applying latex gloves at work. Later swelling and redness associated with itchy hands and wrists and subsequently widespread urticaria. One week off led to immediate clearance. On return to work wearing PVC gloves, developed anaphylaxis on first day back.
Physical examination:	No abnormality detected or generalised urticaria/angioedema.
Investigation:	Latex radioallergosorbent test, strong positive response.
Current:	The subject experiences urticaria and mild anaphylaxis if she enters a hospital, some supermarkets or other stores (especially if latex items are stocked), at children's parties or in other situations where balloons are present, or on inadvertent contact with latex items including sport goods handles, some clothing, and many shoes (latex based glues). Also has restricted diet (must avoid bananas, avocados and kiwi fruit).
Impairment:	17%.
Comment:	Severe limitation in some ADL in spite of intermittent activity.

Example 13.5: Non-melanoma skin cancer

Subject:	53-year-old married man.
History:	'Road worker' since 17 years of age. Has had a basal cell carcinoma on the left forehead, squamous cell carcinoma on the right forehead (graft), basal cell carcinoma on the left ear (wedge resection) and squamous cell carcinoma on the lower lip (wedge resection) excised since 45 years of age. No history of loco-regional recurrences. Multiple actinic keratoses treated with cryotherapy or Efudix over 20 years (forearms, dorsum of hands, head and neck).
Current:	New lesion right preauricular area. Concerned over appearance "I look a mess."
Physical examination:	Multiple actinic keratoses forearms, dorsum of hands, head and neck. Five millimetre diameter nodular basal cell carcinoma right preauricular area, hypertrophic red scar 3cm length left forehead, 2cm diameter graft site (hypopigmented with 2mm contour deformity) right temple, non-hypertrophic scar left lower lip (vermilion) with slight step deformity and non-hypertrophic pale wedge resection scar left pinna leading to 30% reduction in size of the pinna. Graft sites taken from right post auricular area. No regional lymphadenopathy.
Impairment rating:	6%.
Comment:	Refer to Table 6.1 (facial disfigurement).

Example 13.6: Non-melanoma skin cancer

Subject:	35-year-old single female professional surf life-saver.
History:	Occupational outdoor exposure since 19 years of age. Basal cell carcinoma on tip of nose excised three years ago with full thickness graft following failed intralesional interferon treatment.
Current:	Poor self-esteem because of cosmetic result of surgery.
Physical examination:	1cm diameter graft site on the tip of nose (hypopigmented with 2mm depth contour deformity, cartilage not involved). Graft site taken from right post-auricular area.
Impairment rating:	10%.
Comment:	Refer to Table 6.1 (facial disfigurement).

14 Cardiovascular system

Chapters 3 and 4, AMA5 apply to the assessment of permanent impairment of the cardiovascular system, subject to the modifications set out below.

Introduction

14.1 The cardiovascular system is discussed in Chapter 3, AMA5 (Heart and Aorta) and 4, AMA5 (Systemic and Pulmonary Arteries) (pp25–85). These chapters can be used to assess permanent impairment of the cardiovascular system with the following minor modifications.

14.2 It is noted that in this chapter there are wide ranges for the impairment values in each category. When conducting a WorkCover assessment, assessors should use their clinical judgement to express a specific percentage within the range suggested.

Exercise stress testing

14.3 As with other investigations, it is not the role of an assessor to order exercise stress tests purely for the purpose of evaluating the extent of permanent impairment.

14.4 If exercise stress testing is available, then it is a useful piece of information in arriving at the overall percentage impairment.

14.5 If previous investigations are inadequate for a proper assessment to be made, the assessor should consider the value of proceeding with the evaluation of permanent impairment without adequate investigations and data (see Chapter 1, Ordering of additional investigations).

Permanent impairment – maximum medical improvement

14.6 As for all assessments, maximal medical improvement is considered to have occurred when the worker's condition has been medically stable for the previous three months, and is unlikely to change substantially in the next 12 months without further medical treatment (see 1.22).

Vascular diseases affecting the extremities

14.7 Note that in this section, Table 4-4 and Table 4-5, AMA5 (p76) refer to percentage impairment of the upper or lower extremity. Therefore, an assessment of impairment concerning vascular impairment of the arm or leg requires that the percentages identified in Tables 4-4 and 4-5 be converted to whole person impairment. The table for conversion of the upper extremity is Table 16-3, AMA5 (p439) and the table for conversion of the lower extremity is Table 17-3, AMA5 (p527).

Thoracic outlet syndrome

14.8 Impairment due to thoracic outlet syndrome is assessed according to Chapter 16, AMA5 on the upper extremities, and Chapter 2 of the WorkCover Guidelines.

Effect of medical treatment

14.9 If the worker has been offered, but refused, additional or alternative medical treatment which the assessor considers is likely to improve the worker's condition, the assessor should evaluate the current condition, without consideration for potential changes associated with the proposed treatment. The assessor may note the potential for improvement in the worker's condition in the evaluation report, and the reason for refusal by the worker, but should not adjust the level of impairment on the basis of the worker's decision (Chapter 1, Permanent impairment – maximum medical improvement).

Future deterioration

14.10 If an assessor forms the opinion that the worker's condition is stable in the foreseeable future, but expected to deteriorate in the longer term, the assessor should make no allowance for deterioration, but note its likelihood in the evaluation report. Where the worker's condition suffers long term deterioration, the worker may reapply for further evaluation of the condition at a later time.

15 Digestive system

Chapter 6, AMA5 applies to the management of permanent impairment of the digestive system.

15.1 The digestive system is discussed in Chapter 6, AMA5 (pp117-142).This chapter can be used to assess permanent impairment of the digestive system.

15.2 **Section 6.6, AMA5 (p136) on hernias.** Occasionally in regard to inguinal hernias there is damage to the ilio inguinal nerve following surgical repair. Where there is loss of sensation in the distribution of the ilio inguinal nerve involving the upper anterior medial aspect of the thigh, a 1%WPI should be assessed.

15.3 Where, following repair, there is severe dysaesthesia in the distribution of the ilio inguinal nerve, a 2%WPI should be assessed.

15.4 Where, following repair of a hernia of the abdominal wall, there is residual persistent excessive induration at the site, which is associated with significant discomfort, this should be assessed as a Class 1 herniation (Table 6-9, AMA5, p136).

15.5 Impairments due to nerve injury and induration can not be combined. The higher impairment should be chosen.

15.6 A person who has suffered more than one work related hernia recurrence and who now has limitation of ADLs (eg, lifting) should be assessed as herniation class 1 (Table 6-9, AMA5, p136).

note

Evaluation of permanent impairment arising from chronic pain (exclusion of Chapter 18, AMA5)

Following consultation with Professor Michael Cousins and Doctor Mike Nicholas of the University of Sydney Pain Management and Research Centre, the AMA5 chapter devoted to assessment of chronic pain is to be disregarded for the purposes of the WorkCover Guidelines.

The reasons for this are:

- The chapter does not contain validated instruments that convert the rating given by an examiner into a whole body impairment rating.
- No work has been done at this time to enable such conversion to occur.
- Measuring impairment for this condition is complex and requires a high degree of specialised knowledge and experience. This level of knowledge and experience is not widespread and it would be difficult to ensure consistency and equity in the assessment process.

Impairment ratings in the WorkCover Guidelines attempt to account for the pain commonly associated with many disorders and others, such as complex regional pain syndrome, are specifically included in the guidelines. It is recognised in AMA5 that chronic pain is not adequately accounted for in the other chapters. However, work on a better method is still in progress and it would be premature to specify an alternative at present.

Work is being undertaken by the University of Sydney Pain Management and Research Centre that will enable such a chapter to be written in the future.

As with all largely subjective complaints in compensation systems, there is a concern that monetary compensation for non-specific conditions such as chronic pain can in some cases complicate the restorative and rehabilitative efforts of the worker and his or her health advisers. Hence the need for further investigation to determine a better and fairer system that recognises the difficulties associated with these conditions while, at the same time, promoting effective rehabilitation.

When the work is completed, it will be possible to review this policy decision and introduce assessment of permanent impairment arising from chronic pain.

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