State of Colorado
Department of Labor & Employment
Division of Workers' Compensation
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Division of Workers' Compensation

Level II Accreditation Course and Curriculum

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Note:

This curriculum was developed by the Division of Workers' Compensation with input and approval of the Medical Care Advisory Committee and the medical director. It must be used with the 3rd revised edition of the *AMA Guides to the Evaluation of Permanent Impairment* only.

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Dear Level II Participant:

Enclosed are your Level II Physician Accreditation educational materials. Level II Accreditation is an educational process designed to provide physicians with an understanding of the administrative, legal and medical aspects of the workers' compensation system, as well as educating physicians in the uniform use of the American Medical Association Guides to the Evaluation of Permanent Impairment, 3rd Edition, Revised.

Lectures, workshops and demonstrations offered during the two-day accreditation seminar are based on this notebook. Included in your curriculum materials is a copy of the *AMA Guides* to the Evaluation of Permanent Impairment, 3rd Edition Revised. The Level II curriculum material serves two purposes: I) to cover all of the material included in the course and 2) to serve as a reference for impairment and administrative issues. You will be tested only on the objectives at the beginning of each section. Important concepts included in the examination will be emphasized by the lecturers. You will need to read the material and familiarize yourself with the objectives **prior** to coming to the seminar. **Preview the pre-test included in the materials prior to beginning your studies. Take the pretest after studying and then restudy the areas you did not do well in. You will be required to hand in the computer answer sheet for the pre-test at the time you take your test.** You may keep the pre-test itself. Answers to the pre-test are included.

You will be required to take an examination to demonstrate understanding of the proper use of the *AMA Guides*, 3rd Edition Revised and any changes mandated by the Division of Workers' Compensation. The test includes multiple choice questions and case reports that require an impairment rating to be done using the Guides. **The Guides will need to be used for a reference during the case study part of the examination**. All physicians will be tested on the legal, ethical, administrative, and neurological sections. Upon passing the test for full accreditation, you will be allowed to perform impairment ratings on any patient. **If you wish to be accredited to rate only cases related to your specialty, you can choose to take a specialized examination for limited accreditation.** The Division will inform the physician of the other sections that will be included in his/her specialized examination. **Upon passing a specialized exam, the physician will be accredited to rate patients within specified diagnostic categories only**.

You will be accredited for three years on those impairment issues tested with successful completion of the examination. As an accredited physician, it is your responsibility to be

familiar with the Workers Compensation rules and regulations of the Colorado General Assembly and the Division of Workers' Compensation. During the course of the accreditation period, we will keep you informed of all new rules and regulations, updated guidelines and any other information you will need to make your work in the Workers' Compensation system a smooth process.

So that we can continue to offer accreditation seminars in the most efficient manner possible, you will be asked to complete an evaluation form at the completion of the seminar that you attend.

Thank you for your generous participation in our programs.

Paul Tauriello
Director

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CURRICULUM - LEVEL II ACCREDITATION

DAY 1 TOPICS

Introduction to the course

Administrative/Legal

Elements of a Quality Workers' Compensation Report

Neurological Impairment

Hand and Upper Extremity Impairment

Spine and Lower Extremity Impairment

Workshops:

- Lower Extremity
- Upper Extremity
- Spine
- Spine Inclinometry

*Order of topics for actual seminar agenda is subject to change.

OBJECTIVES – ADMINISTRATIVE CURRICULUM

1. Identify the duties and limitations associated with Level I and Level II accreditation.

2. Define “authorized treating physician.”

3. Define “maximum medical improvement” (MMI) and identify the party responsible for determining MMI.

4. Identify the possible payment and benefit consequences of not complying with a request for work status.

5. Explain the procedure used to handle an employee’s failure to attend physician appointment.

6. Explain the manner in which the temporary disability and permanent medical impairment benefits are determined under the workers’ compensation act.

7. Explain the utilization review process and method for revocation of fees under utilization review.

8. Describe the mechanism for revocation of Level II accreditation.

9. Know the required time limits for the WC-164 reports and describe the reimbursement method.

10. Demonstrate the ability to appropriately complete the Colorado Division of Workers’ Compensation *Physician’s Report of Workers’ Compensation Injury* (WC-164) and explain what information belongs in each of the appropriate sections.

11. List recognized physician and non-physician providers under Rule 16 of the Workers’ Compensation Rules of Procedure.

12. Explain billing for cancellation fees.

13. Define the automatic waiver of patient/doctor privileges in a workers’ compensation case.

Chronology of a Workers' Compensation Case
Administrative Issues in WC

HISTORY OF WORKERS' COMPENSATION

For half a century, some workers unable to continue in their profession have been compensated for their disability. Pirates compensated those who lost extremities, and the Guilds of the 1600's aided families when workers were disabled, usually due to work-related injuries or diseases. In the 1860's, Sir John Simon of England presented a report to the Privy Council in which he established the need for a workers' compensation system by describing the many families left destitute due to industrial injuries. In the United States, two studies from the 1900's, one by the Illinois State Commission and the other by Crystal Eastwood in Pittsburgh demonstrated significant work-related disability compensated inadequately through private charities or the government. Both of these studies found that employers were paying high rates for liability insurance to defend themselves against claims of negligence and very few workers were prevailing in court under the required standard of negligence. Furthermore employers spent at least 53% of their premium dollar on litigation fees and investigation. At the same time, many uncompensated workers became disabled and were dependent on the government social support system, as well as private charities to support their families. This information was instrumental in encouraging employers and labor unions to agree on workers' compensation laws. Under these statutes, injuries, which occurred in relationship to work, would not be litigated by the employer. Further, the employer would not be held to a level of negligence to establish benefits. In exchange the statute would not require payment for pain and suffering but would cover reasonable medical expenses and disability. The employers then had the advantage of limiting the benefits paid, and not having to pay benefits for pain and suffering. All except six states had workers' compensation laws by 1920. These laws generally paid for 1) reasonable medical care, 2) temporary wage loss and 3) permanent wage loss and/or impairment due to loss of extremities or other significant long-term disabilities.

CHRONOLOGY OF A TYPICAL WORKER'S COMPENSATION CASE	Reference to Rule, Statute, Etc.
Injury occurs at work or worker recognizes symptom of illness which may be work-related	§ 8-41-301, C.R.S.
↓	
Worker reports incident and symptoms to employer	§ 8-43-102(1)(a) and (2), C.R.S.
↓	
Employer files a First Report of Injury form with insurance carrier	
If employer does not concur that a work-related injury or disease exists and refuses to file a First Report form, the worker can file a Worker's Claim for Compensation directly with the Division of Workers' Compensation.	§8-43-103(1), C.R.S.
↓	
Worker must seek care with the provider designated by the employer.	
The employer has the right in the first instance to select the authorized treating physician. The claimant is presented with a list of at least four physicians, four clinics, or combination thereof, from which the worker must choose a primary treating physician. If the employer does not timely designate a list of at least four providers when the worker reports an injury, then the worker may see the physician of his/her choice. The physician whom the employee sees on the first visit becomes the authorized provider and remains the authorized provider unless the insurer and patient agree to change providers, the worker exercises an option for <u>one</u> unchallenged change of treating physician, or a judge orders a change in provider. Note that the provider is physician-specific. A provider is <u>not</u> a clinic or organization. Chiropractors must be Level I accredited to be compensated to treat cases with three or more lost work days or to provide more than 12 treatments, or to provide treatment exceeding 90 days. The first physician seen by the worker, meeting the above definitions, becomes the "authorized treating physician." Other physicians referred to by this physician also become authorized treating providers.	§8-43-404(5), C.R.S. and §8-42-101(1)(a); (3)(a) (III); (3.6), C.R.S.
↓	

Responsibilities of a physician at the first visit

1. Take a complete history including job duties, details regarding accident or hazardous exposure and related symptoms, additional past medical history, and history of non-occupational activities.
2. Perform a complete physical examination for all relevant body parts based on the history and patient complaints.
3. Render a diagnosis based on the above.
4. Determine the medically probable cause (greater than 50% likelihood) of the patient's condition. (Causation will be explored in detail in the following chapter.)
5. If it is determined that the patient's condition is not work-related, recommend to the patient that they return to their general health care provider for care. If you find the condition to be work-related, continue your treatment plan.
6. Order appropriate diagnostic studies and initial treatment (refer to relevant Colorado Division of Workers' Compensation Medical Treatment Guidelines).
7. Determine work and activity restrictions.

If the patient has any restrictions of normal activities of daily living (ADL's) or restrictions for specific job tasks, these restrictions must be clearly described. Examples would be:

Rules of Procedure, Rule 17 – Medical Treatment Guidelines

- Occasional lifting up to 20 pounds
- Frequent lifting limited to 5 pounds
- No over-head work
- Sitting limited to 20 minutes followed by the change in position

NEVER order, "Modified duty," "desk duty," "light duty," etc. Supervisors differ greatly in their interpretation of these terms.

- Give a copy of work restrictions to the patient and ensure that the supervisor receives a copy.

Once a worker is off work for three days he becomes eligible for compensation. If the worker is totally restricted from duty, or if the employer cannot provide suitable accommodated duty, he is compensated 66.6% of his wages to a maximum of 91% of the state average weekly wage ("TTD" or Temporary Total Disability). If the employer allows the worker to return to part-time duty, he is compensated for the remainder of the time in which he cannot work 66.6% of his wages to a maximum of 91% of the state average weekly wage ("TPD" or Temporary Partial Disability). Note: The worker will not receive disability payment unless there is a physician's prescribed limitation of duty.

§8-42-105; §8-42-106, C.R.S

Designated authorized treating physician completes and signs the WC164 form ("Physician's Report of Workers' Compensation Injury"), submit within **14 days**, and supply a copy to the insurer and the patient. If you are requested to provide ability to work information and do not, payment for your medical care can be withheld. If the WC164 is completed by a non-physician provider (e.g. physician's assistant or advance practice nurse) there must be a co-signature of the authorized treating physician.

§8-42-105(2)(d), C.R.S.

Rules of Procedure, Rule 16-7(E).

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Follow-up patient visits

1. Continue diagnostic tests and treatment as necessary.

   - Be sure to follow the Division of Workers' Compensation Medical Treatment Guidelines. If the DOWC Guidelines must be exceeded, or treatment the patient requires is not covered in the Guidelines, pre-authorization must be sought from the insurance carrier. Carriers are only required to pay for care that is reasonable and medically necessary.
   - The insurer will not cover treatment of conditions not associated with the work-related illness or injury. If a new diagnosis results secondary to the treatment or complications of the primary diagnosis, this must be explained in your records for treatment to be covered.

Rules of Procedure, Rule 16-9, generally. Also see Rule 17 For Treatment Guidelines

2. Return the patient to full duty or specific activity restrictions as appropriate for current functional status.

3. Supply the WC164 Report or copies of your medical records when submitting bills to the insurer.

Rules of Procedure, Rule 16-7(E) and 16-8.

Patient No Shows

You can only receive a cancellation fee, the lesser of $150 or one-half of the fee of the expected visit, when the insurer scheduled the appointment. Therefore notify the insurer of any no show. The insurer may also stop temporary disability payments if the patient fails to come to the insurer- scheduled visit.
.

Rule 18-6(B) §8-42-105(2)(c)

Billing for Services

The Division of Workers' Compensation establishes a maximum fee schedule. To calculate the fee you must multiply the unit value in the 2013 Relative Values for Physicians© times the conversion rate set by the Division (e.g., $10.06 for E&M codes). Billing must be submitted on a CMS 1500 and accompanied by documentation. If a service (1) falls outside of those listed in the medical treatment guidelines, (2) is performed by a non-physician provider not authorized under the fee schedule, (Authorized providers – audiologist, acupuncturist, LCSW, LPN, LPC, LMFT, NP, OTR, OP, OTC, psychologist, LPT, PA, RN, RT, speech pathologist, surgical technologist), or (3) is listed in rule as preauthorized, it requires prior authorization.

Rule 18-2, 18-4
Rule 16-7

Rule 16-5

To contest a request for prior authorization the insurer must provide a review by a physician in the same or similar specialty including citation of treatment guidelines, if applicable, within seven days of a completed request. Following this, there is a seven-day response period for physician and re-response for insurer. If a payer does not respond timely to a complete prior authorization request, then treatment is deemed authorized

Rule 16-10

↓

Copying Medical Records

You continue to have an ethical responsibility to the patient. You should use your normal procedures for securing signed releases from the patient to forward copies of records to the payer for billing purposes or to any other parties. The statute only provides a "limited waiver of the doctor-patient privilege to persons who are necessary to resolve the claim." The Division does not consider documentation of work restrictions as protected medical records.

§8-47-203(1), C.R.S.

Determination of Maximum Medical Improvement (MMI)

Maximum medical improvement exists when the underlying condition causing the disability has become stable and no further treatment is reasonably expected to improve the condition. MMI does not preclude medical maintenance or alteration of the medical condition with the passage of time.

§8-40-201 (11.5), C.R.S

("Grover Meds"); Grover v. Industrial Commission, 759 P.2d 705 (Colo. 1988)

Continuing treatment to sustain the patient's current level of functioning can be prescribed but should be documented by the physician in the final report.

Patient at MMI

- ✓ Authorized treating physician (generally the primary designated physician) completes and signs the WC164 form as a closing report and submits to the insurer and patient. If completed by a non-physician provider (e.g. physician's assistant or advanced practice nurse) there must be a co-signature of the authorized treating physician.
- ✓ Define permanent work restrictions or release to full duty.
- ✓ Declare date of MMI
- ✓ Describe any continuing treatment needed or anticipated.
- ✓ Report impairment if present.

Rules of Procedure, Rule 16-7(E)(1)

§8-42-105(3)(a), C.R.S.

If the worker is unable to return to full duty, clearly state permanent physical restrictions. If the worker is unable to return to full duty and the employer cannot accommodate the worker's permanent restrictions, the worker will not receive any further payment for temporary disability after the date of MMI.

Rules of Procedure, Rule 12-1 and 12-2

An impairment rating is used to calculate the final payment of permanent partial disability benefits to the worker. To qualify for impairment, the worker must have a permanent alteration of a body part or system that affects his activities of daily living. The *AMA Guides* 3rd Revised Edition, Rule 12 and the Level II Curriculum must be used to calculate impairment.

§8-42-101(3.7) and 8-42-107(8)(c), C.R.S.

An impairment rating from the *AMA Guides* has no direct relationship to disability. Disability is related to whether or not a person is employable in various job positions.

Pursuant to Colorado statute 8-42-101(3.7), C.R.S.: " . . . for purposes of determining levels of medical impairment, the physician shall not render a medical impairment rating based on chronic pain without anatomic or physiologic correlation. Anatomic correlation must be based on objective findings."

✓ Patient or insurer may challenge the impairment rating submitted by the authorized treating physician or their consultant. The authorized treating physician's impairment rating can be challenged by requesting an Independent Medical Examination (IME) agreed-upon by the insurer and the patient, or from the Division of Workers' Compensation panel of Independent Medical Examiners. The current minimum cost for a Division IME is $675.00.	§8-42-107(8)(b)(II); §8-42-107.2, C.R.S.; Rules of Procedure, Rule 11

Additional Administrative Issues

Medical Care Accreditation Commission/Advisory Panel

In 1991 Senate Bill 218 radically changed the Colorado workers' compensation system. This bill created the Medical Care Accreditation Commission to advise the Director of the Division of Workers' Compensation on the development of medical fee schedules, medical treatment guidelines, utilization standards, and medical impairment rating guidelines. The commission developed Level I and Level II certification courses and implemented task forces to deal with medical treatment guidelines and impairment rating issues. The commission was sunsetted in July 1997, however the Director of the Department of Labor and Employment and the DOWC Director continued the MCAC as an advisory committee for a number of years. Currently a medical advisory panel which is larger and somewhat less formal than the MCAC provides input to the Division on medical issues, usually on an ad-hoc or as-needed basis.

Level I and II Accreditation and Impairment Rating

The Director of the Division of Workers' Compensation has established Level I and Level II Accreditation (C.R.S. § 8-42-101(3.6)). Level I Accreditation is only mandatory for chiropractors who desire to treat workers for lost time injuries or for more than 12 treatments. Lost time injuries are those where an injured worker is unable to return to work for more than three days. The Level I Accreditation program has been revised by the Division as an educational course appropriate for all physicians who treat injured workers but do not wish to provide impairment ratings.

Level II Accreditation is required to evaluate an injured worker who has been determined to have permanent impairment by the authorized treating physician. Chiropractors, dentists, podiatrists, psychologists, and audiologists cannot receive Level II accreditation.
(C.R.S. §8-42-101(3.5))

The authorized treating physician providing primary care need not be Level I or Level II accredited to determine MMI or that no impairment is present. If a non-Level II treating physician determines that MMI has been reached and impairment is present, that physician must refer to a Level II accredited physician within 20 days. If this referral is not made, the insurance company has an additional 20 days to refer to a Level II accredited physician.

Accreditation must be renewed every three years and generally requires attending a seminar or completing an educational process specified by the Division. The director may also revoke a physician's accreditation by recommendation of a utilization review panel, or for any of the following: 1) refusal to comply, 2) substantial failure to comply, or 3) two or more incidents of failure to comply with the provisions of the workers' compensation rules, relevant statutes, the *AMA Guides* to the Evaluation of Permanent Impairment and applicable additions by the Division, medical treatment guidelines or utilization standards, or 4) a misrepresentation on an application for accreditation. An administrative law judge will make recommendations to the director regarding revocation of a physician at a hearing prior to revocation of accreditation.

Authorized Medical Care and Billing

The medical provider is authorized under the following circumstances (C.R.S. § 8-43-404(5)): 1) when the employer timely provides the injured worker with a list of at least two physicians or two clinics from which to choose a doctor, prior to the first treatment for the injury; (Effective April 1, 2015, this minimum increases to four.) 2) if an employer fails to provide such list after notice of the injury and the employee selects his/her own physician; and 3) in emergency circumstances. Emergency care is authorized; however once the emergency has ceased the employee must return to an authorized physician.

There are several ways by which an injured worker may seek a change in physician. (1) He/she may exercise an option for an unchallenged 'one-time' change of primary care physician if that request is made within 90 days after the date of injury and before MMI is reached. The new physician must be on the employer's designated provider list. [This information is set forth in Rule 8 of the Division's Rules.] (2) Alternatively, the injured worker may at any time request a change of physician by writing to the insurance carrier or self-insured employer. If the carrier or self-insured employer fails to object, or they agree on the new provider within 20 days, the change in physician becomes automatic. (3) The employee may also petition the Division of Workers' Compensation for a change of physician. A prehearing conference or a more formal hearing may then be held to determine whether there is a reasonable basis for a change of physician.

It is important to remember that medical providers will only be reimbursed for care that is reasonable and necessary, even if they are authorized providers. Providers are expected to use the treatment guidelines and carriers should generally reimburse care prescribed in the guidelines. Multi-specialty task forces created the Medical Treatment Guidelines in Rule 17: low back; cervical spine; thoracic outlet; cumulative trauma disorders (includes carpal tunnel); shoulder; chronic pain; traumatic brain injury, lower extremity and complex regional pain syndrome.

No provider can bill a patient for charges in excess of the fee schedule, or in excess of those they have contracted for with the self-insured employer or insurer. In 2015 the physician must bill using the 2014 Relative Values for Physicians (RVP)©. Rules 16 and 18 describe the procedures for preauthorization and list procedures requiring preauthorization as well as additional codes and fees.

Completion of an impairment rating by the primary authorized treating physician is billed under the Medical Fee Schedule at a maximum of $355.00 (per the 2015 Fee Schedule, billing code Z0759). The fee includes the office visit, submission of the required impairment worksheets, and completion of the WC164 form "closing" report. Fee for the same service when the patient is seen on a referral basis is billed at a slightly higher rate (see Rule 18-6).

Completion of the WC164 report may be billed separately at a rate of $47 for the *initial* visit with the patient or if the payer specially requests that the report be submitted at a time when the form is otherwise not required. The closing WC164 report may also be billed separately at $47 if the patient is placed at MMI with an assessment of *no* impairment. (See Fee Schedule, Rule 18-6(G)(2)(e)).

Payment for Care – Physician Utilization Reviewers

The Division of Workers' Compensation expects physician reviewers to consider the ramifications of their decision making and how it affects the case as a whole. For example:

If the procedure being requested is not necessarily recommended, but something more involved like surgery with a prolonged recovery may be the next best option, then it may be logical to approve the requested procedure.

Also, if further physical therapy is requested and the patient is demonstrating functional progression with physical therapy, then typically this would justify an approval of more physical therapy visits beyond what the guidelines recommend.

If the treatment that has been provided clearly meets the indications outlined in the guidelines and the diagnosis has been accepted by the insurer, then treatment should be authorized. Failure to authorize this treatment could result in penalties against the insurer or loss of accreditation by the physician reviewer.

Independent Medical Examinations

Division Independent Medical Examinations ("DIMEs")

If there is a dispute concerning MMI or impairment rating and the parties cannot agree upon a Level II Accredited physician to complete the DIME, the Division of Workers' Compensation will select from a panel of DIME physicians. This is based on an application by the party who objects to the impairment rating and/or statement on MMI from the authorized treating physician. The DIME's opinion can only be overcome by clear and convincing evidence before an administrative law judge, and the parties may not go to hearing until the DIME physician has issued a completed report. The Division of Workers' Compensation reviews DIME physicians' reports to assure that they are complete and adhere to the basic principles taught in the Level II accreditation curriculum and the AMA Guides, 3rd Ed. (rev.).

An insurer may request a DIME for purposes of determining an MMI date when an authorized treating physician has not yet declared MMI if: (1) it has been 24 months since the date of injury and (2) another physician has examined the worker and declares the worker at MMI.

According to Rule 11 a DIME physician should not undertake a DIME if the appearance of or an actual conflict of interest exists. A conflict of interest includes, but is not limited to, instances where the physician or someone in the physician's office has treated the claimant. Further, a conflict may be presumed to exist when the DIME physician and a physician that previously treated the claimant has a supervisory relationship which involves either physician supervising the other. The following guidelines are to assist in determination of conflict or the appearance of a conflict:

1. Direct or substantial financial interest is a substantial interest which is a business ownership interest, a creditor interest in an insolvent business, employment or prospective employment for which negotiations have begun, ownership interest in real or personal property, debtor interest or being an officer or director in a business.

2. The relationship should be determined at the time the IME is being requested. Relationships in existence before or after the review will have no bearing, unless a direct and substantial interest is present at the time of the IME.

3. Being members of the same professional association, society or medical group, sharing office space [without a shared practice] or having practiced together in the past are not the types of relationships that will be considered a conflict or the appearance of a conflict, absent the present existence of a direct or substantial financial interest.

The Division of Workers' Compensation is soliciting board certified physicians for the Independent Medical Examiner Panel. The Division encourages qualified, board certified or eligible specialty physicians to apply. A prepaid fee of $675 has been established for a DIME examination. Please contact the DIME Unit at the Division of Workers' Compensation for information on applying to become a member of the DIME Panel.

Respondent-initiated Independent Medical Examinations ("RIMEs")

Many medical providers perform or have performed IMEs at the request of an insurance company or an insured entity. No doctor/patient relationship is established, and within workers' compensation the process may be viewed as an independent business relationship between a medical provider and the insurer. However, note that this process is still subject to some regulation via Division rule and/or statute:

- The claimant is required to attend such exam or risk losing benefits.
- The Workers' Compensation Fee Schedule (Rule 18 Section G) establishes billing codes and fees for such examination.
- By statute, the examination must be audio-recorded in its entirety by the examining physician. The requirements are set forth in Workers' Compensation Rule 8.
- Claimants may elect to have a physician of their choice sit-in on the examination, at their own cost. By statute claimants may also make their own audio-recording of the exam *in addition* to the requirement stated above.
- A written report is required which must be supplied to both the insurer and the claimant or his/her legal representative.

Claimant-initiated Independent Medical Examinations

Claimants are entitled to obtain independent medical examinations at their own expense. The physician must produce a written report to be supplied to both the claimant and insurer or their legal representatives. However, the physician is *not* required to audio-record the exam; the provisions of Rule 8 do not apply. Maximum fees for this examination are established per Rule 18 Section G as noted above.

Utilization Review Program (UR)

Utilization review was implemented to allow review and remedy for inappropriate or unnecessary health care. A panel of experts is selected by the Division to review care rendered in a case. The UR panel reviews all of the medical records and makes recommendations to the Director concerning the necessity and/or appropriateness of care. The committee may recommend by majority vote to change the medical provider. The committee may recommend by unanimous vote that fees be retroactively denied or repaid, or that the physician's accreditation be revoked. In the event of revocation of accreditation, carriers may deny reimbursement for medical services to that provider for up to three years. (C.R.S. § 8-43-501)

Physician-Patient Relationship

In all cases you retain the same obligations toward your patients with work related injuries as with non work-related injuries. Although the workers' compensation statute allows a "limited waiver" for "persons necessary to resolve the claim" the Division suggests you follow the same procedures you routinely use when releasing medical records that frequently contain medical history not directly related to the person's claim.

Physicians should know that workers' compensation insurance carriers are not covered under HIPAA (Health Insurance Portability & Accountability Act). Therefore, the records or reports that you send to the insurer could be provided to the employer without the patient's specific permission. The safest course is to have your patients sign an authorization for release of records if the WC medical reports are likely to contain information not directly related to the claim, e.g., gynecological or psychiatric history. Please refer to HIPAA regulations or the DOWC website for more specific information. (Click on the "Medical Providers" tab, and then "HIPAA" in one of the general subject indices.)

Work restrictions which do not include information regarding specific medical diagnoses or treatment are not considered medical records by the Division of Workers' Compensation. See the attached statements from professional societies for guidance on medical ethics.

A Word About Genetic information and Family Health History . . . .

There are instances when protected information about a worker's non-work-related health status is called to the attention of the medical provider treating a workplace injury or performing another type of employment-related exam (such as fitness for duty). Under the federal Genetic Information Nondiscrimination Act of 2008 (GINA), family medical history can be construed as "genetic information" which is protected and confidential, and should not be disclosed to the injured worker's insurer or employer without a specific release. Remember, under HIPAA, physicians and medical clinics are covered entities, but insurers and employers are not. Generally, avoid including family health history in records provided to the insurer/employer in a workers' comp case unless you have the patient's authorization.

OBJECTIVES – WORKERS' COMPENSATION REPORT

1. Describe the information that should be included in any complete narrative report for an impairment rating.

2. Define "medically probable."

3. Describe the mechanism by which a physician determines an injured worker's job responsibilities before returning him/her to work.

4. Identify the four items that must be included on the maximum medical improvement report.

5. Explain the accepted manner of reporting impairment on a condition that is multi-factorial and requires apportionment.

6. Identify parties who should not influence your medical decision regarding a case.

Elements of a Quality Workers' Compensation Medical Report

Introduction

Physicians perform three special functions in workers' compensation which are rarely required in general medical cases. The first is providing an opinion on the causal relationship between the work-related exposure or injury, and the patient's current pathology and need for treatment. Once causation has been established medical reports follow the traditional format of history including job requirements, physical examination, diagnosis and treatment. The second function occurs when a case is closed in workers' compensation and the physician must determine the presence or absence of a permanent impairment. If permanent impairment is present, then it must be rated according to the *AMA Guides* to the Evaluation of Permanent Impairment, Third Revised Edition. The rating must include the work sheets required by the Division of Workers' Compensation, and conform to the Level II curriculum and applicable Rule 12 impairment rating requirements.

Finally a physician must be able to communicate to non-medical personnel information needed to resolve claim issues. For instance, employers and patients must be able to understand work restrictions, and insurance adjusters and lawyers must easily comprehend the origin of impairment ratings. While certain areas overlap between medical and legal concerns in workers' compensation, this does not override the ethical responsibility of the physician to protect the doctor-patient privilege. In this section, we will explore how to determine causation in workers' compensation, and review the elements required for a workers' compensation impairment rating report.

Risk-Assessment or Causal Relationships in Everyday Life

Every day we make decisions based on an assessment of risk. We decide whether or not to fasten our seat belt on the way to work. We insist that our children wear bike helmets when riding in the neighborhood. When participating in recreational activities such as skiing or riding horseback, we decide whether or not to wear a helmet. These activities all have a different level of risk. Our decision to wear protective equipment is usually based on the personal inconvenience of wearing the equipment, weighed against the actual risks of a catastrophic event.

Causality Assessment in Medicine

Practitioners assess causality and risk when treating any medical case. The patient's reported history, combined with the physical exam findings, determine the likelihood of a specific disease, thus dictating diagnostic procedures and treatment. For example: a 55 year old overweight, hypertensive male presenting with low back pain must be assessed for abdominal aneurysm, whereas a 25 year old female with low back pain has little likelihood of abdominal aneurysm but should be assessed for an ectopic pregnancy. Using knowledge of common causes for back pain to establish differential diagnoses is actually assessing the risk of a particular diagnosis.

Workers' Compensation Causality

In worker's compensation the health care provider must discuss the relationship between the patient's diagnosis and the work-related exposure. The assessment process requires estimating the risk of developing the suspected diagnosis as a result of the actual exposure of the individual patient. Legally the physician must be able to state the medical probability, greater than 50% likelihood, that the patient's diagnosis and physical findings are related to the work-related exposure.

Causation Assessment

1. Record an occupational medical history including a detailed description of the incident reportedly causing the injury or a complete job description of all activities which could have contributed to the patient's symptoms. The description of job duties should include a list of physical activities required, the duration and frequency of these activities and the total time the individual has worked in the job position. At a minimum, the job activities description should consider specific hand tool use, driving or other skilled activities, approximate lifting estimations, description of the posture required in order to complete the job tasks and consideration of the force necessary for the job tasks.

2. Take a complete medical history including medical diseases past and present, and non-occupational activities which could have affected the complaint. Record hobbies involving the hands for upper extremity complaints and weekend sports activities for musculoskeletal injuries.

3. Establish a differential diagnosis for the patient using the complete history, physical exam findings, and the results of any preliminary diagnostic testing.

4. Assess the medical probability of the relationship between the assumed diagnosis and the work-related exposure.

Case Examples

In many cases the relationship between exposure and disease or injury is extremely clear. For instance, the patient with a mesothelioma who worked in the shipping industry in World War II and was exposed to asbestos has a medically probable relationship between his disease and World War II employment. A worker who slips on the ice entering the work-site and then complains of knee pain may be a more difficult case. In order to establish work-relatedness, the mechanism of the fall should be consistent with the suspected knee joint pathology. Among the most difficult causality questions are those related to cumulative trauma or repetitive motion. All cases should be determined using risk assessment techniques. The physician should examine existing scientific evidence to determine whether the individual's work exposure is the proximate cause of the disease process or injury. The Division has established risk factors for upper extremity injuries involving cumulative trauma and Carpal Tunnel Syndrome; those may be found in the Division's Cumulative Trauma Conditions Medical Treatment Guidelines.[1]

Risk Assessment Method – Modified Bradford-Hill

1. Strength of the association: The study should show a significant relative risk for developing the disease in question when populations are exposed at a specific exposure level.

2. Consistency of the evidence: Studies with different populations exposed to similar work exposures should produce the same result.

3. Specificity of the result: Studies should be sufficiently controlled to prove that the exposure was the cause of the diagnosis, rather than other confounding exposures or disease entities.

4. Temporal Relationship: The timing of the study and follow-up investigation of the workers should be sufficient to identify the disease in question. Long latency disease studies should exclude those cases occurring too early to be related to the exposure identified in the study.

5. Biological gradient: Studies should show that the greater the exposure, the greater the likelihood of a particular disease or injury. In some cases the phenomenon is "all or none" and no gradient will be present.

6. Coherence: The proposed exposure should be biologically plausible and consistent with previous research. Naturally when an entirely new causal relationship is discovered, initial reports will not necessarily conform to previous literature on the subject.

[1] See pages at the end of this section from the treatment guidelines.

Workers' Compensation Statutes

Work related exposure must be the "proximate cause" of the disease or injury.

Proximate cause is defined in Black's Law Dictionary as the last act "contributory to an injury, without which such injury would not have resulted. The dominant, moving or producing cause."

Pre-Existing Medical Condition

A pre-existing medical condition, which may pre-dispose the worker to an injury, does not necessarily mean the case is not work-related. If the worker would not have the injury **without** the work-related event, the injury is most likely also work-related.

The physician should not confuse the presence of pre-existing disease with the concept of proximate cause. A patient with a pre-existing medical meniscus tear may slip on a wet floor at work and further injure the meniscus. The injury would be work-related, even though the pre-existing condition resulted in an injury that is greater than might have occurred in a worker with a normal knee. However it is appropriate for the physician to discuss the impact of the pre-existing diseases or other concurrent disease or injury processes on the patient's work-related condition.

Using Risk Assessment

Case example – A worker is exposed to very low level formaldehyde on a weekly basis.

Consider the following two scenarios:

1. The worker claims to have irritant-induced reactive airway disease.

2. The worker claims the formaldehyde aggravated his pre-existing asthma.

When making a causality determination the health care provider should utilize the risk assessment method to define the limit at which the exposure in question would be a medically probable cause of the disease or injury in question. For instance, exposure to low levels of formaldehyde is not likely to cause irritant pulmonary symptoms and is extremely unlikely to cause permanent reactive airway disease. Thus a patient who has been exposed only to low levels of formaldehyde cannot claim that their reactive, irritant-induced airway disease is due to formaldehyde exposure, as no medically probable relationship exists between the formaldehyde exposures and the disease. On the other hand, even at low exposure levels, the patient could develop an allergy to formaldehyde, which exacerbates his pre-existing asthma

<u>Always</u> answer this question: "Without the work-related exposure or accident, is it medically probable that the patient would have the current diagnosis and require treatment?"

Activities of Daily Living

In some cases when a worker is performing an activity he would normally be expected to perform in day-to-day tasks at home the injury will not be work-related. The inciting event should have ". . . its origins in the employee's work-related functions." Madden v. Mountain West Fabricators, 977 P.2d 863 (Colo. 1999). Remember this is generally a legal decision, not a medical decision.

Case – An executive suffers a heart attack while reviewing his routine, office e-mail. This would not be work-related.

Isolated Mental Impairment (no physical injury)

Pursuant to C.R.S. §8-41-301(2)(a), mental impairment:

". . . means a recognized, permanent disability arising from an accidental injury arising out of and in the course of employment when the accidental injury involves no physical injury and consists of a psychologically traumatic event that is generally outside of a workers' usual experience and would evoke significant symptoms of distress in a worker in similar circumstances. A mental impairment shall not be considered to arise out of and in the course of employment if it results from a disciplinary action, work evaluation, job transfer, layoff, demotion, promotion, termination, retirement, or similar action taken in good faith by the employer."

The final determination of work-relatedness rests with the judicial system, not the medical system. This allows consideration of course and scope of duties, enforced safety standards, and location of injury.

Remember: Your medical diagnosis and causality discussion is essential to a work-related case

CAUSALITY CHART

STEPS IN CAUSALITY DETERMINATION	
1.	**Establish diagnosis (or differential diagnosis if further testing required)**
2.	Define Injury or Exposure For Exposures include: ❖ Length of exposure ❖ Level of exposure (actual lifting required, amount of repetitive motion, special tool use, etc.) ❖ Comparison of worker's exposure to that of the normal population
3.	Discuss Intervening Factors Concurrent non-work-related injuries or disease processes, pre-existing impairment, or disease related activities outside of work, sports, hobbies, etc.
4.	**Explain any scientific evidence supporting a cause and effect relationship between the diagnosis and the exposure or injury**
5.	Assign a medical probability level to the case in question ❖ Medically probable >50% likely ❖ Medically possible ≤ 50% likely

Creating a Narrative Impairment Report

The first goal of writing an impairment report is to assure adequate communication of the issues to all parties. Remember your impairment report will be used in a medical/legal context. The impairment rating is the basis for paying permanent partial disability. All parties should understand the origin of your impairment rating, and how it reflects the functional impairment of the patient. In addition, your report must address other legal issues such as the need for continuing care and any permanent work restrictions. The following sections should be included in an impairment rating report.

History

An impairment rating report should include a description of the mechanism of injury, or work-related disease and exposure. Be sure to address all areas of the body or organ systems that have been treated under the claim. Pertinent diagnostic tests should be noted when they were essential to establishing the pathological basis of disease or injury. A short summary of the treatment specifically including any surgical procedures should also be included.

It is essential to describe the patient's functional ability to perform activities of daily living (ADLs). Activities of daily living refer to self-care and personal hygiene, communication, normal living postures, ambulation, travel, nonspecific hand activities, sexual function, sleep, and social and recreational activities. ADLs are the basis for impairment rating, and should be used as a guide for determining the proper percentage when physicians must choose within a range of values to establish the impairment rating. The current occupation and work level of the patient should also be noted.

Finally, a list of the medical records reviewed for the report should be provided to the reader if a non-treating physician does the impairment rating. Otherwise parties will not know whether you reviewed specific material or did not receive the material.

Physical Examination

Remember to examine all pertinent body parts treated under this claim. Record specific range of motion values for any joints or spinal areas that are to receive an impairment rating. Neurological findings should also be recorded in detail to demonstrate to the basis for your rating. In addition it is important to include notations on trigger points and muscle spasm. If findings are inconsistent, they should be recorded as such.

Work Restrictions

Many patients who are receiving permanent partial impairment will have a work restriction. It is important to provide the specific physical details of the work restriction. Describe any permanent work restrictions including limitations for hours of work as well as physical limitations.

Maximum Medical Improvement

Be sure to establish that maximum medical improvement, the time at which the impairment "has become stable and no further treatment is reasonably expected to improve the condition," is present for all areas under treatment. An impairment rating should not be rendered until all areas are at maximum medical improvement, including mental impairment where appropriate. At times a patient may refuse to undergo the treatment that has been recommended by their physicians. In this case physicians must rate the individual as they are at the time of maximum medical improvement. Physicians cannot rate based upon possible changes to the patient's condition over time or as if the treatment that was recommended had actually been undertaken. It is also appropriate to declare the patient at MMI if further treatment would improve the patient's condition, but the patient refuses to undergo any of the treatment that might be expected to improve their condition.

Continuing Treatment

Treatment can continue to occur after maximum medical improvement if it is needed to sustain the patient's functional status. It is also important to note that a patient may settle a claim as full and final and be paid for future medicals in the settlement. In this case there will no further money provided by the insurer for continuing medical treatment. All parties should have a detailed understanding of the continuing treatment you expect may be necessary due to the injury or disease. This would include noting such conditions as severe degenerative knee disease, which may require a joint replacement in the future. It is essential that the patient and the insurance company understand the future medical liability for the life of the patient.

Impairment Rating

Be sure to address all of the diagnoses that you identified in your report as related to the workers' compensation injury. Some of these may not have an associated impairment rating, but it should be clearly addressed in your report. Finally, include all required worksheets from the *AMA Guides* or the Division. The following are required forms depending on the body parts involved: the spinal range of motion and summary forms, the upper extremity forms, the lower extremity form and the psychiatric form. Ratings will be returned to you if they do not contain the appropriate worksheets.

Some impairments such as those involving extremities are initially rated as a functional loss to the extremity. Other impairments, such as for a spine injury, are automatically rated as a percentage of the "whole person." The *AMA Guides 3rd Edition (rev.)* includes conversion tables to convert an extremity impairment out to "whole person." Under the *AMA Guides* protocols, all impairments are ultimately converted and reported by the clinician as whole person, but the components of the rating should also be included in the final report. For example, an insurance adjuster may need to know the % loss at a certain extremity level. Therefore, all of the extremity impairment worksheets must be provided because in many cases the patient will be paid permanent impairment at the extremity level as a "scheduled injury." A list of scheduled injuries is set forth in the Workers' Compensation Act. For scheduled injuries the permanent partial disability payment is calculated based on the level of the injury. For instance, a hand injury is paid using the hand impairment percentage and multiplying it times the available dollars in the statute for injuries to the hand. Scheduled injuries are paid at a much lower rate than whole person injuries.

Be sure to double-check your impairment rating to see that you have completed all the worksheets, and that the final rating has combined all of the relevant impairment values. The *AMA Guides* uses a method called *combination* to arrive at the final whole person or extremity rating. This is required because an arm is equal to 60% of the whole person, and a leg is 40% of the whole person. Thus if all four extremities were lost and the impairments were additive, the result would be a 200% loss of whole person. Since we cannot exceed a 100% loss, there must be an algebraic method for combining numbers to avoid exceeding 100%. This is achieved using the combined values chart on pages 254-56 of the *Guides*. This chart is generally used in any case in which unlike impairment ratings must be combined. Thus, an impairment rating for radicular problems in the leg, and an impairment rating for a spinal fracture are discordant impairment ratings and would be combined to arrive at the full value.

You should pay attention to those areas which are added and not combined. The most common of these is the addition of all ranges of motion at the same joint. Also the total impairment ratings for each digit are added to establish a hand impairment value. Be sure to combine only the ratings at the same anatomic level and in the same extremity, when applicable. Thus an upper extremity rating at the shoulder can only be combined with a hand rating after the hand rating is converted to an upper extremity rating. Once the combination of terms has been completed, remember to advance the rating to a whole person level.

When describing your impairment rating, be sure to reference the exact tables used, unless that is already noted on the worksheet. If the impairment rating differs from that of another physician on the same case, you should include a discussion of the differences and why you have chosen the particular rating method you are using.

It is essential to not confuse an impairment rating with disability. In some cases, a person may actually be unable to return to work and have almost no impairment. In other cases a patient may be able to return to work and yet still receive impairment. Consider a pianist who loses her index finger. She is totally disabled from her chosen profession and must be retrained; however her impairment rating would be limited to 100% of the index finger or 11% whole person. An internist with the same index finger loss will receive the same impairment rating, since it is based on activities of daily living. In contrast, the internist will have no change in her ability to continue her occupation and earn the same salary. It is important not to equate these two concepts. If any ADLs are functionally affected due to an established work-related injury or disease, the physician should use the Guides to determine the level of impairment.

Impairment Rating for Workers who have Undergone an Invasive Treatment Procedure

The rating physician should keep in mind the *AMA Guides, 3rd Edition* (rev.) definition for impairment. "The loss of, loss of use of, or derangement of any body part, system, or function." Given this definition, one may reasonably assume any patient who has undergone an invasive procedure which has permanently changed any body part has suffered a derangement under the definition of impairment according to the *AMA Guides, 3rd Edition* (rev.). Therefore it is incumbent on the rating physician to perform the necessary testing as appropriate in that edition of the *Guides* for the condition which was treated by the invasive procedure. This should not be interpreted to say that all persons with invasive procedures necessarily qualify for an impairment rating. The impairment rating on many individuals who have had invasive procedures may be zero percent. Thus in cases with surgical procedures the person qualifies under the initial definition of impairment due to the derangement of a body part or system and the rating physician must justify the zero percent rating using the appropriate portions of the *AMA Guides, 3rd Edition* (rev.). Examples in which this rating procedure is necessary include arthroscopic debridement of the shoulder, anterior cruciate ligament surgery of the knee, facet rhizotomy procedures, and surgery to repair carpal bone instability.

Preexisting Impairment

An impairment rating may be apportioned when the patient qualified for an impairment rating using the Third Revised Edition of the Guides prior to the current workers' compensation injury or disease, and with consideration of any other applicable statutory requirements (see next paragraph). In this case the physician must create a pre-injury rating using the *AMA Guides*, Rule 12 and Level II curriculum. This rating must be established on verifiable facts. If a patient qualifies for a pre-injury rating from Table 53 – Impairments due to Specific Disorders of the Spine – then range of motion may be apportioned. Range of motion can be apportioned using pre-injury range of motion measurements on the patient, or if there are no pre-injury range of motion measurements, an apportionment can be accomplished using the spinal apportionment worksheet found in the spinal portion of the curriculum. Once a pre-injury apportionment rating is established, it should be subtracted as appropriate from the current total impairment rating.

In 2008 the law regarding apportionment of preexisting conditions changed for cases with a date of injury on or after July 1, 2008. In those cases, where the *prior* injury was *non*-work-related, apportionment may only apply if that prior injury was identified, treated, and independently disabling at the time of the current work-related injury. See the Apportionment of Impairment "flow chart" at the end of this notebook section as well as this and other forms behind the tab in this book labeled "Apportionment Forms."

Guide to Writing a Narrative Impairment Report - The following is a succinct guide to the elements you should include in an impairment report.

- Thorough review of records, with quotations as appropriate.
- Documentation of patient's complaints.
- Summary of the clinical course.
- Thorough description of physical examination findings and psychometric testing results.
- Diagnostic impressions.
- Causation as appropriate, with rationale.
- Status of medical stability/MMI.
- Impairment Rating with rationale.
- Apportionment as appropriate, with rationale.
- Detailed description of work restrictions and work status.
- Limitations secondary to gaps in records, conflicting information, patient behavior, etc.
- Send the report to the appropriate parties.
- Say all that you can, but no more.

Causality and Report References

The Independent Medical Evaluation Report, C.R. Brigham, S. Babitsky, J.J. Mangraviti, Jr., Seak, Inc., Falmouth, MA, 1996

"The Environment and Disease: Association or Causation?" A. Bradford Hill, Proceedings of the Royal Society of Medicine 58:295-300 1965

* *

The following pages and tables are reproduced from the Cumulative Trauma Conditions medical treatment guideline, eff. October 30, 2010. This information should be used for assessment of causality and diagnoses of disorders involving especially but not exclusively disorders of the upper extremity. The algorithm on pages 37-38 applies to causation assessment in general.

Physical Examination Findings Reference Table

Section F.	Specific Musculoskeletal Diagnosis	
DIAGNOSIS	**SYMPTOMS**	**SIGNS (Required Findings)**
Aggravated Osteoarthritis of the Wrist.	Pain usually in the carpal-metacarpal joints; or in metacarpal-phalangeal joints.	At least one of the following: • Positive grind test resulting in pain; crepitus; • Subluxation of the metacarpal may be induced in advanced cases; • Swelling; • Reduced motion; • Angular deformities; • Tenderness with palpation of thumb phalangeal-metacarpal or carpal-metacarpal joint.
de Quervain's Disease	Tenderness over the first dorsal extensor compartment(anatomical snuff box).	At least one of the following: • Pain worsened by resisted thumb abduction and/or extension with or without resistance; • Positive Finkelstein's test.
Epicondylitis-Lateral (Epicondy-lalgia)	Elbow pain over the lateral epicondyle increased with gripping.	Tenderness to palpation at/near lateral epicondyle and pain over the lateral epicondyle and/or extensor mass of the forearm with one of the following maneuvers: • Active or resisted wrist extension; • Active or resisted middle finger extension; • Active or resisted supination.
Epicondylitis-Medial (Epicondy-lalgia)	Elbow pain over the medial epicondyle.	Tenderness to palpation at/near medial epicondyle and pain over the medial epicondyle and/or flexor mass of the forearm with one of the following maneuvers: • Active or resisted wrist flexion; • Active or resisted pronation.
Extensor Tendon Disorders of the Wrist	Pain localized to the affected tendon(s) worsened by wrist or finger extension.	Pain and/or tenderness with active or resisted wrist/digit extension, specific to the extensor mechanism involved.
Flexor Tendon Disorders of the Wrist	Pain/tenderness localized to affected tendons.	Reproduction of pain with active or resisted wrist/digit flexion or ulnar deviation specific to the flexor mechanism involved.
Triangular Fibrocartilage Complex Tear	Symptoms mainly on ulnar side of the wrist.	Tenderness over the TFCC complex and localized pain, clicking, or findings of abnormal motion with one of the following movements:

Section F.	Specific Musculoskeletal Diagnosis	
(TFCC)		• Forced supination and pronation with axial pressure on an ulnar deviated wrist; • The patient pushes up from a seating position using the hand, and/or • Ballottement of the distal ulna with the wrist supinated causes abnormal motion as compared to the asymptomatic side.
Trigger Finger	Difficulty flexing the finger with a catching or triggering sensation.	One of the following: • Tenderness at the A-1 pulley with finger flexion; • Triggering of the digit; • Difficulty flexing and extending the finger with a palpable nodule.

Physical Exam Findings Reference (continued):

Section G	Specific Peripheral Nerve Diagnosis	
DIAGNOSIS	**SYMPTOMS**	**SIGNS (Required Findings)**
Carpal Tunnel Syndrome	• Specific paresthesias in 2 of the following digits: thumb, index, and middle finger. • Shaking of the hand (to relieve symptoms) and nocturnal symptoms are common.	At least one of the following: • Positive Phalen's sign; • Positive Tinel's sign over the carpal tunnel; • Positive closed fist test; • Positive compression test; • Thenar atrophy may be present later in course; • Weakness of abductor pollicis brevis; • Sensory loss to pinprick, light touch, two-point discrimination or Semmes-Weinstein monofilament tests in a median nerve distribution.
Cubital Tunnel Syndrome	Paresthesias or dull, aching sensations in the 4th and 5th digits (ring and small fingers) and discomfort near the medial aspect of the elbow.	Paresthesias or dull, aching in the 4th and 5th digits and at least one of the following exam findings: • Diminished sensation of the fifth and ulnar half of the ring fingers, which may sometimes include sensory loss to pinprick, light touch, two-point discrimination or Semmes-Weinstein monofilament tests in an ulnar nerve distribution; • Positive elbow flexion/ulnar compression test; • Later stages manifested by: intrinsic atrophy and ulnar innervated intrinsic weakness; Wartenberg's sign; Froment's sign.
Guyon Canal (Tunnel) Syndrome	Paresthesias in the 4th and 5th digits (ring and small fingers) without proximal ulnar complaints.	At least one of the following exam findings: • Positive Tinel's at hook of hamate; • Numbness or paresthesias of the palmer surface of the ring and small fingers; • Decreased strength of the adductor pollicis, abductor digiti minimi, and/or lumbricals.
Posterior Interosseous Nerve Entrapment (PIN)	Weakness of finger and thumb extension	Weakness or inability to extend fingers or thumb;

Section G	Specific Peripheral Nerve Diagnosis	
Pronator Syndrome	Pain/paresthesias in the median nerve distribution distal to the elbow.	Paresthesias in the median nerve distribution and at least one of the following reproduces median nerve symptoms: • Resisted pronation with elbow flexed at 90 degrees or elbow extended; • Positive Tinel's at the proximal edge of the pronator teres muscle over the median nerve.
Radial Tunnel Syndrome	Pain over the lateral posterior forearm. May occur in conjunction with and must be distinguished from lateral epicondylitis. May include paresthesias over the dorsal radial hand and wrist.	The following two elements are required: • Tenderness over the radial nerve near the proximal edge of the supinator muscle; • Resisted supination or resisted middle finger extension with the forearm pronated and extended reproduces symptoms.

3. MEDICAL CAUSATION ASSESSMENT FOR CUMULATIVE TRAUMA CONDITIONS

(ref. CTC Treatment Guideline)

General Principles of Causation Assessment

The clinician must determine if it is medically probable (greater than 50% likely or more likely than not) that the need for treatment in a case is due to a work-related exposure or injury. Treatment for a work-related condition is covered when: 1) the work exposure causes a new condition; or 2) the work exposure causes the activation of a previously asymptomatic or latent medical condition; or 3) the work exposure combines with, accelerates, or aggravates a pre-existing symptomatic condition. In legal terms, the question that should be answered is: "Is it medically probable that the patient would need the treatment that the clinician is recommending if the work exposure had not taken place?" If the answer is "yes," then the condition is not work-related. If the answer is "no," then the condition is most likely work-related. In some cases, the clinician may need to order diagnostic testing or jobsite evaluations to make a judgment on medical probability. The following steps should be used to evaluate causality in CTC cases:

Step 1: Make a specific and supportable diagnosis. Remember that cumulative trauma, repetitive strain and repetitive motion are not diagnoses. Examples of appropriate diagnoses include: specific tendonopathies, strains, sprains, and mono-neuropathies. Refer to Sections F (Specific Musculoskeletal Disorders) and G (Specific Peripheral Nerve Disorders) for the specific findings of common CTCs.

Step 2: Determine whether the disorder is known to be or is plausibly associated with work. The identification of work-related risk factors is largely based on comparison of risk factors (as described in Section D.3. a. & b. Foundations for Evidence of Occupational Relationships and Using Risk Factors to Determine Causation) with the patient's work tasks.

Step 3: Interview the patient to find out whether risk factors are present in sufficient degree and duration to cause or aggravate the condition. Consider any recent change in the frequency or intensity of occupational or non-occupational tasks. In some cases, a formal jobsite evaluation may be necessary to quantify the actual ergonomic risks. Refer to the Jobsite Evaluation Section E.6.c.

Step 4: Complete the required match between the risk factors identified on the Risk Factor Table and the established diagnosis using the system described in Section D. 3. b.

Step 5: Determine whether a temporal association exists between the workplace risk factors and the onset or aggravation of symptoms.

Step 6: Identify non-occupational diagnoses, such as rheumatoid arthritis, obesity, diabetes, as well as avocational activities, such as golf and tennis. This information infrequently affects the work-related causation decision. It may be applicable when exposure levels are low and the case does not meet evidence-based criteria.

a. Foundations for Evidence of Occupational Relationships: All results described in this section are a result of a thorough review of the epidemiologic literature available at the time of this guideline. The studies most heavily relied upon healthy worker populations with a variety of exposures, not all of which were well-described quantitatively. No single epidemiologic study fulfills all criteria for causality. The clinician must recognize that currently available epidemiologic data is based on population results. Individual variability lies outside the scope of these studies and must be addressed by the physician on a case-by-case basis. The clinician is responsible for documenting specific information regarding the force, posture, repetition, and other risk factors as listed in the table entitled "Risk Factors Definitions." Job title alone is not sufficient to determine the risk factors. A jobsite evaluation is usually necessary.

Many studies have been completed in industrial setting focusing on cumulative trauma conditions or upper extremity complaints in relationship to work exposures. The studies vary in several ways that directly affect the interpretation of their results. Studies with 1) an accepted clinical exam confirming the diagnosis and 2) work exposures validated by direct observation, or questionnaires that were correlated with direct observation, provide the strongest evidence. Well-done, prospective, longitudinal studies (cohort studies) are preferred; however for uncommon disorders, these studies may not be able to identify the causal factors. We considered other large prevalence and incidence studies when minimum quality criteria had been met and the self-reported exposure uses reliable questionnaires.

Many studies report symptoms rather than disease conditions. These studies are useful for ergonomic research or as pilot studies but do not directly affect the evidence level for causation. They are mentioned, when useful, as indirect evidence. If multiple well-done symptom studies show no increase in symptomatology with specific activities, it follows that there is very little change that the studied exposure causes disease.

In addition, there are a few studies which address less common musculoskeletal diagnoses or peripheral nerve conditions other than carpal tunnel syndrome, such as posterior interosseus nerve entrapment and pronator syndrome. In these cases, we rely upon studies which report the risks for related conditions.

Many of the original studies identifying diagnosable cumulative trauma conditions were performed in manufacturing industries and meat, fish and poultry processing companies. In these industries most workers are exposed to highly repetitive mono-task jobs which frequently involve a forceful grip, awkward postures, vibration, and cold environments. The evidence for increased disorders when these multiple risk factors are present is compelling. Research attempting to define clear, threshold exposure limits for increased risk from isolated tasks and/or intermittent exposures has less consistent results.

The quality of keyboarding studies is highly variable. Most of the studies rely on self report. Self report appears to approximately double the actual time spent using the keyboard. Some studies show distortion highest in the medium range of use. There appears to be less inflation for self reported mouse use. Fortunately a few studies have provided more objective keyboard use data.

The group of studies now available provides good evidence that keyboarding in a reasonable ergonomic posture (wrist with 30 degrees or less of extension and 15 degrees or less of radial deviation) up to 7 hours per day under usual conditions is very unlikely to cause carpal tunnel syndrome or other upper extremity disorders. This is based on studies of carpal tunnel pressure under a variety of typing and wrist positions as well as a number of studies of workers who keyboard on a regular basis. Clinicians may determine in a particular case that there is a relationship based on the ergonomic conditions or on excessive typing, such as more than 7 hours per day of essentially uninterrupted keyboard use per day or full-day court reporting.

There is some evidence that mouse use appears to be associated with carpal tunnel syndrome and related symptoms with 4 hours or greater per day of continuous use. Studies of pressure within the carpal tunnel indicated that pressures may rise to levels which could affect the median nerve when the mouse is being dragged or clicked. Again the actual ergonomics of the work place should be considered for each individual patient before making a final causation decision.

There was a large variety in assessment strategies for lower quality studies. Examples included: symptom only reports; dichotomous choices for exposures, e.g. 1 hour or less per week repetitive activities versus more than 1 hour per week; self report data that does not follow basic pathophysiology, e.g. mouse use between 2.5 & 5 hours per week causing wrist pain; and bias introduced due to prior knowledge of the participants regarding expected work & symptom correlations. In order to reasonably integrate the volume of disparate data, interpretation of lower quality studies took into account reasonable pathophysiology and exposure limits. Dose response relationships were also examined to look for trends in exposure which resulted in increased disease or symptoms.

Most studies were unable to truly assess repetition alone, unassociated with other risk factors. Indirect evidence from a number of studies supports the conclusion that task repetition up to 6 hours per day unaccompanied by other risk factors is not causally associated with cumulative trauma conditions. Risk factors that are likely to be associated with specific CTC diagnostic categories include: extreme wrist or elbow postures; force including regular work with hand tools greater than 1 kg or tasks requiring greater than 50% of an individual's voluntary maximal strength; work with vibratory tools at least 2 hours per day; or cold environments.

The variability in study design presented a challenge for creating physiologically reasonable hour limits for the specific primary and secondary risk factors. We chose the strongest studies for the specific risks involved and extrapolated the measures utilizing the number of quartiles in the working day the person was exposed, or the exposure groups themselves. For example, ¾ of a day exposure was translated to a 6 hour exposure and exposure groups working on assembly lines or in similar employment were also assumed to be performing the same tasks for at least 6 hours per day. This cut-off corresponds the best to studies which found positive diagnoses in workers performing repetitive jobs with at least one other risk factor. These constitute our primary risk factor definitions. For the secondary risk factor definitions one study provided direct evidence of 4 hours for the most common risks. We also found indirect evidence from other studies, such as one assessing upper extremity functional impairment and another determining the presence of upper extremity symptoms that 4 hours was a reasonable cut off point for determining physiologically acceptable secondary risks.

No studies examined the relationship between the development of ganglion cysts and work activities; however, work activities, such as bending or twisting of the wrist repetitively, may cause an aggravation of existing ganglion cysts that interferes with function.

Aggravation of a pre-existing medically established diagnosis must be determined on an individual case basis. A comparison of the worker's specific job duties with usual activities of daily living and the occupational risk factors should contribute to the discussion.

Non-occupational exposures

Most studies demonstrate an association of cumulative trauma conditions with older age; high BMI; the presence of other upper extremity musculoskeletal diagnoses; related diseases such as auto-immune conditions, diabetes, hypothyroidism and rheumatologic diseases; and psychosocial issues including relationships with supervisors. The influence of these non-occupational risk factors varies according to the specific diagnoses involved. While the presence of any of these additional factors may be viewed as contributing to the disorder in question, that does not refute the actual evidence from the defined risk factors supporting a specific work related condition.

Use the Risk Factor Definition and Diagnosis Based Risk Factors tables with the following direction to formulate the causation of diagnoses established as cumulative trauma conditions.

b. Using Risk Factors to Determine Causation (Directions):

The physician should perform the following:

Step 1. Determine the diagnosis.

Using the history, physical examination and supporting studies, a medical diagnosis must be established. Refer to Section F (Specific Musculoskeletal Disorders and G (Specific Peripheral Nerve Disorders).

Step 2. Clearly define the job duties of the worker.

Do not rely solely on the employer's description of job duties. The worker's description of how they actually perform the duties is extremely important. Jobsite evaluations are always appropriate, but are sometimes unnecessary when the physician can identify the job duty which appears to be causing the symptoms and provide a method for ergonomically correcting the activity.

Step 3. Compare the worker's duties with the Primary Risk Factor Definition Table.

Hours are calculated by adding the total number of hours per day during which the worker is exposed to the defined risk. Breaks, time performing other activities and inactive time are not included in the total time. When the employee meets the definition for a sole Primary Risk Factor and the risk factor is physiologically related to the diagnosis, it is likely that the worker will meet causation for the cumulative trauma condition. When the Primary Risk Factor identified is not physiologically related to the diagnosis, causation will not be established at this point and Step 4 needs to be considered.

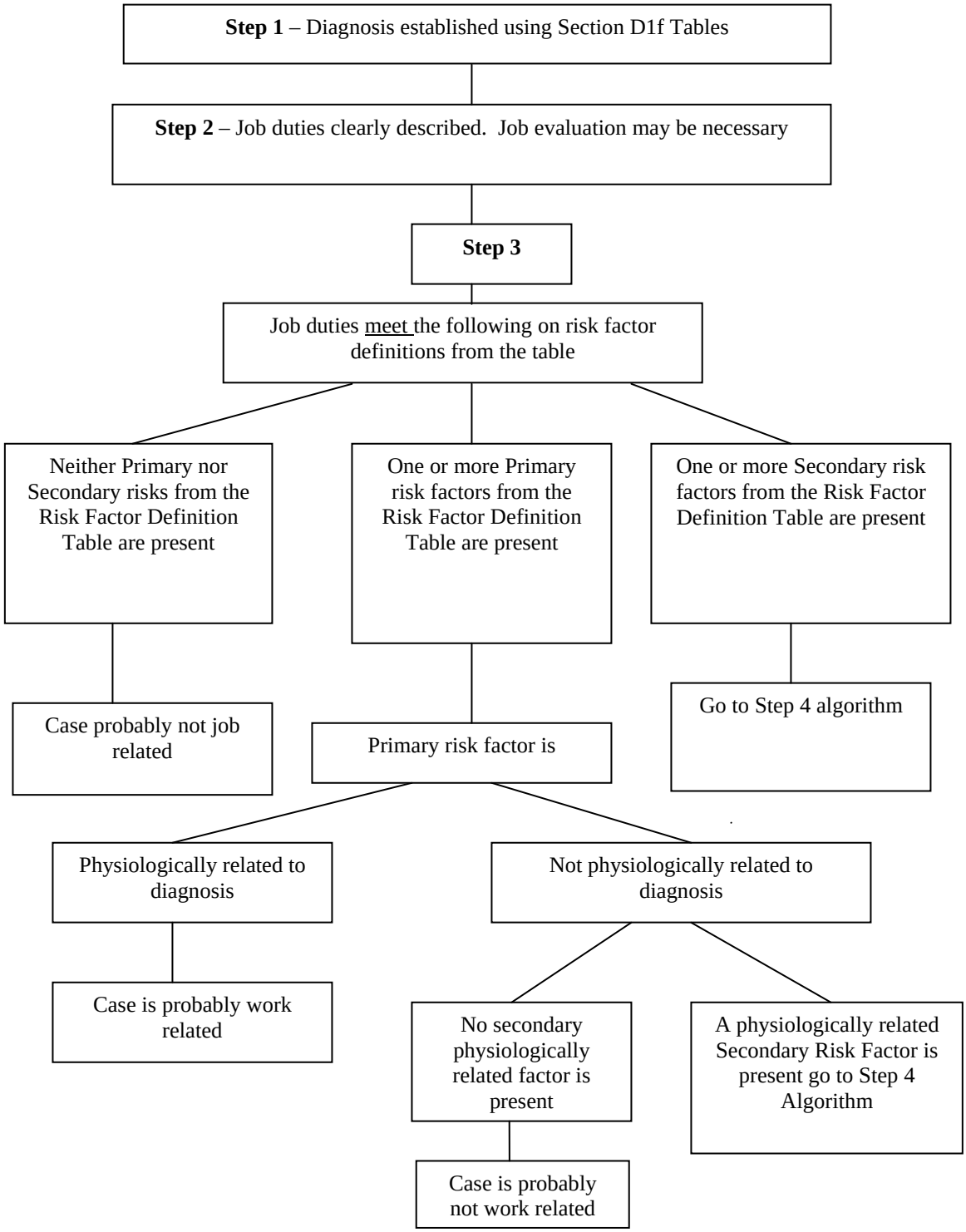
Step 4. Compare the worker's risk factors identified in Step 2 with the Secondary Risk Factor definitions on the Risk Factor Definition Table. If secondary risk factors are identified proceed to the Diagnosis Based Risk Factor Table.

When no Primary Risk Factors are present but one or more Secondary Risk Factors are found on the Risk Factor Definitions Table proceed to the Diagnosis Based Risk Factor Table. Elements in this table are listed under the strength of evidence headings. This includes a category for strength of evidence for risks that have been demonstrated not to be

related to the diagnosis. Consult the diagnostic category pertaining to the worker. For a number of less common diagnoses, little direct research has been done that meets our quality standards. Therefore, the risk factors for these diagnoses use the risk factors from physiologically related, better researched diagnostic titles. Initially, check the evidence statements for or against causation based on the secondary risks identified previously. If the Diagnosis Based Risk Factor table establishes a match between the Secondary Risk Factor(s) and other job duties, using the evidence based columns for the established diagnosis, the case is likely work-related based on evidence. If none of the evidence categories matches the worker, causation based solely on evidence from research has not been established.

Step 5. If an evidence based causation relationship, based on Steps 1-4, has not been established and the worker has one Secondary Risk Factor from the Risk Definition table, the physician may consult the last column of the Diagnosis Based Risk Factor table entitled “Additional Risk Factors.” This category describes medically accepted physiologic risk factors for the diagnosis and risk factors which demonstrated an association with the diagnosis in lower quality studies that did not meet our standards of evidence. Some of the additional risk factors have less clear definitions due to lack of definition in the lower quality studies. These risk factors were added only when the medical consensus of the multi-disciplinary group agreed they were physiologically plausible. When a Secondary Risk Factor has been identified that does not meet the evidence based definitions in the Diagnosis Based Risk Factor Tables, physicians may use the other “Additional Risk Factors”, as appropriate, to establish the presence of combined risk factors and establish causation. The worker must have met at least one of the Secondary Risk Factor definitions from the Risk Factor Definition table and that risk factor must be physiologically related to the diagnosis, in order to use the “Additional Risk Factors” in the Diagnosis Based Risk Factor table. Additional Risk factors that duplicate the conditions in the Secondary Risk Factor identified for the case may not be used. Any conclusions using this methodology are not strictly evidence-based and therefore the physician should include a discussion of why the Additional Risk Factors are pertinent in the particular case.

Algorithmic Steps for Causation Assessment



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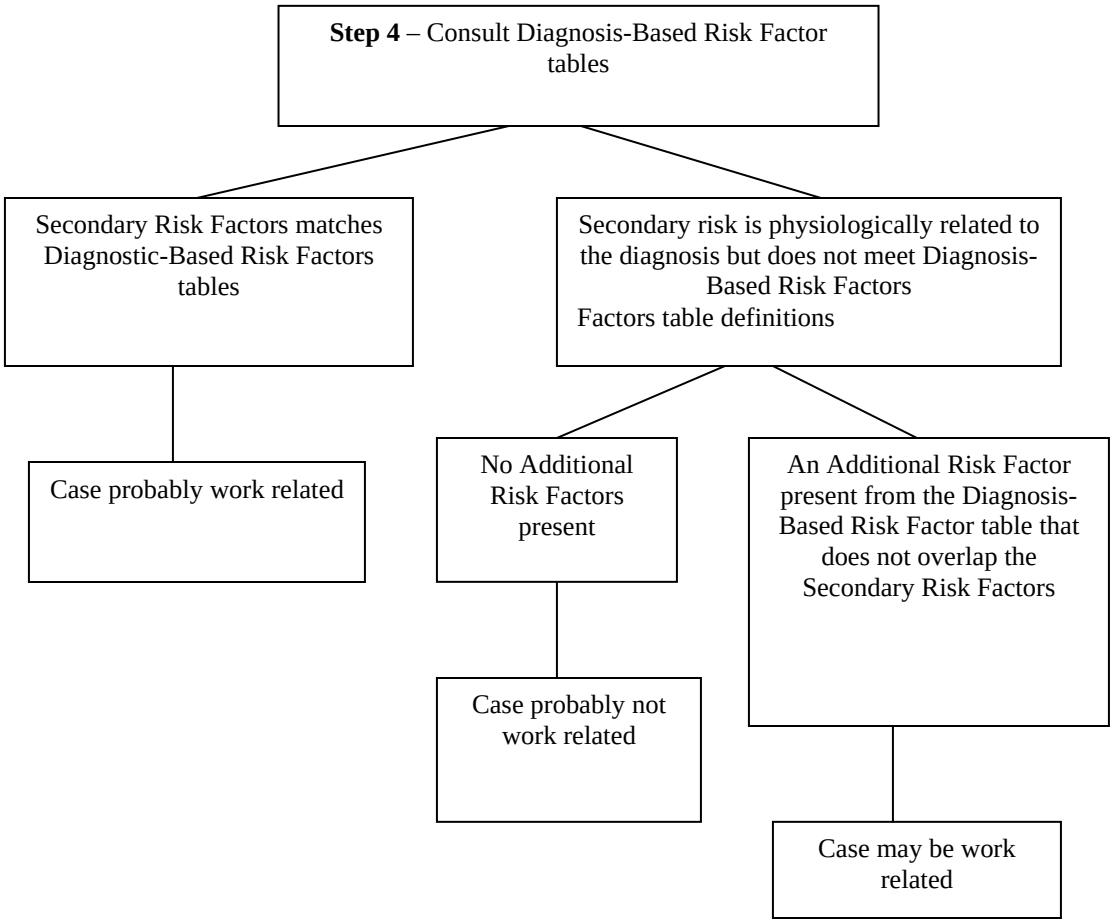
Step 4 – Consult Diagnosis-Based Risk Factor tables
Secondary Risk Factors matches Diagnostic-Based Risk Factors tables
Secondary risk is physiologically related to the diagnosis but does not meet Diagnosis-Based Risk Factors
Factors table definitions
Case probably work related
No Additional Risk Factors present
An Additional Risk Factor present from the Diagnosis-Based Risk Factor table that does not overlap the Secondary Risk Factors
Case probably not work related
Case may be work related

RISK FACTOR DEFINITIONS

CAUSATION MAY BE ESTABLISHED BY THE PRESENCE OF 1) A DIAGNOSIS-RELATED SOLE PRIMARY RISK FACTOR WHICH IS PHYSIOLOGICALLY RELATED TO THE DIAGNOSIS OR; 2) AT LEAST ONE SECONDARY RISK FACTOR THAT MEETS THE REQUIREMENTS FROM THE DIAGNOSIS-BASED RISK FACTOR TABLE

NOTE: Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included.

Category	As a Primary Risk Factor	Secondary Risk Factor
Force and Repetition/Duration	6 hrs. of: > 50% of individual maximum force with task cycles 30 seconds or less or force is used for at least 50% of a task cycle-maximum force for most individuals is 3-5 kg of force.	4 hrs. of: > 50% of individual maximum force with task cycles 30 seconds or less or force is used for at least 50% of a task cycle-maximum force for most individuals is 3-5 kg of force.
	6 hrs. of: lifting 10 lbs > 60x per hour.	4 hrs. of: lifting 10 lbs > 60x per hour. *
	6 hrs. of: use of hand held tools weighing 2 lbs or greater.	4 hrs. of: use of hand held tools weighing 2 lbs or greater.
Awkward Posture and Repetition/Duration	4 hrs. of: Wrist flexion > 45 degrees, extension > 30 degrees, or ulnar deviation > 20 degrees.	
	6 hrs. of: Elbow - flexion > 90 degrees.	4 hrs. of: Elbow - flexion > 90 degrees.
	6 hrs. of: Supination/pronation with task cycles 30 seconds or less or posture is used for at least 50% of a task cycle.	4 hrs. of: Supination/pronation with task cycles 30 seconds or less or posture is used for at least 50% of a task cycle.*
Computer Work	**Note:** Up to 7 hours per day at an ergonomically correct workstation is not a risk factor. > 4 hrs. of: Mouse use.	

RISK FACTOR DEFINITIONS

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NOTE: Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included.

Category	As a Primary Risk Factor	Secondary Risk Factor
Use of handheld vibratory power tools and Duration	6 hrs. for more common types of vibration exposure.	2 hrs. When accompanied by other risks.
Cold Working Environment		Ambient temperature of 45F or less for 4 Hrs. or more, such as handling frozen foods that are 10 degrees.

* Referencing related studies, which established 4 hours as a cut off for symptoms of cumulative trauma conditions and which found 4 hours of exposure to be related to functional problems of the upper extremity, as well as reasonable inferences from physiological knowledge, 4 hours is considered the most reasonable cut off.

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Secondary Risk Factor Definitions from the Risk Factor Definition Table

Diagnosis	**Evidence FOR Specific Risk Factors**			**Evidence AGAINST Specific Risk Factors**	**Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors.** [1]
	Strong **Multiple high quality studies**	**Good** **One high quality study or multiple adequate studies**	**Some** **One adequate study**		
Aggravated Osteoarthritis of the Wrist	No Quality Evidence Available				Awkward Posture (depending on the joint involved)
					Repetition of activities affecting the joint involved for 4 hrs.
					Prior Injury.
Carpal Tunnel Syndrome		Combination of force, repetition, and vibration.	Wrist bending or awkward posture for 4 hrs.	Good evidence - Keyboarding less than or equal to 7 hrs. in good ergonomic position is NOT RELATED.	High repetition defined as task cycle times of less than 30 seconds or performing the same task for more than 50% of the total cycle time.
		Combination of repetition and force for 6 hours.			
		Combination repetition and forceful tool use with awkward posture	Mouse use more than 4 hours.	Good evidence- Repetition alone less than or equal	Tasks using a hand grip.

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Secondary Risk Factor Definitions from the Risk Factor Definition Table

Diagnosis	**Evidence FOR Specific Risk Factors**			**Evidence AGAINST Specific Risk Factors**	**Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors.** [1]
	Strong **Multiple high quality studies**	**Good** **One high quality study or multiple adequate studies**	**Some** **One adequate study**		
Carpal Tunnel Syndrome (continued)		for 6 hours – Deboning study.		to 6 hrs. is NOT RELATED.	
		Combination force, repetition, and awkward posture.	Combination cold and forceful repetition for 6 hours - Frozen food handling.		Extreme wrist radial/ulnar positions or elbows in awkward postures.
Cubital Tunnel Syndrome			Combination forceful tool use, repetition and probably posture for 6 hours - Holding a tool in position with repetition.		Wrist bending and/or full elbow flexion/extension, repetition for 4 hours, vibration.
					Repetitive pronation of forearm.[3]
					Sustained pressure at the cubital tunnel.
DeQuervain's Disease **DeQuervain's (cont)**		Combination force, repetition, & posture.			Wrist in ulnar deviation.[3]
					Repetitive thumb abduction and extension.[3]
					Wrist bending in extreme postures.

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Secondary Risk Factor Definitions from the Risk Factor Definition Table

Diagnosis	**Evidence FOR Specific Risk Factors**			**Evidence AGAINST Specific Risk Factors**	**Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors.** [1]
	Strong **Multiple high quality studies**	**Good** **One high quality study or multiple adequate studies**	**Some** **One adequate study**		
					Precise hand motions e.g. dental hygienists. Repetitive hitting.
Epicondylitis Lateral -		Combination – awkward posture (forearm supination past 45 degrees) and forceful lifting. Combination force and possible awkward posture – study used repetition and turning and screwing. Combination – force & repetition, force and wrist and hand repetition.		Some evidence keyboard use is NOT RELATED.	Wrist posture in extension and repetitive supination of the forearm and/or elbow extension.[3]

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Secondary Risk Factor Definitions from the Risk Factor Definition Table

Diagnosis	**Evidence FOR Specific Risk Factors**			**Evidence AGAINST Specific Risk Factors**	**Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors.** [1]
	Strong **Multiple high quality studies**	**Good** **One high quality study or multiple adequate studies**	**Some** **One adequate study**		
Epicondylitis Lateral (cont)			Combination repetition and awkward posture including static posture.		
Epicondylitis Medial		Combination - force & repetition, force and wrist and hand repetition. Combination - forceful exertion and repetition 6 hours.		Some evidence keyboard use is NOT RELATED.	Wrist posture in flex and repetitive pronation and/or elbow extension. [3]

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Risk Factor Definitions found in the Secondary Risk Factor column.

Diagnosis	**Evidence FOR Specific Risk Factors**			**Evidence AGAINST Specific Risk Factors**	**Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors.** [1]
	Strong **Multiple high quality studies**	**Good** **One high quality study or multiple adequate studies**	**Some** **One adequate study**		
Extensor tendon disorders of the Wrist		Combination force, repetition, & posture.			Sustained tool use. Awkward posture.[3] No relationship to keyboard use is expected in a good ergonomic workstation. Wrist bending in extreme postures. Repetitive hitting.
Flexor tendon disorders of the Wrist		Combination force, repetition, & posture.			Sustained tool use. Awkward posture.[3] No relationship to keyboard use is expected in a good ergonomic workstation. Wrist bending in extreme postures. Repetitive hitting.
Guyon Canal	No Quality Evidence Available.				Ulnar wrist posture and flexion. Direct pressure on the wrist.

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Risk Factor Definitions found in the Secondary Risk Factor column.

Diagnosis	Evidence FOR Specific Risk Factors			Evidence AGAINST Specific Risk Factors	Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors. [1]
	Strong Multiple high quality studies	Good One high quality study or multiple adequate studies	Some One adequate study		
Posterior Interroseus Nerve Entrapment	Refer to lateral epicondylitis section above for indirect evidence. No specific evidence available.				
Pronator Syndrome	Refer to medial epicondylitis section above for indirect evidence. No specific evidence available.				
Trigger Finger			Hand tool use – 6 hours.		Repeated digital flexion.
Radial Tunnel Syndrome			Repetition and force - force of 1 kg with cycle time < 1 minute or awkward posture (static posture) elbow > 90 degrees.		Repetitive Supination. Extension of the elbow from 0 to 45 degrees.
Triangular Fibrocartilage Compression	No Quality Evidence Available.				Usually from traumatic hyperextension which may become symptomatic over time. Wrist posture in extension and repetitive supination of the forearm and/or elbow extension. For occupational, usually unilateral with ulnar wrist pain while supinating and extending the wrist as part of the

DIAGNOSIS - BASED RISK FACTORS

Hours are calculated by totaling the cumulative exposure time to the risk over an 8 hour day. Breaks or periods of inactivity or performing other types of work tasks are not included. Unless the hours are specifically stated below, "combination" of factors described below uses the Risk Factor Definitions found in the Secondary Risk Factor column.

Diagnosis	Evidence FOR Specific Risk Factors			Evidence AGAINST Specific Risk Factors	Non-Evidence-Based Additional Risk Factors to Consider. These factors must be present for at least 4 hours of the work day, and may not overlap evidence risk factors. [1]
	Strong Multiple high quality studies	Good One high quality study or multiple adequate studies	Some One adequate study		
					regular work duty.

[1] Physiological risk factors are those generally agreed upon by the medical community to cause the specific condition described. Other risk factors described are those identified in lower quality studies that are possibly related. These are consensus risk factors.

[2] Combined factors refer to the Secondary Risk Factor definitions found in the Risk Factor Definition Table.

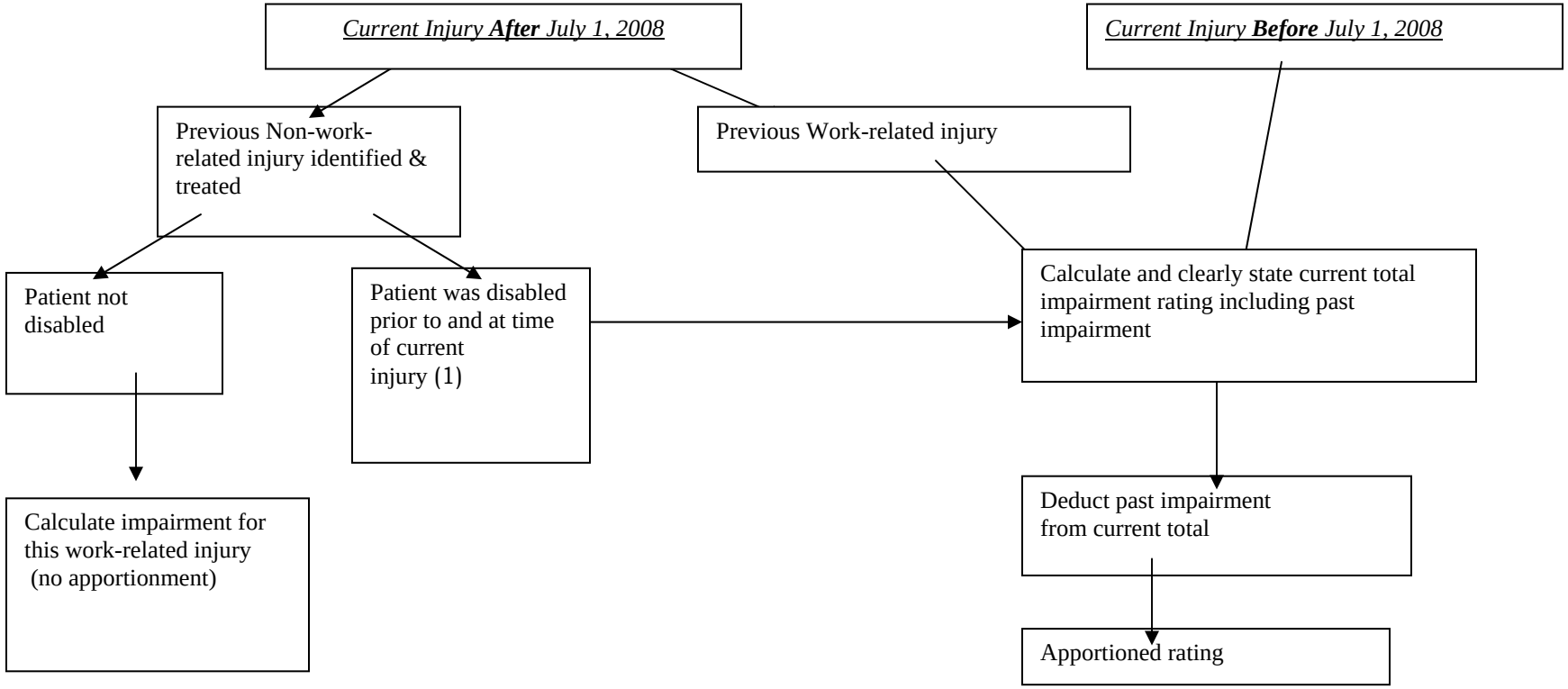
[3] **Caution:** These additional risk categories may not be used when awkward posture, using a similar definition, has been cited as a Secondary Risk Factor.

[4] Evidence rated as strong by NIOSH 1997 criteria are placed in the "good" category because the NIOSH strong evidence definition matches the Colorado "good" level of evidence requiring multiple adequate studies.

[5] Due to small case size and a definition of low force/high repetition jobs that likely included many jobs qualifying for a force risk from the "Risk Definitions" table, this study does not support repetition as a sole risk factor.

APPORTIONMENT OF IMPAIRMENT
Guideline for Accredited Physicians – Injuries pre-and post- 7/1/2008
Changes per Senate Bill 08-241 and Workers' Compensation Rule 12-3

MEDICAL RECORDS OR OTHER OBJECTIVE EVIDENCE SUBSTANTIATES PRE-EXISTING IMPAIRMENT



(1) 'Disabled' requires information that the prior injury was identified, treated, and independently disabling at the time of the current injury. 'Disability' is expected to include conditions which adversely impact the claimant's ability to perform his job, or limits the claimant's access to other jobs. Permanent work restrictions would generally fall in this category.

ETHICAL STANDARDS IN PATIENT/DOCTOR RELATIONSHIP IN WORKERS' COMPENSATION CASES

Professional Standards:

See Code of Ethical Conduct for Physicians Providing Occupation Medical Services (American College of Occupational and Environmental Medicine), a copy of which is attached.

Also see *Interprofessional Guidelines* (Interprofessional Committee of the Colorado Bar Association, Colorado Medical Society, Denver, Bar Association, Denver Medical Society) - copy attached. The Code may also be obtained from the Colorado Bar Association at (303) 860-1115 or via their website at: *www.cobar.org.*

Modern society has placed a necessary strain upon the traditional patient/doctor relationship. Specifically, the filing of a Worker's Compensation case automatically results in a “limited waiver” of the patient/doctor privilege allowing release of information "relevant" to the particular worker's compensation case for the purposes of resolving the claim. This modern rule reflects a balancing of interest between the patient/doctor relationship on the one hand and the need for administrative bodies and insurance companies to properly adjudicate claims on the other. The operative word is "relevant."

"SEVEN ETHICAL PRINCIPLES OF OCCUPATIONAL AND ENVIRONMENTAL MEDICINE" – American College of Occupational and Environmental Medicine, Apr. 2010

Occupational and environmental health professionals have an obligation to . . .

1. **Promote a Safe and Health Workplace Environment**

Acknowledge primary responsibility for the health and safety of the individual, as well as worker populations, and take affirmative measures to ensure health and safety in the workplace

2. **Uphold Ethical Standards**

Behave honestly and ethically in all professional relationships, actively resisting and striving to correct unethical conduct. Recognize and acknowledge impairments that interfere with the ability to follow this Code and take appropriate measures to ameliorate them and restricting practice until remediation is accomplished. Acknowledge primary responsibility for the health and safety of the individual, as well as worker populations, and take affirmative measures to ensure health and safety in the workplace.

3. **Avoid Discrimination**

Build a relationship of trust and confidence with the people for whom they provide services, treating all in an equitable manner, without any form of discrimination. Identify and overcome bias or stereotypes which may affect medical care and decision making both in individual patients and in the populations served.

4. **Maintain Professional Competence**

Maintain individual competence and expertise based on current scientific evidence and technical knowledge, remaining engaged in life-long learning regarding work and the environments of those whom they serve and applying appropriate methods to eliminate or minimize risks and recognizing when to call upon an individual's medical expert advice.

5. **Protect Patient Confidentiality**

Keep confidential all individual medical, health promotion, and health screening information, only releasing such information with proper authorization. Recognize that employers may be entitled to counsel about an individual's work fitness.

6. **Advise and Report**

Communicate effectively and in a timely manner to an individual all significant observations about the health and health risk of that person and provide advice about interventions available to restore, sustain, and improve health or prevent illness. While respecting confidentiality, report findings and observations of health effects in individuals and populations to those in a position to take appropriate action.

7. **Address Conflict of Interest**

Ensure ethical conduct regarding conflicts of interest by recognizing, acknowledging, and appropriately addressing any secondary interests that might in reality distort the integrity of judgments or be perceived to do so. Ethical practice must ensure that harm does not accrue as a result of such conflicts.

Confidentiality of Medical Information in the Workplace

Tuesday, November 06, 2012

ACOEM Committee on Ethical Practice in Occupational and Environmental Medicine

As do all physicians, occupational and environmental medicine (OEM) practitioners rely on the patient to completely and truthfully disclose private information before rendering a professional opinion. In order to facilitate the disclosure of private personal information, employees must feel that their private disclosures will be treated in a dignified and confidential manner. Because a physician must first of all do no harm, information received in confidence should be disclosed only when it is in the best interests of the patient or society, or required by applicable law or valid governmental rule or regulation.

When considering requests for job accommodation, addressing threats to health or safety, or reviewing claims for workers' compensation benefits, employers may require access to personal information. Additionally, employers shoulder an increasing responsibility for providing other types of benefits such as health and disability insurance, family medical leave, and employee assistance programs. As a result, the employer becomes inextricably and unavoidably involved in employees' personal and medical affairs. Thus, competing interests between the employee's right to privacy and the employer's legitimate interest in the health of the employee creates sensitive ethical and legal dilemmas for physicians who practice occupational medicine. Other parties, such as insurers, state and federal agencies, and accrediting organizations may also have a right to patient records, and this right must be considered and managed carefully.

The laws governing the confidentiality of employee medical information are complex and vary depending on the relationship between parties and by jurisdiction.[1] Difficult ethical problems arise when the physician must attempt to balance the importance of the employee's need and legal right to keep information confidential versus the employer's need and legal right to know or the interests of other parties.

ACOEM Position

The American College of Occupational and Environmental Medicine (ACOEM) acknowledged the importance of medical confidentiality with publication of its first Code of Ethical Conduct in 1976. This Code was later revised in 1993 to reflect changes in the character of the modern workplace,[2] and subsequently updated in 2010.[3] The 2010 Code of Ethics states that physicians should:

"5. Protect Patient Confidentiality. Keep confidential all individual medical, health promotion, and health screening information, only releasing such information with proper authorization. Recognize that employers may be entitled to counsel about an individual's medical work

fitness."[3]

Additional Guidance on Medical Confidentiality in the Workplace

While the ACOEM Code of Ethics provides direction, the ACOEM Committee on Ethical Practice in Occupational and Environmental Medicine believes that additional guidance on the issue of confidentiality is necessary. Therefore, in addition to Point 5 of the ACOEM Code of Ethics, the College is providing the following guidance regarding medical record confidentiality:

1. Legislation and local practice may treat medical records created in the context of occupational health, independent medical evaluations, and workers' compensation cases differently from medical records created by personal health care providers. However, the physician practicing occupational medicine is advised not to make such distinctions in practice without clear legal guidance or permission from the proper parties. Confidential medical information should be treated the same as in situations where there is a clear physician-patient relationship unless there is a valid legal reason or consent to do otherwise, a health and safety risk to the client or others, or evidence of a criminal act.[4]

2. Physicians should make all reasonable efforts to obtain the patient's consent before disclosing all or any portion of his or her medical record. If disclosure is legally required or consent is not legally required, the patient should be notified of the impending disclosure unless such notification is impossible or there are overriding patient or public health concerns.

3. Physicians should recognize a patient's consent-for-disclosure only if said consent is both informed and voluntary. The consent should specify the nature of the information to be released, the purposes for its release, the person or persons to whom it may be released, the time period for which the consent remains in effect, and acknowledgement statement that the patient may rescind consent at anytime. The consent must be signed by the employee or his or her legal guardian, or if the employee is deceased, by his or her personal representative.

4. Whenever physicians are aware that the results of an examination or records of a visit may be shared with a third party (e.g., in the case of an independent medical examination the information will be shared with an insurer and/or attorneys representing the insurer and the claimant), it is incumbent upon the physician to properly notify the examinee prior to gathering historical or clinical data as to the nature of the evaluation, what information will be collected, and to whom it will be transmitted. The physician should not state or imply that any records will be kept confidential if this cannot be assured. The physician performing independent medical examinations should be knowledgeable of statutes and/or regulations controlling the distribution of their reports. It is appropriate that the insurer and physician share with the claimant the nature of information to be included and the distribution of the report. Sensitive confidential medical information that is not relevant to the claim should not be included in the report.

5. Although all personal health information should be presumed to be confidential, physicians should recognize that certain types of health information are particularly sensitive such as sexual orientation, HIV/AIDS status,[5] drug and alcohol treatment, past history of physical or sexual abuse, treatment for sexually transmitted diseases, and genetic information.[6] Physicians should be aware that a general consent for disclosure of medical records cannot be presumed to be sufficient in these situations and that specific written consent for release of such information must be obtained. This information should only be disclosed in compliance with U.S. federal and state law and similar laws of other countries where occupational physicians work. Because it is often possible to infer sensitive information from other parts of the medical record, such as the medication history, the physician should treat such information in the same manner as explicitly sensitive information.

6. Physicians should release only the portion of a record covered by a release and not disclose the entire medical record unless indicated and permitted by the patient. Forwarding records that have been obtained from other medical providers is appropriate when that information is relevant to the specific problem in question and permitted.

7. Physicians should develop a written policy for the treatment of medical records in their offices, clinics, or workplaces. The policy should address such issues as where, and for how long the records are stored; the security of medical records including computer databases; what happens in the event of employee resignation, layoff, termination, job transfer, or closure and/or merger of employer; and the mechanisms of employee access and consent for disclosure.[7]

8. Physicians should make reasonable efforts to ensure that those under their supervision act with due care regarding the confidentiality of medical records, and act to educate fellow health care providers and office support staff regarding the confidentiality of medical information. Physicians should encourage the confidential treatment of medical information by their clients and in their organization by colleagues in other departments such as human resources or benefits who may have access to such data.

9. Physicians should disclose their professional opinion to both the employer and the employee when the employee has undergone a medical assessment for fitness to perform a specific job. However, the physician should not provide the employer with specific medical details or diagnoses unless the employee has given his or her permission. Additionally, physicians should not disclose without permission any “non-medical” information gained in the context of a physician/patient relationship that could adversely affect the employee. Exceptions include health and safety concerns or knowledge of unlawful activity.

10. Physicians should notify employees of their right to obtain access to their medical records and to request correction of any inaccuracies therein.[8]

11. Supervisors and managers may be informed regarding necessary restrictions on the work or duties of the employee and recommended accommodations. First aid and safety personnel may be informed, when appropriate, if a condition might require emergency treatment, in which case the employee should be informed.

12. Physicians should be a source of professional, unbiased, and expert opinion in the workers' compensation or court systems and should only disclose medical information that is relevant and necessary to the claim or suit. When release of medical information is authorized or required by specific regulation, only the necessary and relevant information should be released.

13. Physicians should exercise caution whenever presented with a request or subpoena for medical records that does not include a written authorization for release by the employee, or when the records requested contain information about HIV status, drug and alcohol treatment, or genetic information. It may be appropriate to seek legal advice in these situations.

14. Physicians should withdraw or decline services when faced with an irresolvable ethical conflict or an unethical request by a client or employer. In many instances, the medical record will be the property of an employer. This ownership does not abrogate any of these principles. Each employer that owns medical records should designate a custodian of the records. Access by employer officials (e.g., employee relations, legal counsel) should proceed via the same process as requests by those outside the employer through the custodian. Physicians should consider inquiring about the employer's practices regarding medical records prior to employment or contractual services.

Because OEM physicians work in a wide variety of practice situations and must respect the laws and customs of many countries, physicians have an ethical duty to become familiar with laws and regulation applicable to their practice. The College believes that all employee health and medical records should be treated as confidential by the employer and provider; however, occupational medicine physicians are in a unique position and must carefully balance the interests of all parties and society as a whole. These recommendations are intended to serve as guidance for OEM physicians in their relationships with their patients and the other individuals that they serve including employers.

References

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5. Americans with Disabilities Act, 42 USC §12112(D)(3)(B) (1990).
6. ACOEM Task Force on Genetic Screening in the Workplace. Position statement. Genetic screening in the workplace. *J Occup Environ Med*. 2010;52(7):763. Available at www.acoem/org/GeneticScreening.aspx.
7. Health Insurance Portability and Accountability Act of 1996 (HIPAA). *Federal Register*. 65 FR 82462. December 28, 2000. Available at www.hhs.gov/ocr/hipaa/finalreg.html.
8. OSHA. Access to Employee Exposure and Medical Records Standard. 19 CFR § 1910.20.

This statement was reviewed and revised by the ACOEM Committee on Ethical Practice in Occupational and Environmental Medicine. Committee members are Drs. David Lukcso, chair, Paul Brandt-Rauf, and William W. Greaves. This statement was peer-reviewed by Dr. Robert Orford, and approved by the ACOEM Board of Directors on July 28, 2012. This statement updates ACOEM's 2008 statement.

These Interprofessional Guidelines are endorsed by the Colorado Bar Association, Denver Bar Association, Colorado Medical Society and Denver Medical Society (2013). http://www.cobar.org/index.cfm/ID/20100/subID/28380/CITP//

Colorado Interprofessional Guidelines

1. Purpose

1.1. The Colorado Interprofessional Code is designed to guide relations between attorneys and health care professionals in client/patient matters. Such interactions are best facilitated when the two professions understand the responsibilities of the other and work together with cooperation and mutual respect.

1.2. Health care professionals must understand that medical testimony is often necessary in court proceedings. Hence, health care professionals should engage in the legal process in a professional and responsible manner that demonstrated respect for an attorney's duties, role, and circumstances, as well as the needs and rights of their patients.

1.3. Legal professionals have a corresponding duty to engage a health care professional in a professional and responsible manner that demonstrates respect for the health care professional's duties, role and circumstances. Recognizing that a health care professional's primary obligation is to provide patient care, efforts should be made to minimize disruption to the professional, patients, and the practice.

2. Medical/Legal Dispute Resolution Sub-Committee

The Committee will be comprised of members of the plaintiff's bar, members of the defense bar (who are members of the Bar Associations' Interprofessional Committee), and members/ staff of the medical society. The subcommittee will be co-chaired by one member of the Bar Association and one member of the Medical Society.

3. Release of Medical Records

3.1. A health care professional or institution should not release medical records without a patient authorization or a court order, unless there is some statutory exception that allows the release of the records (i.e. child abuse, coroner investigation, etc.). A subpoena for records must contain a valid authorization. A health care provider who is unsure about the proper lawful authority should contact his or her attorney or medical malpractice provider.

3.2. A party or attorney issuing a subpoena on a health care professional/institution or custodian will take reasonable steps to avoid imposing undue burden or expense.

4. Scheduling

4.1. Attorneys should schedule the services of a health care professional far enough in advance and in such a manner to minimize inconvenience and disruption to the professional, patients and the practice. Attorneys should advise health care professionals or trial or hearing dates at the time the trial or hearing is set and promptly inform health care professionals of any schedule modifications.

4.2. Attorneys should communicate, to the extent possible, the nature and subject of the subpoena. Services of a subpoena should be scheduled to minimize the inconvenience to the health care professional and limit disruption to patients and the practice.

5. Fees for Services

5.1. Health care professionals may charge a reasonable fee for services whether the professional is providing services as a treating witness or as a specially retained witness. The attorney and health care professional should have a formal written agreement before services are provided.

5.2. In general, a health care provider should charge for medical/legal services what he or she would have likely earned during the time required for the health care provider to render the testimony or other services being requested. Workers' Compensation, governmental, or agency guidelines or regulations may set fee schedules with legal limits.

5.3. If scheduled medical testimony is canceled or postponed, the health care professional may be entitled to compensation depending on the timeliness of notice and amount of disruption to the professionals' practice. Health care professionals are encouraged to use time made available after reasonable notice of cancellation. Cancellation fees should be addressed in advance as part of the written agreement between the attorney and the health care professional.

5.4. Whenever document review, medical reports, conference, or medical testimony are requested by an attorney, it will be conclusively presumed that the attorney has made definitive arrangements with the client for payment of all reasonable charges and that the attorney will be responsible for payment to the health care professional. The health care professional should be aware that the client/patient, not the attorney, is ultimately responsible for reimbursement to the attorney.

5.5. A health care professional should submit an itemized bill to the attorney for services. The attorney is accountable for promptly compensation the health care professional for the services provided. Medical rules of ethics prohibit fees for medical testimony from being contingent upon the outcome of litigation.

6. Scope of Services

6.1. Although health care professionals are "expert witnesses" because of their experience and training, a distinction is made between health care professionals who testify based upon and

about facts gained from personal observation of a patient (treating expert witness), and professionals who give opinions based upon facts furnished to them for review in the course of litigation outside their direct care and treatment of the patient (specially retained expert witnesses).

6.2. Attorneys may request a health care professional to testify as a specially retained expert witness to give opinions beyond the facts gained from personal treatment of a patient (e.g. the appropriateness of another professional's care, hypothetical situations, etc.). The decision to do so is solely within the discretion of the health care professional. A treating health care provided is not obligated to render an opinion outside the scope of his care and treatment.

7. Dispute Resolution

Health care professionals and attorneys should promptly submit a summary of any dispute along with supporting documentation to the Interprofessional Committee at:

Interprofessional Committee
Colorado Bar Association/Denver Bar Association
1900 Grant St., Suite 950
Denver, CO 80203-4309

Or:

Interprofessional Committee
Colorado Medical Society
7351 Lowry Blvd.
Denver, Colorado 80230

8. Notice

Once a dispute is submitted, the parties will receive a written communication from the Committee. Member(s) of the Committee will investigate the dispute and make recommendation(s) for resolution. The full committee will review the recommendation(s) and issue a final written opinion. The Committee's recommendation(s) is not binding unless agreed to by the parties.

THE ROLE OF THE OCCUPATIONAL MEDICINE PHYSICIAN IN THE MANAGEMENT OF INDUSTRIAL INJURY

You may contact the Division's Physician's Accreditation Program for a copy of this 1991 article. It is not available electronically for insertion into this document.

"WC164 FORM"

Physician's Report of Workers' Compensation Injury

Can be found on the Division's website at: www.colorado.gov/cdle/dwc

Look under the menu item "Workers' Compensation Information: Official Forms, Publications & Interpretive Bulletins."

See Workers' Compensation Rules 16 and 18 for further information on how to use, and be paid for the use of, this form.

REPORT FORMS

Per Division Rule 16-7(B), individual health care providers must use the CMS 1500 form when billing for professional services. The current version is the CMS1500 (02-12). Various types of facilities (enumerated in the Rule) must use the UB-04.

The CMS1500 form is not currently available in a Portable Document Format (.pdf) from the Centers for Medicare & Medicaid Services (CMS). Many independent vendors carry the CMS 1500 forms. Currently, most medical practices have a standard supplier for this form or obtain them via vendors on the Internet.

Information concerning the use, completion and application of this form may be found on the website for the National Uniform Claim Committee at www.nucc.org

Many other CMS program-related forms are available in .pdf format. Hard copy and other downloadable versions may be available from insurance carriers, state agencies, local Social Security Offices and/or other various intermediaries.

The WC164 as well as many other Division or Workers' Compensation forms are available on the Division's website at: *www.colorado.gov/cdle/dwc* Select "Official Forms" from the main page menu.

NEUROLOGICAL IMPAIRMENT

OBJECTIVES FOR THE NEUROLOGICAL SYSTEM SECTION

1. Ability to determine impairment of a spinal nerve root or peripheral nerve.

2. Demonstrate correct application of Table 3 - Grading Scheme for Sensation, and Table 4 - Grading Scheme for Strength, to clinical case scenarios.

3. Locate tables for all peripheral and spinal nerves.

4. Correctly apply the sections on disturbance of language, complex integral cerebral function, emotion, consciousness, sleep and arousal disorders, and episodic neurological disorders to case scenarios.

5. Rate a patient with spinal cord dysfunction using the tables referring to station and gait, use of upper extremities, respiration, urinary bladder function, and anorectal and sexual function.

6. Identify cranial nerves that use other sections of the guide to determine impairment rating.

7. Demonstrate ability to combine appropriate values using the COMBINED VALUES CHART.

NEUROLOGICAL IMPAIRMENT

INTRODUCTION

Four rating areas are covered in this section: the brain, the spinal cord, cranial nerves, and peripheral spinal nerves. The principles for rating peripheral nerve deficits are outlined in Chapters 3 and 4. Any physician performing ratings must also have a working knowledge of those principles discussed in Chapters 1 and 2.

As with all areas of the guides, ratings are primarily based on the evaluation of activities of daily living, which include self care and personal hygiene, communication, normal living postures, ambulation, travel, non-specialized hand activities, sexual function, sleep and social and recreational activities. The physician should always consider the impact of any impairment on these activities when determining the rating.

THE BRAIN

The sections described under the brain which may be rated are: sensory and motor disturbances, language disturbances, emotional disturbances, consciousness disorders, episodic neurological disorders, and sleep and arousal disorders.

Unlike other sections, the rating in each of these areas is <u>not</u> combined or added. The patient receives <u>the highest rating</u> that has been assigned in any of the six areas.

All of the brain subsections are patterned in a similar way. The majority discuss <u>mild disturbance of daily activities</u>, <u>moderate disturbance of daily activities</u>, <u>disturbance</u> of daily activities <u>which require supervision</u>, and <u>disturbance</u> of daily activities which <u>render the individual unable to care for themselves</u> without significant supervision. This is a useful overall system to consider when performing ratings for these and other areas.

Many of the activities described in the brain section overlap with activities which could be rated in other areas, particularly those found in the mental and behavioral disorders section. It is important that a rating for a specific category or dysfunction be limited to only one section of the Guides. For example, if a neurological deficit has occurred which causes a difficulty with communication, it should be rated only in the central nervous system section, and not receive an additional rating in the psychiatric section. A psychiatric rating should be given instead of a neurological rating if there were problems which do not appear to be related to physiological brain damage, but rather to overlying psychological effects of the injury. In general, whenever possible, <u>grading of severity</u> in the following sections regarding the brain <u>should be correlated with objective neuro-psychometric</u> and <u>speech testing instruments</u>.

Sensory and Motor Disturbances

It is rare that a patient would receive a rating solely for a brain sensory and motor disturbance. An example of a sensory impairment which may require a rating in this area is phantom limb sensation. If a rating for a sensory disturbance is being considered, the following factors should be taken into account: 1) pain and dysesthesias, 2) disorders in the recognition of the size, shape and form of objects (astereognosis), 3) disturbance of two point and position sense, 4) paresthesias of central origin, and 5) disturbance that might be identified by more elaborate testing. If there is a disturbance of the optic nerve or vision, this should be rated under Chapter 8.

Examples of motor disorders which may receive a rating in this area would include hemiparesis, involuntary tremors, disturbances of tone and posture, bradykinesia, and cerebellar or frontal origin dysfunctions.

No chart is given for rating these disturbances. It is suggested that the physician use descriptions of similar ratings under the spinal cord, cranial nerves, peripheral nerves or other appropriate sections. These will be reviewed in the appropriate sections. Table 1, page 109, is a complete summary of all central nervous system impairment ratings systems.

Language Disturbances

The rating should be given in this area only when there is a problem with the central mechanism for language comprehension, storage and production. There are other areas for rating the ability to speak found in Chapter 9, the ear, nose, throat, and related structures impairment section. The levels for rating in this section are:

0-15%	=	minimal disturbance in comprehension and production of language symbols of daily life
20-45%	=	moderate impairment in comprehension and production of language symbols for daily living
50-90%	=	cannot comprehend language symbols, therefore has an unintelligible or inappropriate production of language for daily living
95%	=	cannot comprehend or produce language symbols sufficient for daily living.

Disturbances of Complex Integrated Cerebral Functions

The following are included under this area: memory disturbances, difficulty understanding concepts or abstracting, orientation deficits, unacceptable social behavior, and inability to initiate decisions. These are functions which are generally related to organic brain dysfunction.

5-15%	=	degree of impairment of complex integrated cerebral functions but there is ability to carry out most activities of daily living as well as before onset.
20-45%	=	degree of impairment of complex integrated cerebral functions such that daily activities need some supervision and/or direction.
50-90%	=	degree of impairment of complex integrated cerebral functions that limit daily activities to directed care under confinement at home or other domicile.
95%	=	a severe degree of impairment of complex integrated cerebral functions that the individual is unable to care for self in any situation or manner.

Emotional Disturbances

Examples of this problem include outbursts of severe rage, irritability, lack of normal emotional responses, and abnormal emotional responses. Caution must be used when rating from this section to avoid duplication with a mental disorder rating.

5-15%	=	mild to moderate emotional disturbance under unusual stress.
20-45%	=	mild to moderate emotional disturbance under ordinary stress.
50-90%	=	moderate to severe emotional disturbance under ordinary to minimal stress which requires sheltering.
95%	=	severe emotional disturbance which continually endangers self or others.

Consciousness Disturbances

This section is used to rate disturbances of consciousness that are not rated under other central nervous system sections. These include hyperactive states, stupor, etc.

5-35%	=	mild alteration in state of consciousness.
40-70%	=	moderate alteration in state of consciousness.
75-90%	=	state of stupor.
95%	=	state of coma.

Episodic Neurological Disorders

Disorders such as syncopy and seizures are included in this area.

5-15%	=	disorder of slight severity which is under control such that most activities of daily living can be performed.
20-45%	=	disorder of severity sufficient to interfere moderately with activities of daily function.
50-90%	=	severe and constant disorder which limits activities to supervised, protected care or confinement.
95%	=	severe and constant disorder which totally incapacitates the individual in terms of daily living.

Sleep and Arousal Disorders

This category can conceivably overlap significantly with other diagnoses. For example, cardiovascular diagnoses such as congestive heart failure, arrhythmias and cardiac failures may cause some arousal disorders. Again, the functional impairment rated here should not overlap with functional impairment rated on the primary diagnostic section. Depression is also mentioned in this section, but usually this will be rated sufficiently under the mental and behavioral disorder section. Other disorders which reduce daytime attention and concentration should be the primary impairments rated in this section.

5-15% = reduced daytime alertness due to sleepiness or sleep episodes, or disturbed nocturnal sleep affecting complex integrated cerebral functions but ability remains to carry out most activities of daily living.

20-45% = reduced daytime alertness, requires some supervision to carry out activities of daily living.

50-90% = reduced daytime alertness or other sleep disturbances significantly limits activities of daily living and requires supervision by caretakers.

95% = severe reduction of daytime alertness such that activities of daily living are severely limited, causing the patient to be unable to care for self in any situation or manner.

SPINAL CORD

Specific sections included under the spinal cord are station and gait, use of upper extremities, respiration, urinary bladder function, anal rectal function, and sexual function. Note that sensory disturbances including pain, temperature, vibration, or positional senses, and autonomic disorders including sweating, circulation and temperature regulation, may be rated under spinal cord disorders. In this section, all of the rating areas are combined for the complete rating.

Station and Gait

5-20% = ability to rise to a standing position and walk, but difficulty with elevations, grades, steps and distances.

25-35% = ability to rise to a standing position and walk with difficulty, but limited to level surfaces and variability as to the distance the patient can walk.

40-60% = ability to rise to a standing position and maintain it with difficulty, but inability to walk.

65% = can stand only with a prosthesis or help of others.

Use of Upper Extremities

Under this section there is a separate rating for the preferred upper extremity and the non-preferred upper extremity. The physician is reminded that this "preference" may change with time and should be reevaluated as necessary. There is a separate table for rating disorders which affect both upper extremities.

	Preferred Extremity	**Nonpreferred extremity**	**Bilateral extremity**
1. use of extremity for self care, grasping and holding, but difficulty with digital dexterity	5-10%	0-5%	5-15%
2. can use the involved extremity for self care, but grasp and hold objects with difficulty and no digital dexterity	15-25%	10-15%	20-40%
3. use of involved extremity, but difficulty with self care activities	30-35%	20-25%	45-80%
4. cannot use the involved extremity for self care or cannot use upper extremities	40-60%	30-40%	85%

Respiration

5-20% = capable of spontaneous respiration, but difficulty in activities of daily life that require extra exertion.

25-50% = spontaneous respiration, but of a degree that restricts patient to sitting, standing or limited ambulation.

75-90% = spontaneous respiration, but of a degree that limits the patient to bed existence.

95% = no capacity for spontaneous respiration.

Urinary Bladder Function

This section refers only to spinal cord disorders resulting in difficulties emptying the bladder. This rating should not overlap with Chapter 11 and should be correlated with uro-dynamic testing when possible.

5-10% = varying degree of voluntary bladder control but is impaired by urgency.

15-20% = good bladder reflex activity but no voluntary control (limited capacity with intermittent emptying times).

25-35% = poor reflex activities (intermittent dribbling) and no voluntary control.

40-60% = no reflex or voluntary control of the bladder (continuous dribbling).

Anal Rectal Function

This rating should not overlap with Chapter 10, but should be correlated with functional bowel testing whenever possible.

0-5% = reflex regulation but only limited voluntary control

10-15% = reflex regulation but no voluntary control.

20-25% = no reflex regulation and no voluntary control.

Sexual Function

Recall that this area is to be used only for sexual difficulties caused by spinal cord injury, not problems due to other neurological or psychiatric disorders. If the patient is below the age of 40 years, the values may be increased by 50%. For example, if the patient is 25 years old and has a 10% sexual function, the rating would be increased to 15%. Conversely, if the patient is over the age of 65, the percentage impairment is decreased by 50%.

5-10%	=	sexual function present, but with varying degree of difficulty of erection or ejaculation in males or awareness in both sexes.
10-15%	=	reflex sexual function possible, but there is no awareness.
20%	=	no sexual function.

CRANIAL NERVES

Olfactory

A complete loss of the nerve with bilateral involvement is a 3% whole person impairment rating. If the loss is only unilateral, there is no rating.

Optic

Loss of vision in one eye is 24%. Total blindness is equal to 85%. Other partial losses should be rated according to Chapter 8.

Oculomotor IV Trochlear, and V Abducens

Permanent diplopia from a malfunction of these nerves is considered equivalent to the loss of vision of one eye, or 24% of the whole person. If the loss of function requires the patient to hold their head in an unusual position, it is suggested that ratings be combined from the impairment table on station and gait, as discussed previously in the spinal cord section, or Chapter 8, if there is a partial visual impairment.

Trigeminal

Loss of sensation on one side may be rated between 3-10% depending on dysfunction. Bilateral loss is rated between 20-35%. Tic douloureux receives a rating of 10-50% depending on the severity and frequency of attacks. A complete loss of the motor function of one side of this nerve will be rated between 2-5% impairment of the whole person. A bilateral loss of the motor function would be 30-45% of the whole person. Refer to Chapter 9 to review impairment ratings for speech and ability to swallow, which may apply to this area.

Facial

Unilateral loss of taste, which is unusual, is a 3% impairment. Unilateral paralysis is between 10-15%, and complete bilateral paralysis 30-45%. Other motor losses are established based on difficulties with speech and eating. Refer to Chapter 9.

Auditory

These ratings are described in detail in Chapter 9. Bilateral loss of hearing has a rating of 35%, and Tinnitus, in the presence of hearing loss, has a rating of 3-5% hearing impairment. (See ENT section of Level II Curriculum.)

Glossopharyngeal, X. Vagus, XI Cranial Accessory nerves, and XII Hypoglossal.

Refer to Chapter 9 for speech ratings. The rating for diet restriction is the same in Chapter 9 and the neurological section.

PERIPHERAL SPINAL NERVES

Peripheral spinal nerves can be rated according to the three groups of fibers: sensory, motor, and autonomic. <u>If autonomic nerve fibers affect a specific organ or body system, that Chapter should be consulted to determine the degree of impairment</u>.

The <u>first step</u> in rating a nerve, nerve root, or plexus is <u>determining</u> its <u>value for total motor and sensation loss</u>. This area can be somewhat confusing as all of the nerves are not listed in the same section. Some tables are found in Chapter 4 and others in Chapter 3. The peripheral spinal nerves chart on the following page lists all available Tables.

Peripheral Spinal Nerves Chart

Nerves Rated	Table #	Page #	Type of Rating
Unilateral spinal nerves head and neck, greater occipital, lesser occipital, great auricular, spinal accessory	5	113	whole person
Unilateral spinal nerves - inguinal and perineum, iliohypogastric, ilioinguinal, pudendal, coccygeal	7	114	whole person
Thoracic nerves	6	114	whole person
Unilateral spinal nerve roots upper extremity C5 - T1	12	43	upper extremity
Unilateral Brachial Plexus upper, middle, and lower trunks	13	44	whole person and upper extremity
Named peripheral nerves upper extremity, median, radial, ulnar axillary, etc.	14	46	upper extremity and digit
Upper extremity nerve entrapment	15	46	upper extremity
Unilateral spinal nerve roots lower extremity, L-3 - S-1	49	76	lower extremity
Unilateral lumbosacral plexus	50	76	whole person
Named peripheral nerves lower extremity; femoral, gluteal, sciatic, peroneal, tibial, etc.	51	77	lower extremity

All nerves must be graded according to sensation loss and motor loss. In the neurological section, Chapter 4, Table 3, page 112 is used to grade sensation loss and Table 4, page 113, is for grading motor loss. When the nerve being rated is in Chapter 3, the upper and lower extremity and spine impairment chapter, use the Chapter 3 tables. In Chapter 3 the sensation grading system is found on page 42, Table 10 and the motor grading system is on Table 11, page 42. The grading tables differ slightly between the two chapters. All four grading tables include a summary of how to grade peripheral nerves at the bottom of the table.

The sensation loss is determined using verifiable sensation deficits, the presence of pain and the effect on activity performance. The ranges for sensation loss from Table 10, Chapter 3:

0% = no loss of sensation or spontaneous abnormal sensation

1-25% = decreased sensation with or without pain which is forgotten during activity

26-60% = decreased sensation with or without pain which interferes with activity

61-80% = decreased sensation with or without pain which may prevent activities (minor causalgia)

81-95% = decreased sensation with severe pain which may cause outcries as well as prevent activity (major causalgia)

96-100% = decreased sensation with pain, which may prevent all activity.

Once the sensation loss is determined from the grading deficit, it must be multiplied by the total loss of sensation rating for the specific nerve involved. This number will be found on one of the tables listed on the Peripheral Spinal Nerves Chart on the previous page.

Graded Sensation % X Total Sensation Loss for the specific nerve = Sensation Impairment Rating % for the nerve in the specific case

Motor strength, as determined by gross resistance testing of the affected nerve, is graded in Chapter 3 using Table 11, page 42, and the following categories:

0% = complete range of motion against gravity and full resistance.

1-25% = complete range of motion against gravity and some resistance, or reduced fine movements in motor control.

26-50% = complete range of motion against gravity and only without resistance.

51-75% = complete range of motion with gravity eliminated.

76-99% = slight contractibility, but no joint motion.

100% = no contractibility.

The percentage grade of the motor deficit is multiplied by the maximum loss of strength due to the nerve identified in order to determine the motor loss.

Graded Motor % X Total Motor Loss for the specific nerve = Motor Impairment Rating % for the nerve in the specific case

The sensation and motor nerve deficits are combined in order to arrive at the total deficit for that nerve or extremity. Review the examples found on page 77 which calculate the neurological losses for a specific patient.

Case Example:

> A fifty seven year old female employee spends a minimum of 4 hours a day on the assembly line in a poultry processing plant and develops carpal tunnel syndrome. Her EMG demonstrated median nerve changes and conservative measures did not improve her condition. After a carpal tunnel release the patient improved but continued to have a motor deficit of median nerve functions which allowed complete range of motion against some resistance and resulted in a reduction in fine movements. She also experienced decreased sensation in the entire median nerve distribution below mid-forearm with pain which prevented her from working on the assembly line more than 15 minutes per hour.

To calculate her impairment rating, Table 14, page 46, is consulted to determine the maximum % sensory and motor losses for the median nerve below the mid forearm. Tables 10 and 11, page 42 are consulted to determine the grading schemes that apply.

Sensory Impairment: Maximum sensation loss from Table 14, page 46, is 40%. Using Table 10, page 42, this patient has a grade 4 sensation loss. Thus for a highly motivated and consistent patient, 80% may be multiplied by 40% for a 32% upper extremity impairment due to loss of sensation. Any number in the grade 4 range may be used, 61-80%. A lower rating may be appropriate depending on the patient's difficulty with activities of daily living.

Motor Impairment: Maximum motor loss from Table 14, page 46 is 35%. Using Table 11, page 42, this patient has a grade 2 motor loss (1% - 25%). Thus 25% (or a percentage chosen within the Grade 2 range) may be multiplied by the maximum permissible loss of 35% for a 9% upper extremity motor loss.

Combined Impairment Rating: The sensory and motor impairment values are combined using the Combined Values Chart, page 254, for 38% total upper extremity impairment. [In this case any range of motion deficits that may occur are secondary to a nerve deficit and thus not used in the rating.]

Convert to Whole Person: The upper extremity rating may be converted to a whole person rating using Table 3, page 16. The whole person rating equals 23%. Ratings should be expressed both as extremity and whole person correlates.

Table 14, page 46 will result in an objective and supportable report on impairment due to peripheral nerve entrapment. Ratings using Table 15, page 46 are not recommended because the *AMA Guides* do not provide any definitions for mild, moderate and severe. Range of motion deficits cannot be combined with motor deficits of the nerve if the range of motion deficits are secondary to motor nerve damage. (See page 41, *AMA Guides*) In other words, if the patient has suffered a brachial plexus injury and has significant range of motion deficits of the wrist and elbow due to lack of motor function, these range of motion deficits should not be applied to the impairment rating. The motor deficit that you calculate for the involved nerves will take into account the range of motion deficit. Range of motion deficits are used for impairments which are not secondary to neurological dysfunction.

REFLEX SYMPATHETIC DYSTROPHY (CHRONIC REGIONAL PAIN SYNDROME) AND RELATED ISSUES

According to the Third revised edition of the *AMA Guides*, autonomic function may be rated by rating peripheral nerves, spinal nerve roots, spinal plexus or spinal cord functions (Chapter 4, Table 1). The task force on reflex sympathetic dystrophy advocated use of the spinal cord impairment tables for upper extremity or station and gait. If the injury has mainly caused sensation and motor deficits, it may be appropriate to use the sensation and motor percentage ratings for the appropriate peripheral nerves. Remember that range of motion deficits should not be calculated unless they were due to a cause other than a neurological injury such as reflex sympathetic dystrophy, since the rating for range of motion and deficits would be included in the sensation and motor deficits calculated.

In most cases, a rating for the autonomic dysfunction alone, i.e. temperature changes or vascular changes, will not be necessary as the effects on daily living can be sufficiently rated under the sensation grade for the nerve. However, if there is consistent vascularity change which has affected the tissue, or caused a significant change in the patient's daily function, this impairment should be combined with the neurological deficit. Use Table 16, page 47 which refers to impairment of the upper extremity due to peripheral vascular disease. Table 52, page 79, rates peripheral vascular disease in the lower extremity.

Related articles of interest:

Amadio, Peter C. et al, Reflex Sympathetic Dystrophy Syndrome: Consensus Report of an Ad Hoc Committee of the American Association for Hand Surgery and the definition of reflex sympathetic dystrophy syndrome; Plastic and Reconstruction Surgery 87:2, February, 1991, pages 371 -375.

Schwartzman, Robert J. and McLellan, Tony L.; Reflex Sympathetic Dystrophy: A Review; Archives of Neurology, Volume 44, May 1977, pages 555 - 561.

HELPFUL HINTS FOR GRADING NEUROLOGICAL DEFICITS

Report nerve findings on required report forms

- Upper extremity nerves – Upper Extremity Report Section III, Figure 1, Part 2 (p. 13)
- Lower extremity nerves – Lower extremity report sheet in curriculum
- Spinal nerve root impairments – Spine impairment summary report sheet (Figure 84, p. 85)

Reference figures and tables for peripheral nerves and nervous system functions: *(These may be useful in localizing the level of nervous system pathology prior to the determination of impairment using the impairment tables.)*

- *Cutaneous sensory dermatomes of upper extremity and related peripheral nerves and roots – Figure 45, p. 39*
- *Origins and functions (motor and sensory) of the peripheral nerves of the upper extremity emanating from the brachial plexus (cervical 5 to 8 and Thoracic) – Table 9, p. 40*
- *Brachial plexus anatomic diagram – Figure 46, p. 44*
- *Motor innervation of the upper extremity – Figure 47, p. 45*
- *Sensory nerves of the lower extremity and their roots of origin – Figure 77, p. 73*
- *Origins and functions (motor and sensory) or the peripheral nerves to the lower extremity – Table 48, p. 74*
- *Lumbosacral plexus anatomic diagram – Figure 78, p. 75*
- *Motor innervation of the lower extremity – Figure 79, p. 75*

First step required to grade peripheral nerves

Locate maximum impairment loss for the nerve affected using the appropriate table identified on the attached chart. ***(Note whether the impairment is provided as an extremity impairment or whole person impairment.)***

Peripheral Spinal Nerves Chart

Nerves Rated	Table #	Page #	Type of Rating
Unilateral spinal nerves head and neck, greater occipital, lesser occipital, great auricular, spinal accessory	5	113	whole person
Unilateral spinal nerves - inguinal and perineum, iliohypogastric, ilioinguinal, pudendal, coccygeal	7	114	whole person

Nerves Rated	Table #	Page #	Type of Rating
Thoracic nerves	6	114	whole person
Unilateral spinal nerve roots upper extremity C5 - T1	12	43	upper extremity
Unilateral Brachial Plexus upper, middle, and lower trunks	13	44	Upper extremity and whole person
Named peripheral nerves upper extremity, median, radial, ulnar axillary, etc.	14	46	upper extremity and digit
Upper extremity nerve entrapment	15	46	upper extremity
Unilateral spinal nerve roots lower extremity, L-3 - S-1	49	76	lower extremity
Unilateral lumbosacral plexus	50	76	whole person
Named peripheral nerves lower extremity; femoral, gluteal, sciatic, peroneal, tibial, etc.	51	77	lower extremity

Second step for grading peripheral nerve impairment –
Record maximum sensory and motor values for the affected nerve from the above tables.

Third step for grading peripheral nerve impairment –
Grade the sensory and motor loss for each nerve using the grading table from the same chapter as the maximum value for the nerve.

- Grading table for sensory and motor impairment for Chapter 3 (upper and lower extremity)
  - ✓ Sensory – Table 10, p. 42
  - ✓ Motor – Table 11, p. 42
- Grading table for sensory and motor impairment for Chapter 4 (nervous system)
  - ✓ Sensory – Table 3, p. 112
  - ✓ Motor – Table 4, p. 113
- To grade sensory deficit use physical exam findings and expected functional deficits
- To grade motor deficit use confrontational strength testing – 5/5 scale

Fourth step for grading peripheral nerve impairment –

Multiply sensory deficit % from above tables by maximum sensory nerve loss %- *Multiply motor deficit% from above tables by maximum motor nerve loss %*

Fifth Step for grading peripheral nerve impairment -

Combine sensory and motor values

OTHER IMPAIRMENT RATINGS

- Digital nerves are rated using a different system
  - Determine the length of the finger affected
    - Thumb and little finger – Figure 7, p. 19
    - Other digits – Figure 17, p. 25
  - Determine if digital nerve is partially affected (2-pt 7-15mm) or totally impaired (2-pt > 15mm)
    - Thumb and little finger rate using Table 4, p. 20 hand rating
    - Other digits – Table 8, p. 25
  - When the rating for each digit is completed convert to
    - Table 1, p. 15 digit to hand
    - Add all digits ratings in hand impairment rating %
    - When hand rating is completed, convert to upper extremity
    - Table 2, p 16 for hand to upper extremity
    - Table 3, p. 16 for upper extremity to % whole person impairment)

- Upper extremity entrapment peripheral neuropathy – Table 15, p. 46 (Note: "upper extremity" units)
  - The Division of Workers' Compensation recommends that this table NOT be used since the categories of impairment (mild, moderate and severe) are not defined, and Table 14 is more specific.

- CRPS
  - Table 1, p. 109, Chapter 4 (the Division preferred method for rating CRPS)
  - Upper extremity and lower extremity vascular tables, p. 47 & 79 may be used to rate impairment due to severe swelling associated with chronic regional pain syndrome if functional deficit is not covered by Table 1 rating
  - In some cases of CRPS II use of the peripheral nerve table may be acceptable

- Grip strength impairment – pp. 52-54, very rarely appropriate – should <u>never</u> be used with a neurologic injury since neurologic injuries must be rated according to muscle strength testing as previously described.

    - % strength index = [Normal mean strength (use measured non-injured side or Tables 20-22, p. 53) – abnormal mean strength] ÷ normal mean strength (See p. 54)
    - Find % strength index impairment table – Table 23, p. 54 (Note: "upper extremity" units)
    - Note: The grip strength method may be used only when the peripheral nerve table is not directly applicable, i.e., crush injury resulting in fractures and ROM alone does not account for the functional deficit.

- Spinal cord impairment (Note: "whole person" units)

    - Use Table 1, p. 109, left side "A" Spinal Cord and/or Brain"

  Note: multiple categories can be combined from this column

- Brain impairment (Note: "whole person" units)

    - Brain categorical impairments are not combined. Instead the largest numerical value of all categories rated is used to reflect total impairment due to brain pathology (see p. 104). Usually this refers to the categories on the right side "B.Brain" of Table 1, but would also include any categories of brain impairment from the left side "A".

- Cranial nerves – Table 2, p. 111 (Note: "whole person" units)

    - Note: Do not "double rate" by using both the cranial nerve impairment rating and the applicable end organ rating from its chapter in the Guides (i.e. vision, hearing, dysequilibrium).

    - Generally corresponding end organ impairment will be rated using the appropriate chapter in the Guides rather than the cranial nerve impairment.

OBJECTIVES FOR THE UPPER EXTREMITY SECTION

1. Show how the impairment levels of the upper extremity at the hand and forearm compare to the extremity as a whole and the whole body.

2. Explain the method for determining sensory loss of the fingers.

3. Explain the manner used to determine range of motion in all joints of the fingers.

4. Demonstrate the ability to determine impairment ratings for a finger and the thumb using all measurements for impairment.

5. Determine range of motion impairments for the wrist, elbow, and shoulder, given specific values in all planes.

6. Apply Table 16 - Impairment of the Upper Extremity due to Peripheral Vascular Disease - correctly to a case scenario.

7. Demonstrate understanding of the available tables on peripheral nerves.

8. Apply tables found in section 3.1J under Impairment Due to other Disorders of the Upper Extremity correctly to determine an impairment rating.

9. Using a clinical case scenario, combine the impairment ratings for range of motion of several joints in the upper extremity, as well as other deficits, to determine the upper extremity and whole body rating.

10. Correctly complete the report form found on pages 12 and 13, *AMA Guides*

UPPER EXTREMITY IMPAIRMENT

General Principles

Upper extremity impairment is viewed as some percentage of a complete amputation of the arm.

Figure 2, p.15 shows complete amputation of the arm as a 60% impairment of the whole person. Amputation of all digits is equivalent to a 90% impairment of the upper extremity and a 54% impairment of the whole person.

Any combination of types of injury or permanent impairment that add or combine to more than 100% of the upper extremity is equal to 100% of that upper extremity. This is the same principle used in other sections of the Guides.

Injury residuals of the various parts of the upper extremity are rated as follows:

- Rated at digit level.
- Digit or digits converted to hand level - Table 1, p.15
- Hand level converted to upper extremity level - Table 2, p.16
- All upper extremity ratings are combined in order from distal to proximal to determine total upper extremity rating.
- Upper extremity rating converted to whole person ratings - Table 3, p.16
- Each upper extremity is rated as whole person separately and both ratings are combined for final whole person rating when impairment is bilateral.
- Impairments of same kind or type - usually added (exceptions exist).
- Impairments of more than 1 type - combined.

Categories of upper extremity impairment:

- Amputation
- Sensory loss of digits
- Abnormal motion
- Peripheral neurological losses (Motor & Sensory)
- Vascular disorders

OTHERS: joint crepitation, joint swelling, deviation, subluxation and dislocation, arthroplasty, carpal instability, muscle and tendons, and strength loss.

Note: Often, the elements included in "other" may be part of the 5 major types of impairment. They are separately rated only when that particular "other" problem either lends more impairment than is included with the major five categories or does

not cause any of the other five types of impairment but acts to impair function, e.g., finger may have full motion and no sensory loss but with joint crepitation, swelling, deviation, subluxation or dislocation.

Also, muscle tightness and arthroplasty and loss of strength are sometimes themselves an impairment even with normal range of motion and sensation.

A CAUTIONARY WORD ABOUT SOME TABLES AND FIGURES

There are several figures and tables or portions of figures and tables in the upper extremity chapter of the *AMA Guides* 3rd Edition, Revised that are in the text for explanatory reasons only. Because they can be confusing and mistakenly applied when one is performing a rating, we recommend that you cross them out in your book. (If you attend the seminar for this course, the instructor should go through this with you.) These include:

Figure 3, Page 15
Figure 5, Page 17
Figure 7, Page 19 - Omit Total Transverse Sensory Loss Impairment % section only
Figure 9, Page 21
Figure 12, Page 22
Figure 14, Page 22
Table 5, Page 23 - Do not use Lost and Retained columns
Table 6, Page 23 - Do not use Lost and Retained columns
Figure 16, Page 24
Table 7, Page 24 - Do not use Lost and Retained columns
Figure 17, Page 25- Omit Total Transverse Sensory Loss Impairment % section only
Figure 25, Page 29
Figure 28, Page 30
Figure 31, Page 32
Figure 34, Page 33
Figure 37, Page 35
Figure 40, Page 36
Figure 43, Page 37

DIGITAL IMPAIRMENTS

Amputation of the digits

The impairment percentage of each amputated digit can be determined by using the appropriate figures.

Fig. 7, p.19 - thumb
Fig. 17, p.25 - other digits

Sensory loss of the digits

Sensory quality Classification

- 2 point discrimination greater than 15mm
  = total sensory loss or 100%
- 2 point discrimination between 15-7mm
  = partial sensory loss or 50% sensory impairment
- 2 point discrimination equal to or less than 6mm
  = normal sensability or 0%

Distribution of impairment

Digital sensory impairment is calculated as a percentage of the length of the digit involved and the grade of sensory loss.

Table 4, p.20 - gives values for sensory loss of the thumb and little finger.

Table 8, p.25 - gives values for the sensory loss of the index, middle and ring finger.

Range of Motion

Thumb

Flexion extension interphalangeal joint, Fig. 10, p.21
Flexion extension metacarpophalangeal joint, Fig. 13, p.22
Adduction, Table 5, p.23
Abduction, Table 6, p.23
Opposition, Table 7, p.24
<u>Add</u> all range of motion deficits of the thumb

Other digits

Flexion extension distal interphalangeal joint, Fig 19, p.26
Flexion extension proximal interphalangeal joint, Fig. 21, p.27
Flexion extension metacarpophalangeal joint, Fig. 23, p.28

Add range of motion deficits at each joint level, e.g., flexion deficit and extension deficit of the pip joint.

Combine, do not add, range of motion deficits from all involved joints on the digit. All digits except the thumb.

Total Digit Impairment

Combine deficits from amputation, sensation, range of motion and any other applicable disorders for each digit .

Multiple Digit Involvement

Translate each digit's total impairment to the hand impairment using Table 1, p.15.
Add all of the hand's impairment from each digit to determine the total hand impairment.

WRIST

Amputation

Use Fig. 2, p.15
An amputation at the wrist level is a 92% impairment of the upper extremity.

Range of Motion

Flexion extension, Fig. 26, p.29
Ulnar and radial deviation, Fig. 29, p.31
Add range of motion deficits.

ELBOW

Amputation

Use Fig. 2, p.15
An amputation at the elbow joint is a 96% impairment of the upper extremity.

Range of Motion

Flexion extension, Fig. 32, p.32
Pronation supination, Fig. 35, p.33
Add range of motion values for total ROM deficit.

SHOULDER

Amputation at shoulder equals 100% impairment of upper extremity.

Range of Motion

Flexion extension, Fig. 38, p.35
Abduction-adduction, Fig. 41, p.36
Internal-external rotation, Fig. 44, p.37
Add range of motion deficits from each function.

PERIPHERAL NERVE DISORDERS

Determined as described in Neurological Section.
Nerves found on:
- Table 14, p.46, Specific unilateral nerves
- Table 13, p.44, Brachial plexus
- Table 12, p.43, C_5-T_1, nerve roots

Sensory grading, Table 10, p.42
Motor grading, Table 11, p.42
Note: Loss of strength from any non-neurological cause may be graded according to grip and lateral pinch strength. However, a patient cannot be given a rating for a motor disorder due to a neurological cause under Table 11 and also receive a grip strength rating.

IMPAIRMENT DUE TO VASCULAR DISORDERS

Rate according to Table 16, p.47
These values are combined with other upper extremity impairments.

OTHER DISORDERS OF THE UPPER EXTREMITY

These tables must only be used when other measures of impairment have not adequately addressed the patient's impairment.

Joint Crepitation

May reflect synovitis or cartilage degeneration.
Use percentage joint impairment on p.48 and multiply by the applicable joint, Table 17, p.48

Joint Swelling due to Synovial Hypertrophy without range of motion deficits

Use impairments on p. 48 and again multiply by joint value Table 17.

Digital Lateral Deviation or Rotational Deformity

Lateral deviation and rotational deviation are found on page 49.

These values are multiplied by the total value of the digit (see Table 17, p.48)

If other impairments are present combine this value with them.

Persistent Joint Subluxation and Dislocation without range of motion deficits.

Multiply appropriate value on p.49 by involved joint, Table 17.

Joint Instability

Excessive medial lateral instability is evaluated by comparison with the uninvolved side.
Values from p.49 are multiplied by the appropriate joint, Table 17.
This value should be combined with any other existing impairments.

Wrist and Elbow Joint Lateral Deviation

Measure with wrist or elbow in maximum extension.
Multiply value on p.50 by appropriate joint, Table 17.
Combine this value with any other existing impairments.

Carpal Instability without range of motion or strength deficits

These are based on radiographic findings. Refer to Table 18, p.50.
Do not use this if there are impairments of range of motion or grip present.
Do not add or combine impairments on this table - use the highest value only.

Arthroplasty

These values may be combined with range of motion deficits. Refer to Table 19, p.50.
If more than one level is involved (e.g., fingers and elbow) combine deficits beginning with distal deficit.
If more than one thumb joint is involved add impairments.
If more than one joint is involved in another digit, combine impairments for that digit.
If multiple digits are involved, add the hand equivalent impairments for the digits.

Note: Resection arthroplasty referred to in the AMA Guides 3rd Edition Revised is to be used only for partial resection of the humeral head, a procedure rarely performed currently.

Neither resection nor implant arthroplasty values should be used for a distal clavicular resection. The upper extremity value assigned to a distal clavicular arthroplasty is 10%. The *AMA Guides* 4th and 5th Editions continue to suggest that

subacromial arthroplasty should be rated using ROM, and when appropriate, 'joint crepitation with motion' from the "Other Disorders" section. In general, when any additional rating for subacromial arthroplasty is deemed appropriate in a case with or without crepitus because " . . . other factors have not adequately rated the extent of the impairment," it should not exceed 10%.

Intrinsic Tightness Severity without range of motion deficit

This may be given only when there is no range of motion deficit. Refer to page 52.
Bunnell's test - Restricted passive flexion of the PIP joint with MP joint hyperextended.
Multiply deficit by digit value, Table 17.

Constrictive Tenosynovitis without range of motion deficit

If there is a range of motion deficit this rating for the trigger finger cannot be used. Refer to page 52.
Multiply deficit by digit value, Table 17.

Extensor Tendon Subluxation at MP Joint without range of motion deficit

Rating may not be given if a range of motion impairment exists.
Refer to p.52 for percentage of impairment to be multiplied by digit value on Table 17.

Loss of Strength

This section should be used only when loss of strength cannot be adequately rated using the other sections, including neurological motor deficits. The neurological motor deficit and loss of strength must not be given for the same deficit. It is suggested that at least three measurements of grip and lateral pinch strength be taken at several intervals in an exam. There should be a less than 20% variation among three readings to establish reliability. At least three reliable readings for each extremity are averaged.

$$\text{strength index} = \frac{\text{strength of the normal hand - strength of the abnormal hand}}{\text{strength of the normal hand}}$$

Use table 23, p.54 to translate the strength index into upper extremity impairment. If there is no uninjured hand, use Table 21 and Table 22 on p.53 to determine the normal strength.

CUMULATIVE TRAUMA CONDITIONS/DISORDERS

First calculate any applicable impairment from range of motion, neurologic and/or vascular findings, or other disorders (section 3.lj) excluding grip strength. (Also refer to the tables and related information from the Cumulative Trauma Conditions treatment guideline, as needed, in the Workers' Compensation Report section of this curriculum.) If no impairment exists under these sections and the claimant has an impairment of daily living activities with anatomic and physiologic correlation, proceed to rate the impairment as follows:

1. Multiple joint and upper extremity sites can be involved in CTD. Limit the impairment determination to areas of primary pathology, with anatomic or physiologic correlation based on objective findings, and which meet criteria for a separate and distinct diagnosis. Do not rate areas of reactive muscular spasm and radiating or referred pain. *(Also see* Cumulative Trauma Conditions Medical Treatment Guideline, Sec. C: Definitions and Mechanisms of Injury.)

2. Using the cumulative trauma matrix, determine the stage of cumulative trauma for each joint involved, Stage 1 is 0-10%, Stage 2 is 11-20%, Stage 3 is 21-30%, and Stage 4 is 31-40%. See CTD Matrix at end of this section.

3. Identify the appropriate joint impairment found on Table 17, Chapter 3 of the *Guides.*

4. Multiply the joint impairment from Table 17 by the CTD stage impairment from step 2 to yield an upper extremity impairment. If there is anatomic and physiologic basis to rate other joints in the same extremity, complete the rating in the manner described and combine the extremity ratings distal to proximal.

5. If extremity impairment is bilateral, convert each upper extremity impairment to whole person rating and then combine whole person ratings for both right and left upper extremities as referenced in the *AMA Guides*. Complete the upper extremity worksheets, Figure 1 of Chapter 3 of the *AMA Guides*, for each extremity separately.

Using grip strength: The CTD rating system is preferred to impairment determined by decrease in grip strength. If grip strength is used, the CTD rating system shall not be used as it would be duplicative. Similarly, care must be taken to avoid duplicative ratings with other associated disorders where there is significant neurovascular involvement or where there is limitation in range of motion.

Patients with <u>cumulative trauma disorders</u> should be tested after 6-8 hours of work for determination of impairment.

Any reports involving the upper extremity must be completed using Fig. 1, pp. 12 and 13—Upper Extremity Evaluation worksheets (*AMA Guides*).

Table 1: Cumulative Trauma Staging Matrix (also referenced in Workers' Comp Rule 12)

	Stage 1 (Minimal)	Stage 2 (Mild)	Stage 3 (Moderate)	Stage 4 (Severe)
History and Physical Examination	1-2 symptoms with signs identified on history and supported by physical examination with consistency of subjective and objective findings	2 or more symptoms with signs identified and supported by physical examination with consistency of subjective and objective findings	3 or more symptoms with signs identified and supported by the physical examination with consistency of subjective and objective findings	3 or more symptoms with signs identified and supported by physical examination with consistency of subjective and objective findings
	AND	AND	AND	AND
Response to Modification of Specific Aggravating Factors	Symptoms and/or signs improve or resolve with modification of specific aggravating activity	Symptoms and/or signs may improve but will not resolve completely with modification of specific aggravating activity	Symptoms and/or signs do not improve with modification of the specific aggravating activity, but may improve with elimination of the specific aggravating activity	Symptoms and/or signs do not improve with modification or elimination of the specific aggravating activity
	OR	OR	OR	OR
Activities of Daily Living (ADLs)	Minimal problems with ADLs	Noticeable aggravation by more difficult ADLs	Significant interference with most ADLs	Severe limitations of ADLs
Impairment Grades at MMI (See Note to obtain Multiplier below)	0-10%	11-20%	21-30%	31-40%

NOTE: When the Staging Matrix is used for impairment rating at Maximum Medical Improvement (MMI), assignment of the patient to a Stage should be based primarily on limitations in ADLs and history and physical examination findings. The response to modification of specific aggravating activities may be used to aid the rater in choosing a number within the available rating range. The staging number chosen from the "Impairment Grades at MMI" row is to be used as a multiplier in conjunction with the *AMA Guides*, Chapter 3, and Table 17. The primary presenting joint that corresponds to each specific established diagnosis should be rated. Descriptions of painful conditions without clear physiologic findings may not be rated using this chart. Examples include pain in the elbow or other upper extremity joint and myofascial pain disorder. The staging matrix is only used to rate a diagnosis when there is no impairment rating under range of motion and/or the specific diagnosis in the *AMA Guides* 3rd Ed. (rev.). All impairment ratings from this table are provided in upper extremity terms, and then converted to whole person. The table is not intended to distinguish between permanent partial disability as paid under 8-42-107 (2) and 8-42-107 (8).

OBJECTIVES FOR SPINAL, LOWER EXTREMITY, AND PELVIC IMPAIRMENT RATING SECTION

1. Demonstrate ability to properly measure range of motion for all joints found in the lower extremity.

2. Be able to use Table 53 - Impairments Due to Specific Disorders of the Spine - to determine impairment for specific clinical diagnoses.

3. Correctly determine pelvic impairment in a case scenario.

4. Determine spinal nerve root dysfunction accurately using a specific case scenario.

5. Use correctly all tables found in this chapter, including:
   - Table 47-Impairment of the Digits Foot Lower Extremity and Whole Person due to Amputations,
   - Table 45-Impairments of the Lower Extremity Due to Other Disorders of the Hip Joint,
   - Table 52-Impairment of the Lower Extremity Due to Peripheral Vascular Disease, and
   - Table 40 Impairment Ratings of the Lower Extremity for other Disorders of the Knee.

6. Demonstrate the ability to combine all the appropriate factors used in a spinal case and determine a correct impairment rating.

7. Report clinical cases properly on Figure 83, Lumbar Range of Motion form, found on Pages 84 and 85.

8. Demonstrate the ability to properly use the inclinometer to measure cervical, thoracic, and lumbar ranges of motion. (Performed in workshop)

SPINAL, LOWER EXTREMITY, AND PELVIC IMPAIRMENT

LOWER EXTREMITY

Definition of ankylosis

"complete absence of motion or planar restriction of motion preventing the subject from reaching the neutral position of motion in that plane."

Amputation

When an amputation occurs at a joint the physician is required to calculate the percentage impairment. Refer to Table 47, p.73 for a summary of impairments due to amputation *except* when calculating amputation of the toes as stated below.

Distal amputation - if the amputation occurs distal to the distal joint, the percentage of lost bone is multiplied by the total percentage of loss given on the table for amputation at the distal joint. See p.56 for example.

Proximal amputation - if the loss occurs between 2 joints - the full impairment for the lost distal portion is added to the percentage of the bone lost between the joints multiplied by the remaining impairment at the proximal joint. The remaining impairment at the proximal joint is equal to the impairment given on the appropriate table for amputation at the joint minus the full impairment for amputation at the distal joint. See p.57 for example.

Great Toe

Measure range of motion of both MTP and IP joints
Table 24, p.56, interphalangeal joint - flexion and extension

Add the range of motion deficits at each joint.
Combine the total ROM deficits for MTP and IP.
Combine ROM deficit with any amputation impairment.
Convert to foot rating using Table 27, p.59.

2nd through 5th Toe - Range of Motion

Determine range of motion of applicable joints.
Table 28, p.60 - distal interphalangeal 2nd - 5th Toe
dorsi-plantar flexion and amputation
Table 29, p.60 - proximal interphalangeal joint 2nd - 5th toe
dorsi-plantar flexion and amputation
Table 30, p.61 metatarsophalangeal joint - 2nd toe
dorsi-plantar flexion and amputation
Table 31, p.62 - 3rd metatarsophalangeal joint dorsi-plantar flexion

Table 32, p.62 - 4th metatarsophalangeal joint dorsi-plantar flexion
Table 33, p.63 - 5th metatarsophalangeal joint dorsi-plantar flexion
Add range of motion deficits at each joint.
Combine the total ROM for each joint.
Combine ROM with amputation deficits.
Convert to foot rating using Table 34, p. 64.

Multiple toe involvement.

Impairment of each toe expressed as a percentage of the foot. These values are added to arrive at the total foot impairment.

Also see Table 35, p.64 - Impairment of Foot Due to Amputation and Ankylosis of Multiple Digits.

Hind Foot

Partial Foot Amputations - see Table 47, Page 73.
Measure range of motion for dorsal and plantar flexion
and inversion and eversion
Table 37, p.66 dorsi-plantar flexion of hind foot
Table 38, p.67 inversion and eversion of hind foot
Add range of motion deficits
For ankylosis, - use the larger value for dorsi-plantar flexion and inversion/eversion. Do not add or combine.

Knee joint

Refer to Table 40, p.68 (Disorders of the Knee) for diagnostic and surgical impairments.

Measure range of motion - Table 39, p. 68 flexion and extension
Add flexion and extension deficits.

Combine Table 40 deficits with range of motion deficits.

For amputation of leg below knee, see Table 47, p.73. This value would be combined with the knee joint deficit if applicable.

Hip Joint

Measure range of motion of hip - abduction, adduction, flexion, extension and internal and external rotation.
Table 41, p.69 flexion
Table 42, p.70 extension
Table 43, p.70 abduction, adduction
Table 44, p.70 internal and external rotation
Add all range of motion deficits
If joint is ankylosed, determine ankylosis measurements for all ranges of motion. Do not add or combine values. Use the largest impairment rating for ankylosis.
Consult Table 45, p.72 for hip diagnoses which may be combined with the range of motion deficit.
Other amputation deficits are found on Table 47, p.73.

Multiple Unit Involvement

Combine ratings in order from distal to most proximal rating using combined value chart.
Convert to whole person rating using Table 46, p.72
Remember to report lower extremity and whole person impairment on all forms.

Peripheral Nervous System Disorders

The nerves are graded for sensory and motor deficits as discussed in the Neurological section.
Table 49, p.76 gives maximum loss for L_3-S_1 nerve roots. Other nerve tables are found on pages 76 and 77.
Use Table 10, p.42 for sensation gradation and Table 11, p.42 for motor gradation.
Strength testing is based on confrontational resistance testing.

Vascular disorders of the lower extremity

Rated per Table 52, p.79

Summary of evaluation of impairment of the lower extremity

- Complete the lower extremity impairment form found on the following page
- Make all measurements in relation to the "Neutral Position."
- Work within 1 unit at a time ─ toes, ankle, knee, hip.
  - A. Make all of the pertinent measurements, unit by unit.
  - B. Multiple planes of motion ─ 1 joint ─ **ADD** individual impairments.
  - C. Multiple joints ─ 1 unit ─ **COMBINE** individual impairments.
  - D. Ankylosis ─ use only the plane of motion yielding the highest impairment.
  - E. Amputations ─ Sliding scale based on % of amputation.
  - F. **COMBINE** B through E above to determine unit impairment.
- Only combine impairments from individual units after they have been converted to the same level ─ toe, foot or lower extremity.
- Convert each total unit impairment to lower extremity impairment and combine distal to proximal.
- Remember the additional lower extremity impairments for specific disorders of the knee (Table 40) and hip (Table 45).
- Consider impairment due to Peripheral Nervous System.
- Consider impairment due to Peripheral Vascular Disease.
- **Combine** all impairments obtained in the above to obtain Total Lower Extremity Impairment.
- Use Table 46 on page 72 to obtain the equivalent Whole Person Impairment and report both.
- When impairment is bilateral, each lower extremity is rated as whole person separately and both ratings are combined for final whole person rating.

SPINAL IMPAIRMENT

Essential Elements of the Exam

Report all of the following physical findings:

- Inspection
- Palpation
- Range of Motion Testing
- Sensation
- Muscle Strength
- Reflexes
- Straight Leg Raise
- Psychometric Testing

Additional elements that must be reviewed and commented on include: chief complaint, history of present illness, past medical history, review of systems, family history and social history.

Rating must be done when the patient does not have an acute illness or acute spasm.

Use Table 53 or 54 to determine if the patient qualifies for a spinal impairment.
If Table 53 rating is used, spinal range of motion must be completed and applied to the rating. Spine rating is in whole-person units.

Diagnoses Related Factors

Only the primary diagnoses in a given region can be considered for rating.

For example, if a patient received an L_4 fracture he should not receive ratings for the cervical, thoracic and lumbar portions of the spine since only the lumbar area was injured. On the other hand, if the patient fractured a cervical vertebrae and L_4 then he would receive ratings for the cervical and the lumbar areas.

Table 53, p.80 gives ratings for fractures, intervertebral discs, soft tissue lesions, spondylolysis and spondylolisthesis as well as spinal stenosis.

Table 54, p.86 cannot be used in addition to Table 53 but may be used instead of Table 53 if ankylosis is determined by radiography. Table 54 cannot be combined with range of motion.

Table 53, p.80

Fractures

Vertebral body compression fractures

Posterior element fractures - combine (not add!)

Dislocations - combine (not add!)
Intervertebral disc or other soft tissue lesions
Review this section. Medically documented rigidity associated with an injury -related diagnosis is the minimum requirement for a rating.
Note subparagraph F - deals with the issue of multiple levels, and G with multiple operations - 1 or 2% is added per level depending on the situation.

Spondylolysis and spondylolisthesis, non-operated
Grades I and II - note requirements
Grades III and IV - note requirements

Spinal stenosis, segmental instability, or spondylolisthesis, operated

The "fine print"
Address the regions of the spine separately.
Combine above impairments with other residuals using the Combined Values Chart.
Definition of "residual signs or symptoms"

- Ankylosis
- Abnormal motion in spine or extremities
- Spinal cord or spinal nerve root injuries with neuropathic impairment
- Note absence of chronic pain complaints

Range of Motion Testing

- Recognize the complexity of spinal motion
- Impossible to isolate, selected segmental motion
- Measure the upper and lower extremes of the segment to be rated

The ROM tester is encouraged to have the examinee stretch thoroughly before beginning measurements. The pelvis must remain stationary throughout the straight leg raising measurement. As soon as the tester begins to feel a rocking motion of the pelvis the straight leg raising motion should cease. The straight leg raising is an active, not a passive measurement. Inclinometer method will be reviewed in the workshop.

Range of motion testing of the spine

- Use maximum range of motion measurements.
- Test Validity Criteria for Spinal ROM (amended as of July 22, 1994)

- A set of valid measurements for the maximum cervical, thoracic and lumbar angles consists of 3 measurements of a motion which are within ± 10% or 5º of the median value.
- A minimum of two sets of three full measurements must be taken before invalidating the first trial. If these do not meet validity criteria then additional measurements, up to two sets of three, must be taken on a separate testing date before the examiner can declare the range of motion results invalid.
- There is an additional test for validity which pertains to Lumbar flexion only. The tightest of the two maximum straight leg raise angles minus (hip flexion + hip extension) must be ≤ 10º.

- Add whole person impairments due to restriction of motion in each plane to attain whole person impairment due to restriction of motion.

- Ankylosis measurements.
  Ankylosis nicely defined in this edition - Page 81.
  - Complete absence of motion.
  - Inability to achieve the neutral position of motion in a given plane.

  Ankylosis and restriction of motion in a given plane are mutually exclusive.

- Table 55, p.88 - Cervical flexion extension
  Table 56, p.90 - Cervical lateral flexion
  Table 57, p.90 - Cervical rotation
  Table 58, p.96 - Thoracic flexion extension
  Table 59, p.96 - Thoracic rotation
  Table 60, p.98 - Lumbar flexion and extension
  Remember that the "true lumbar flexion" angle is found by subtracting the sacral (hip) inclination from the T_{12} inclination and the "true lumbar extension" is found by subtracting the sacral (hip) angle from the T_{12} inclinometer angle.
  Table 61, p.98 - Lumbar lateral flexion

Neurological Findings

See Neurological section and Lower Extremity section.

Remember to translate all impairment into whole body ratings before combining with other spinal impairments.

No "double dipping" - e.g., Do not rate both restriction of motion of ankle dorsiflexion and decreased motor strength of muscles dorsiflexing the ankle due to nerve root injury - unless they are independent processes.

Use of standardized forms in the Guides is required by the Division

Figures 81-83 for Range of Motion/Validity checks (pages 82-85 of the *Guides*).

[NOTE: In some copies of the *AMA Guides* an error exists on Fig. 83. Please check your book and correct as necessary. Under Straight Leg Raising, Right and Left, 10% should read 10º.]

Figure 84 for Spine Impairment Summary may be reproduced without permission by A.M.A.

Summary of the spine impairment process

- Determine the primarily injured region
- Determine diagnosis-related whole person impairment "only the primary diagnosis should be considered"
- Determine regional range of motion to obtain whole person impairment due to loss of motion/ankylosis
- Remember mandatory validity checks
- Combine diagnosis-related and range of motion/ankylosis-based whole person impairments
- Repeat the preceding process for secondarily impaired spinal regions
- Combine whole person impairments for the various spinal regions
- Determine additional extremity impairments due to radiculopathy and convert these impairments to whole person impairment
- Combine the whole person impairments obtained in the previous two steps to determine the total whole personal impairment to the spine
- Combine spine-related whole person impairment with any whole person impairment due to other organ system conditions to arrive at a final whole person impairment
- If apportionment is appropriate because the patient qualified for a pre-injury rating under Table 53 but no pre-injury range of motion measurements were taken, complete the ROM apportionment worksheet found at the end of the administrative section of this curriculum.

PELVIS

Fractures of the pelvis are rated per p.101. Whole person ratings are given for healed fractures with and without displacement, deformity, and residuals.

Spinal Measurement Techniques – Inclinometer Method

Philosophy:

The healthy spine is composed of 24 moving vertebrae, 1 sacrum and 1 coccyx. Each segment has the potential to move and this movement is measurable as is common of diarthrodial joints. (1) The loss of spinal mobility may lead to disability and loss of function. (2) It is, therefore, medically necessary to ascertain any loss of motion and document it accurately.

Objectives:

1. Measure the cervical, thoracic and lumbopelvic motions in the classic planes as defined by Dr. Tom Mayer, et.al.

2. Implement validity checks to ensure that the measurements are indeed valid, accurate and reproducible

3. Identify invalid range of motion efforts

Bubble Inclinometer Measurement Techniques:

1. The patient must be an appropriate candidate for impairment rating as outlined in the *AMA Guides* to Impairment.

2. Instruct patient in proper movements, three to five repetitions

3. Landmark

4. Inclinometer placement

5. Measure spinal motion

    A. **Cervical**
        1. Landmark:
            a. upper inclinometer:
                Midsagittal line of the occipital bone or midcoronal line of the parietal bone
            b. lower inclinometer:
                Midsagittal line of the first thoracic vertebrae

2. Place the inclinometers on the landmarks so that gravity will affect the liquid within the inclinometer (sagittal plane).

3. Hold the inclinometer firmly in place and request the patient to complete the desired motion.
4. Repeat the measurements three (3) times and check for consistency of efforts.

5. Pitfalls:
   often the inclinometer is not held steady as the patient flexes the neck.

B. **Thoracic**
1. Landmark:
   a. upper inclinometer:
      Midsagittal line of the spinous process of the first thoracic vertebrae
   b. lower inclinometer:
      Midsagittal line of the spinous process of the twelfth thoracic vertebrae

2. Place the inclinometer over the landmarks so that gravity will affect the liquid within. For measuring kyphosis and flexion, the inclinometer must be in the sagittal plane and for measuring <u>rotation, the inclinometer must be in the coronal plane</u>.

3. Hold the inclinometer firmly in place and request the patient to complete the desired motion.

4. Repeat steps 4 and 5 of the cervical section

5. Pitfalls:
   a. scapular retraction will tilt the inclinometer and inflate the upper inclinometer reading during rotation.
   b. knee flexion of the contralateral side will affect the readings during rotation.
   c. often the patient cannot bend to 90 degrees of trunk flexion when measuring rotation and consequently, the inclinometer must be angled perpendicular to gravity in order to get the proper reading.
   d. when reading minimum kyphosis, it is easiest to <u>add</u> the T-1 and T-12 measurements, i.e., values above the zero are positive and values below zero are negative. Subtraction of a negative number is defined as changing the sign and adding.

C. **Lumbar**

1. Landmark
   a. upper inclinometer:
      Midsagittal line of the spinous process of the twelfth thoracic vertebrae
   b. Midsagittal line of the second fused vertebrae of the sacrum.

2. Place the inclinometer over the landmark so that gravity will affect the liquid within the inclinometer.

3. Repeat steps 3, 4 and 5 of the cervical section.

4. Pitfalls:
   a. Patient bends knees
   b. Patient lifts foot during side bending
   c. The inclinometer moves

D. **Straight leg raise**

1. Landmark:
   a. distal two thirds of the anterior tibia

2. Place the inclinometer over the landmark

3. Request patient to complete a straight leg raise while holding the opposite leg down.

4. Read the correct scale of the inclinometer once the end of range is achieved and document it.

5. Repeat the motions three times and check for consistency of efforts.

6. Pitfalls:
   a. patient bends the knees
   b. patient jerks the leg at end range

6. Calculate validity of efforts as outline in the *AMA Guides*

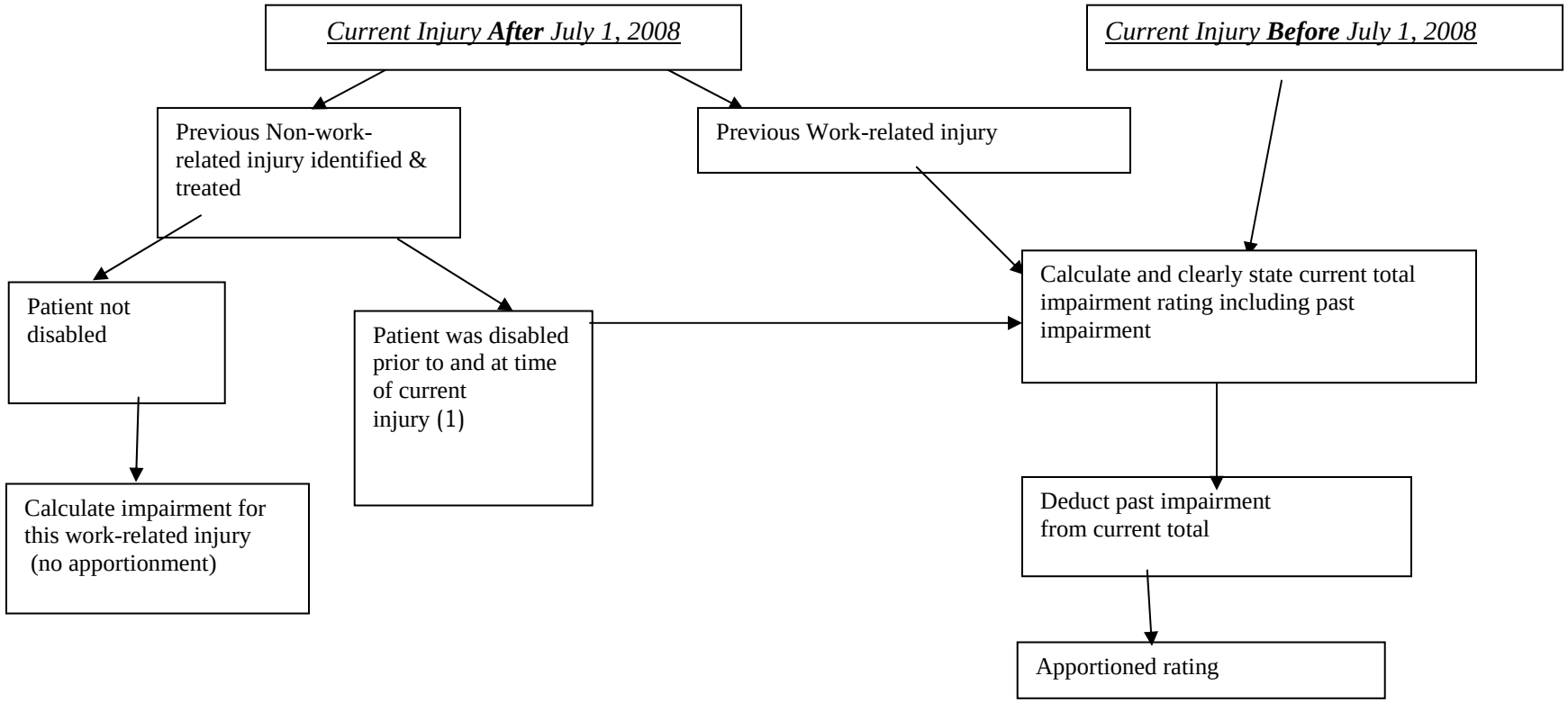
7. Notifying the patient of their efforts
   A. Valid efforts
   B. Invalid efforts – Physician must retest the patient <u>once</u> in an attempt to obtain a valid range of motion exam.

8. Correlate findings to norms and calculate impairment rating if all of the criterion are reached.

APPORTIONMENT OF IMPAIRMENT

Guideline for Accredited Physicians – Injuries pre-and post- 7/1/2008
Changes per Senate Bill 08-241 and Workers' Compensation Rule 12-3

MEDICAL RECORDS OR OTHER OBJECTIVE EVIDENCE SUBSTANTIATES PRE-EXISTING IMPAIRMENT



(2) 'Disabled' requires information that the prior injury was identified, treated, and independently disabling at the time of the current injury. 'Disability' is expected to include conditions which adversely impact the claimant's ability to perform his job, or limits the claimant's access to other jobs. Permanent work restrictions would generally fall in this category.

When considering apportionment of a previous disorder of the spine, also see:

Division Form DeskAid 10, Rev. 10/08

Apportionment of Spinal Conditions

Available on the Division's website, www.colorado.gov/cdle/dwc

Look under "Official Division Forms and Desk Aids"

Patient Name: _____

Date of Injury: _____

Apportionment Calculation Guide

There is medical documentation of a prior condition of the same body part which woul
qualify for a rating:

- ❑ No = No apportionment applicable
- ❑ Yes = Proceed

The date of the current injury is

❑ After July 1, 2008		❑ Before July 1, 2008
❑ The previous condition was **non-work related** and was **not disabling** ↓	❑ The previous condition was **non-work related** and was **disabling** → ❑ The previous condition was **work-related** →	**Step 1** Calculate current total impairment including prior impairment _____% □UE □LE _____% WP ↓
No apportionment can be done. The case-specific impairment rating is _____% □UE □LE _____% WP		**Step 2** Subtract prior impairment rating (preferably subtracting like from like, e.g. ROM from ROM) ↓ **Step 3** Current apportioned rating is _____% □UE □LE _____% WP (Apportioned rating = Step 1 minus Step 2)

CURRICULUM - LEVEL II ACCREDITATION

DAY 2 TOPICS

Impairment of the Pulmonary/Cardiovascular System

Impairment for Skin Disorders - to include scars and disfigurement

Impairment Ratings for Vision, Hearing, Ear, Nose, and Throat and Gastrointestinal conditions

Mental Impairment

Workshops:

Pulmonary/Cardiovascular
Mental Impairment

Written Accreditation Examination

*Order of topics for actual seminar agenda is subject to change

OBJECTIVES FOR SECTION ON VISION, HEARING, NOSE, THROAT, GASTROINTESTINAL, URINARY, ENDOCRINE AND HEMATOPOIETIC IMPAIRMENTS

1. Name the tests required to determine a visual impairment rating.

2. Explain how central visual acuity, visual fields, abnormal ocular motility and binocular diplopia are determined.

3. Demonstrate the ability to combine values from the above impairments to determine a whole body rating.

4. Name the two functions that are considered in rating the impairment of the ear.

5. Explain how the ratings for visual and ear disorders are determined.

6. Correctly apply Table 5-Classes of Air Passage Defects-to clinical cases.

7. Correctly rate a case which has mastication, deglutition and speech difficulties.

8. Identify the elements used to evaluate impairment of the esophagus, stomach and duodenum, small intestine, colon, rectum, anus, enterocutaneous fistulas, liver and biliary tract disease, pancreas disease, and hernias of the abdominal wall.

9. Identify criteria used to rate upper urinary tract impairment, and bladder and urethra impairment.

10. List the hematopoietic system disorders that are discussed in Chapter 7.

VISION, HEARING, NOSE, THROAT, GASTROINTESTINAL, URINARY, ENDOCRINE AND HEMATOPOIETIC IMPAIRMENTS

THE VISUAL SYSTEM

Evaluation of this system is based on three functions

- Corrected visual acuity for objects near and far.
- Visual fields and
- Ocular motility

Acuity

Determine near and far central visual acuity in each eye -- the chart should be illuminated at a level of at least 5 foot-candles. Far vision may be tested with the Snelling chart, illiterate E chart or Landolt's broken-ring chart. Near vision must be tested at 14 inches, following the Revised Jaeger Standard.

1. Measure both corrected and uncorrected vision, but use corrected for ratings.

2. Use Table Two (Page 163) to determine the percentage impairment for each eye -- use alternative value for monocular aphakia or pseudophakia if present.

Visual Fields

When a field defect is suspected, binocular visual fields should be tested using the Goldman kinetic outer isopter of the III/4e stimulus or the arc perimeter exam using a 3mm white test target at a radius of 330mm.

Use Esterman grid for determination of binocular field.

1. Transfer readings from validated visual field instrument to Grid.
2. Count dots outside of or on the visual field line (figure 2A, page 165).
3. Multiply # of dots x 5/6 to determine percentage field loss.

Use Monocular field measurements only if heterotropia, diplopia, or absence of one eye.

1. Measure total degrees of visual field retained.
2. Use Table 4 (page 167) to determine percentage of loss.

Ocular Motility and Diplopia

Plot the presence of diplopia along the meridians of the visual field. Then use figure 3 (page 168) to determine percentage of loss.

If only one eye, profound amblyopia, or profound loss of visual acuity, clinical evaluation of motility should be used to determine impairment.

Impairment of Visual System and Whole Person

If monocular visual field testing was performed:

1. Using Combined Value Chart (page 254) combine percentage loss of visual acuity and loss of visual field for each eye.

2. Combine loss of ocular motility using combined value chart for the worst eye only. Disregard loss of ocular motility for better eye.

3. Determine impairment of visual system by using Table 5 (page 169).
   Read impairment of worse eye down the left side of chart and the better eye impairment on the horizontal axis.

4. If bilateral aphakia present and corrected central visual acuity is used in calculations correct impairment by additional 25% factor of remaining impairment. See page 169.

If binocular visual field testing was performed:

1. Calculate the central vision impairment for both eyes using Table 5, page 169.
2. This impairment value of binocular visual acuity can then be combined with the binocular visual field loss using the Combined Value Chart to determine the visual impairment.

NOTE: Binocular visual field testing should not be performed when an ocular motility impairment is present.

3. If bilateral aphakia is present follow step #4 under monocular testing above.

Convert to whole person impairment using Table 6 (page 172).

An additional 10% impairment is possible for specific other conditions per section 8.6 (page 172); e.g., deformity of orbit.

On the following two pages are suggested Visual Impairment Forms. You may reproduce as neccessary.

VISUAL IMPAIRMENT FORM
MONOCULAR VISUAL FIELDS

		OD Right	OS Left
Central Acuity:	Near uncorrected	_____	_____
	Near corrected	_____	_____
	Far uncorrected	_____	_____
	Far corrected	_____	_____
(1). Total impairment for corrected acuity from Table 2, pg. 163		_____	_____

Visual Fields:

Field Sector and Degrees Lost

Temporal	_____	_____
Down Temporal	_____	_____
Direct Down	_____	_____
Down Nasal	_____	_____
Nasal	_____	_____
Up Nasal	_____	_____
Direct Up	_____	_____
Up Temporal	_____	_____
Total Degrees Lost	_____	_____
(2). Total Impairment from Table 4, pg. 167	_____	_____

Motility:

(3). Percentage loss assigned to worst eye (Fig. 3, pg. 168)	_____	_____

(4). If appropriate 5-10% of involved eye for other ocular impairments (e.g. vitreous opacities, non-reactive pupil, light scattering disturbances) _____ _____

Total Eye Loss (1, 2, 3 and 4 combined) _____ _____
(combined values chart p.254)

Total Visual System (Table 5, pg. 169) _____

Total Whole Person (Table 6, pg. 172) _____

VISUAL IMPAIRMENT FORM
BINOCULAR VISUAL FIELDS WITHOUT MOTILITY LOSS

		OD Right	OS Left
Central Acuity:	Near uncorrected	_____	_____
	Near corrected	_____	_____
	Far uncorrected	_____	_____
	Far corrected	_____	_____
Total impairment for corrected acuity from Table 2, pg. 163		_____	_____

Binocular Visual Field: .... _____

*If appropriate 5-10% of involved eye for other ocular impairments (e.g., vitreous opacities, non-reactive pupil, light scattering disturbances). _____ ....._____

Total Visual Impairment:

Combine OD & OS central acuity using Table 5, pg. 169 .... _____

Combine visual field with above acuity impairment... .... _____

Total Whole Person - Table 6, pg. 172 ..... . _____

AUDITORY IMPAIRMENT

Auditory impairment is based entirely on hearing and equilibrium. The five classes of impairment from disturbances of vestibular function are found on pages 178-179. These classes are based on changes in activities in daily living and objective test findings.

Use audiometers calibrated to ANSI specifications S3.6 - 1969 to determine decibels of hearing at 500, 1000, 2000 and 3000 Hertz.

If the hearing loss is less than 25 dB at these frequencies, there is no impairment. If it is greater than 91.7 dB, then the impairment is 100%.

Add the decibels determined at the four frequencies for each ear separately.

Using the decibel sum of the hearing threshold levels, determine the impairment loss on Table 2 (page 175).

Determine the binaural impairment by plotting the worst ear loss against the better ear on Table 3 (page 176).

Rating tinnitus: 3-5% may be added to the hearing loss in cases with tinnitus. Tinnitus can only be given when a hearing impairment is documented. (Note that this instruction for tinnitus is located in the *AMA Guides* Neuro Chapter, page 110, auditory nerve.)

Use Table 4 (page 178) to convert hearing loss to a whole person rating.

HEARING IMPAIRMENT REPORT

	Right Ear		Left Ear	
500 Hz		db		db
1000 Hz		db		db
2000 Hz		db		db
3000 Hz	_____	db	_____	db
Total	_____		_____	

Binaural Impairment Table 3, p. 176-177

Total of Worse ear on vertical axis
Total of Better ear on horizontal axis

_____%

Whole Person Impairment Converted using Table 4, p. 178

_____%

Monaural Impairment Using Table 2, p. 175

Right Ear _____% Left Ear _____%

FACIAL DISFIGUREMENT

Determine the facial disfigurement class 1 though 4 (page 178) based on loss of support tissue, absence of anatomical areas or preclusion of social acceptance.

A facial disfigurement table is found on page 179. It consists of unilateral total facial paralysis (5%), bilateral total facial paralysis (8%), loss or deformity of outer ear (2%), loss of entire nose (25%), and nasal distortions in physical appearance (5%).

NOSE, THROAT, AND RELATED STRUCTURES

Nasopharyngeal obstruction causing dyspnea should be rated under Table 5, page 181. The four classifications under the table depend on shortness of breath on exertion and various listed anatomical defects of the oropharynx, laryngopharynx, trachea, nose or bronchi.

Mastication and Deglutition impairment (page 180) is based upon dietary limitations, e.g., soft food, liquids, or tube feedings. This is the only section of *AMA Guides* that relate to temporomandibular joint.

With respect to olfaction and taste, a 3% whole person impairment is given if there is a complete bilateral loss of either sense.

SPEECH

Have the patient read the specified paragraph, pages 181-82.

- Examiner must have normal hearing.
- Patient should be 8 feet from examiner with back towards the examiner.
- Also note the speech function during history.

Rate audibility (ability to speak at a level to be heard), intelligibility, and functional efficiency (ability to maintain reasonable rate of speech), per Table 6 (page 182).

Use Table 7 (page 183) to convert the worst rating of the three impairments to a whole person impairment.

Associated behavioral changes may also be rated per Chapter 14 and the guidelines noted on the behavioral section.

GASTROINTESTINAL SYSTEM

Desirable Weight

This may be determined from previous medical records and by asking the patient what they consider to be their "usual weight." If neither of these methods are possible, use Table 1 on page 186.

Classification for Upper Digestive Tract

Impairments of the upper digestive tract may be rated under four classes found in Table 2, page 189. These classifications are determined by considering loss of weight, dietary restrictions and drug use required, and signs and symptoms of organic disease or anatomical loss. Objective tests to be considered when determining impairment are listed under each subsection; esophagus, stomach and duodenum, and small intestine.

Colon and Rectal Impairment

The four classifications in this section consider objective tests and anatomical loss, persistent bowel disturbance, restriction of daily activity, requirement for special diet and medication, and constitutional symptoms such as weight loss, fever, anemia. See Table 3, page 191.

Anal Impairment

The three classifications for this impairment are found in Table 4, page 193, and depend on the degree of anal incontinence.

Liver and Biliary Impairment

Table 5, page 194, covers the four classes of impairment for these rated diagnoses. Consideration is given to objective evidence of disease, nutrition and strength, and biochemical studies.

Pancreas

Rating for the digestive effects of the pancreas can be done only in this section, using Table 2, page 189. The Endocrine system, Chapter 12 must be consulted to rate the endocrine effects.

Hernias

The three classifications for hernia impairment, Table 6, page 196, are based on persistence and reducibility of the hernia, and limitation of activities. Incisional hernias are rarely painful or complicated. Generally they will not exceed class 1. Inguinal and femoral hernias entail a greater risk. Impairment rating is done only after appropriate surgical repair unless surgical intervention is not recommended for the patient.

Urinary and Reproductive Systems

Upper Urinary Tract

Table 1, page 201, describes the four classes of impairment for the upper urinary tract. Ratings are based on creatinine clearance, the 15 minute IV phenolsulfonphthalein (psp) test, and need for medical treatment.

Urinary Diversion

Ratings for these surgical procedures are found on page 201.

Other Subsections

Consult other specific subsections to determine ratings for the bladder, urethra, male reproductive organs, and female reproductive organs. Specific objective testing should be done when applicable. See Chapter 12, the Endocrine section, to rate hormonal effects.

Endocrine

The following subsections are included in this chapter for impairment ratings; hypothalamic pituitary axis, thyroid, parathyroid, adrenal cortex, adrenal medulla, pancreas (insulin and glycogen production only), gonads (for effects of hormonal changes only), mammary glands and metabolic bone disease.

Hematopoietic Disorders

Chapter 7 describes impairment of these disorders. Anemia can be rated using Table 1, page 154, which relates to the hemoglobin level and need for transfusions. Polycythemia, white blood cell disorders, and hemorrhagic and platelet disorders may also be rated.

OBJECTIVES FOR THE RESPIRATORY AND CARDIOVASCULAR IMPAIRMENT RATING SECTION

1. Define the four pulmonary functions that must be measured in order to determine a pulmonary impairment rating.

2. Know that the spirometric measurements and the D_{CO} measurement must conform to 1993 ATS standards.

3. Describe the use of arterial blood gas results in determining pulmonary impairment ratings.

4. Explain which situations require exercise capacity testing to determine pulmonary impairment.

5. Describe respiratory impairment rating for those diseases in which impairment is not directly related to lung function (asthma, hypersensitivity pneumonitis, pneumoconiosis, sleep disorders, and lung cancer).

6. Provide a correct pulmonary impairment rating given a case scenario.

7. List all 8 types of cardiovascular disease that can be rated using specific tables in Chapter 6.

8. Define the four functional classifications for cardiac disease found in Table 1, page 128.

9. List at least six elements of the history, physical, lab tests, or pathology that are needed to rate permanent impairment due to cardiovascular disease (in Tables 7 through 12, Chapter 6).

10. Explain how to estimate permanent impairment when a cardiovascular disease affects both cardiac output and causes arrhythmias.

RESPIRATORY AND CARDIOVASCULAR IMPAIRMENT RATING

INTRODUCTION

As with all of the "*AMA Guides*," the respiratory system and cardiovascular system chapters provide a reasonable starting point for impairment assessment and are meant only as a guide. In many instances, strict reliance on a set of tables of pulmonary function or of cardiovascular performance will provide a less than adequate assessment. Some occupational diseases, such as asthma, may wax and wane in severity, greatly complicating the determination of impairment. Others, like the pneumoconioses, cardiomyopathies, and valvular heart disease may continue to progress, leading to worsening impairment over time. Yet others, such as systemic arterial hypertension, may respond to specific medical interventions that require time to take effect before impairment estimates should be made. Sometimes radical changes in an individual's work environment are necessary to avoid further impairment, even when there is only a partial permanent impairment, as in individuals who become sensitized to a specific chemical. Confounding factors, such as the effect of cigarette smoking, must be taken into account. Under some circumstances both cardiac and respiratory disease are present. When this occurs, apply the Combined Values Chart (pp. 254-256).

RESPIRATORY SYSTEM IMPAIRMENT

Most schemes for assessing impairment due to respiratory disease incorporate some combination of: (1) pulmonary function test values, (2) pulmonary function test results as a percent of predicted normal values, and (3) respiratory symptom severity. The *AMA Guides* rely mainly on #2, and to some extent on #3. The principal components include: (1) medical history, (2) physical examination, (3) chest radiograph, and (4) measurements of pulmonary physiology, including spirometry, diffusing capacity (D_{CO}), and in some instances arterial blood gases and exercise testing.

Medical History and Physical Examination

The first obligation of the clinician is to establish or confirm the disease diagnosis. History and exam are important components, although the actual impairment rating is based mainly on the physiologic assessment discussed below.

Inquire about:

- Dyspnea (see "dyspnea scale," Table 1, Chapter 5 (p.116) estimation of severity)
- Cough/sputum
- Wheezing
- Environmental/occupational exposures
- Tobacco use
- Job chronology - including specific exposures to inhaled dust, fumes, gases, vapors
- Hobbies with such exposures

Physical examination should especially focus on both the cardiac and respiratory systems, as well as certain key peripheral signs:

- Breathing rate and pattern
- Lung sounds (e.g., wheezes, rales, rhonchi)
- Signs of cor pulmonale (e.g., increased P_2 component of S_2, tricuspid regurgitation, parasternal lift, jugular venous distention)
- Edema
- Cyanosis
- Clubbing

Chest Radiography

The chest radiograph is important in diagnosis and in assessing onset and progression of disease, but it correlates poorly with lung physiology in many circumstances. It also correlates poorly with an individual's ability to work.

The International Labor Organization (ILO) Classification of Radiographs of the Pneumonoconioses is a standardized system for the assessment of the severity of chest radiographs. By this system, qualified readers rate the extent of disease based on the profusion of interstitial lung opacities, size of masses, and extent of pleural reaction. It is not directly used in the estimation of impairment.

Physiologic Testing

Spirometry (FEV_1, FVC, FEV_1/FVC ratio) and diffusing capacity are the mainstays. Both studies must be performed in accordance with American Thoracic Society (ATS) standards (1993). Under some circumstances, arterial blood gases and exercise capacity testing are also warranted, as discussed below.

SIMPLE SPIROMETRY

It should be performed both pre- and post-bronchodilator. For purposes of estimating impairment, use the best effort obtained either pre- or post-bronchodilator.

Three pieces of data obtained from spirometry are used in estimating impairment:

1. Forced vital capacity (FVC)
2. Forced expiratory volume at 1 second (FEV_1)
3. FEV_1/FVC ratio

DIFFUSING CAPACITY OF CARBON MONOXIDE (D_{CO})

This is an indirect measure of pulmonary gas exchange and can be especially helpful in estimating impairment related to interstitial lung diseases. Although it is sometimes insensitive compared to more direct measurements of gas exchange during exercise, it is less invasive.

SIMPLE SPIROMETRY AND D_{CO} INTERPRETATION

In interpreting spirometry and D_{CO}, several generalizations can be made, although they are not inviolate:

- Obstructive diseases produce low FEV_1 and low FEV_1/FVC ratio. In asthma, D_{CO} is preserved; in emphysema it is decreased.

- "Restrictive diseases" (such as the pneumoconioses) produce a low FVC and low D_{CO}. FEV_1 and FEV_1/FVC ratio are normal.

- In the presence of significant emphysema, the FVC may appear low, because of lung hyperinflation (high residual volume is not measured by simple spirometry).

- Disorders that produce a "mixed" obstructive and restrictive pattern (such as hypersensitivity pneumonitis and some cases of pneumoconiosis) are difficult to interpret using spirometry alone, because the FEV_1 and FVC may both be low and ± D_{CO} low.

Applying Spirometry and D_{CO} in Estimation of Permanent Impairment

First, calculate the patient's percent predicted FEV_1, FVC, FEV_1/FVC ratio, and D_{CO} using the best observed value and applying normal values from Tables 2-5, Chapter 5. Note that there are different tables for men and women. You must know the patient's age and height (cm). For non-caucasian populations, predicted spirometry norms should be estimated at 0.9 of those shown in Tables 2-5.

Example

52 year old white male with asbestosis, 180 cm tall,
FEV_1 = 2.8 L, FVC = 3.2 L, D_{CO} = 24.4 ml/min/mm Hg

$$FVC : Apply\ Table\ 2 : \frac{3.2\ L\ (patient's\ best\ value)}{5.04\ L\ (predicted)}\ x\ 100 = 61\%$$

$$FEV_1 : Apply\ Table\ 4 : \frac{2.8\ L\ (patient's\ best\ value)}{3.99\ L\ (predicted)}\ x\ 100 = 70\%$$

$$FEVsub\ 1\ /FVC = \frac{2.8\ L}{3.2\ L} = 88\%$$

$$D_{CO} : Apply\ Table\ 6 : \frac{24.4\ ml/\min/mm\ Hg\ (patient's\ best\ value)}{36.6\ ml/\min/mm\ Hg\ (predicted)}\ x\ 100 = 67\%$$

In general, at least one of these four values must be abnormal to consider a person to have impairment. Exceptions do occur (e.g., some patients with interstitial lung disease have normal spirometry, normal D_{CO}, but abnormal gas exchange).

After calculating these values, estimate the percent impairment using Table 8, Chapter 5:

Example

Using the data above, this man with asbestosis has FVC and DCO between 60-79% of predicted. By Table 8, he would be considered in Class 2, Mild Impairment of the Whole Person, approximately 20%.

Exercise Capacity

Maximal exercise testing provides useful information about a patient's capacity to do work, and can help identify limitation due to respiratory or cardiovascular disease, or both. The *AMA Guides* do not specify a single protocol for such testing (e.g., cycle ergometer versus treadmill). The exercise testing result used to rate respiratory impairment is the work load achievable. It is expressed as the maximum oxygen consumption (VO_2 max) or as METS (see Table 2 in Chapter 6 -- Cardiovascular System). As a general rule, one MET = 3.5 ml/kg●min VO_2, approximately.

If the exercise test is performed with pre- and end-exercise arterial blood gases (preferably with an indwelling arterial catheter), important information about gas exchange can also be obtained. However, ABG determination is <u>not</u> part of the exercise capacity protocol outlined in the *AMA Guides*.

Not every patient with respiratory disease will require assessment of exercise capacity. <u>Indications</u> for exercise testing include:

1. dyspnea symptoms that are greater than spirometry or D_{CO} would indicate;

2. patient reports inability to perform specific job due to breathlessness;

3. submaximal or incorrect performance of spirometry or D_{CO}

<u>Contraindications</u> to the use of exercise testing for assessment of respiratory system impairment include:

1. severe impairment already found by spirometry and D_{CO}.

2. medical contraindications to exercise, such as heart disease, arrhythmias.

3. other physical limitations that preclude accurate testing.

Interpretation of Exercise Capacity Testing

The data derived should be interpreted by a physician with experience in exercise physiology, because results can be greatly affected by a patient's effort, metabolic state, level of conditioning, and by heart, lung, neurologic, neuromuscular, and orthopedic disorders.

See Table 8, Chapter 5. VO_2 max is utilized in that table's impairment scheme. A VO_2 max < 15 ml/kg●min is not a hard and fast criterion for severe impairment. It must be taken in context with other information about the patient's disease and other contributing diseases.

As a general rule, if working at his or her own pace, a person can work 8 hours a day if they do not exceed 40% of their VO_2 max as determined by exercise capacity testing.

Example

Our patient with asbestosis reports severe, "incapacitating" dyspnea on exertion which seems out of proportion to his spirometry and D_{CO}.

Exercise capacity testing shows good effort, normal cardiovascular response, and decreased exercise capacity. He was limited by ventilatory and gas exchange abnormalities, consistent with his underlying lung disease diagnosis.

The patient's maximum VO_2 was 15.9 ml/kg●min. (see Table 8). According to Table 8, Chapter 5, this exercise testing result would place him in Class 3 instead of Class 2, approximately 40% moderate impairment of the whole person. He presently works in "shipping and receiving" and is required to lift 20 to 50 pound boxes frequently during his work shift. He reports extreme dyspnea after 1-2 minutes of this activity.

Given a VO_2 max of 15.9 ml/kg●min, he achieves approximately 4.6 METS. Based on Table 2, Chapter 6, we estimate this to be in the range of METS seen in symptomatic patients and not in physically active individuals.

His current job requires him to work in excess of 40% of his predicted VO_2 max, making it unlikely that he is suitable for such strenuous work.

Arterial Blood Gas (ABG) Determination

ABGs can be measured both at rest and during maximal exercise. ABG determination, at rest, is not a routine part of the estimation of impairment. ABGs are not a standard part of the exercise capacity testing protocol in the *AMA Guides*. Its use is based on clinical judgment, and as such, is reserved for "selected cases," or if hypoxemia is "suspected." Because not all laboratories perform them accurately or reproducibly, the Guides require that you "document hypoxemia twice, 4 weeks apart," prior to using the data in estimating impairment. It makes no statement about the value of serial ABGs obtained during exercise testing, except to say that they can be performed if hypoxemia is suspected.

Interpretation of ABG

There is no normal "scale" provided for ABGs in the *AMA Guides*. The *AMA Guides* only state that ABGs indicate "severe impairment" when:

1. Resting pO_2 < 60 mm Hg on room air and the patient is stable on optimal therapy and has one or more of the secondary conditions related to hypoxemia. These secondary conditions include:
   - pulmonary hypertension
   - cor pulmonale
   - erythrocytosis
   - worsening hypoxemia during exercise

2. Resting pO_2 < 50 mm Hg on room air is by itself a criterion for severe impairment.

This is a problematic portion of the Guides, in that the Guides do not take into account the alveolar-arterial oxygen gradient $(A\text{-}a)DO_2$ and make no adjustment for altitude (even though the normal range for pO_2 is lower at Colorado's elevations). The normal range for pO_2 in Denver (5,280 feet) is 65-75 mm Hg.

Respiratory Impairment not Directly Related to Lung Function

Certain respiratory conditions may cause impairment that is not readily quantifiable by spirometry, diffusing capacity, or measured exercise testing. Table 9 highlights these conditions, with some general comments. The evaluation of impairment of persons with these conditions should be done by physicians with expertise in lung disease, and the final impairment rating should be left to the physician's judgment.

Note the specific comments in Table 9, Chapter 5 of the *AMA Guides* regarding:

1. Asthma
   - Assess when optimally treated
   - Use post-bronchodilator spirometry values
   - Three successive tests, at least one week apart
   - Note special Comments on employability

2. Hypersensitivity pneumonitis
   - Need to remove from exposure to causative agents to avoid recurrence and chronic disease

3. Pneumoconioses
   - May not cause impairment but usually requires removal from exposure to the dust that caused the condition

4. Sleep disorders
   - Sleep apnea can result in impairment through hypersomnolence, hypoxia, hemodynamic changes, or personality disorders
   - Use Combined Values Chart and criteria from Chapters 4, 6, and 14 of *AMA Guides*

5. Lung cancers
   - Consider severely impaired at time of diagnosis and as long as patient has the disease
   - If, at one year after diagnosis, patient is disease-free, then rate impairment according to physiologic parameters in Table 8
   - If recurrence, immediately consider patient severely impaired

6. Neurologic disorders
   - Although not mentioned in Chapter 5, respiratory impairment due to neurologic disorders is rated in accordance with Table 1, consciousness disturbances, p.109., Chapter 4, The Nervous System.

CARDIOVASCULAR SYSTEM IMPAIRMENT

Most methods of assessing impairment due to cardiovascular system disease incorporate a combination of: (1) assessing symptomatic limitation; (2) requirement for treatment; (3) objective measures, such as auscultation, electrocardiogram, exercising testing, echocardiography and, in some cases, cardiac catheterization and radioisotope studies. Chapter 6 of the *AMA Guides* emphasizes which of the various tests are required to determine impairment, by specific cardiovascular disease category. Impairment rating of the cardiovascular system requires familiarity with functional classifications.

Symptomatic Limitation

Familiarity with the system outlined in Table 1, Chapter 6, page 128 is essential for the appropriate estimation of cardiovascular disease impairment. Understand how the cardiovascular disease affects ordinary daily activities and heavy physical exertion. Careful history taking must focus not only on the symptoms themselves but how they affect an individual's level of activity. All of the cardiac diagnostic rating subsections are divided into four similar impairment classes. Below are descriptions of the general activity limitation for most subsections:

Class I:	0-10%	asymptomatic during normal activities or with moderately heavy physical activities.
Class II:	15-25%	asymptomatic during normal activities, but some limitation in heavy physical exertion.
Class III:	30-50%	symptomatic during normal activities.
Class IV:	55-100%	normal activities are significantly limited and at rest symptoms may occur.

Exercise Testing

Exercise testing is the preferred method of quantifying most limitations due to cardiovascular disease. In certain cardiovascular diseases, other forms of quantitative assessment will be used in lieu of, or in addition to, exercise testing (example: angiography in the assessment of coronary artery disease).

Most exercise protocols call for the use of a treadmill and estimate work load in multiples of resting metabolic energy utilized for a given activity (MET). One MET is considered to be equal to 3.5 ml/(kg●min.).

See Table 2 (page 129) for the relationship of METS and functional class using the treadmill protocols.

See Table 3 (page 130) for the relationship of METS and functional class using a more simplified two-step protocol (for use when treadmill is not available).

Table 4 (page 130) demonstrates the METS using a bicycle ergometry version of the exercise test.

Most assessments will be made using a treadmill. However, cycle ergometry or the step test are also acceptable for quantization. Under ideal circumstances, a laboratory that is equipped to measure oxygen consumption gives the most accurate information about the patient's exercise capability.

Exercise studies are useful, but it is important that the physician estimate the patient's cooperativeness and ability to exercise. Note that when patients are taking beta adrenergic blocking agents, METS should be used in place of the target heart rates found in Table 6, page 135.

Other Forms of Cardiovascular Assessment

Depending upon the type of cardiac disease being assessed, a variety of other investigative tools may prove helpful in objectively defining the extent of disease and hence rating impairment in conjunction with symptoms (functional classification). See the individual sections of Chapter 6 for details concerning the appropriateness of such tests for estimating impairment.

The Guides clearly state that tests such as echocardiography, angiography and radioisotope studies usually should not be ordered only for the purposes of rating impairment, but can contribute to the impairment rating when they are being performed for clinical diagnosis and management. The impairment rating should not drive physicians to perform expensive and sometimes invasive cardiovascular testing simply for the purpose of estimating impairment.

Level of Treatment

The need for chronic treatment, drug therapy, diet control and other treatment regimes are determining factors for classification and should be well described. If surgery is appropriate for the diagnosis, this will usually be included in the classification description. An impairment rating cannot be determined for many of these diagnoses until all treatment regimes (drug or surgery) have received adequate trials.

Categories of Cardiovascular Disease

The following table lists the categories of cardiovascular disease for which evaluation of permanent impairment may be required:

VALUATION OF PERMANENT IMPAIRMENT OF CARDIOVASCULAR SYSTEM

	Table In AMA Guides	Chapter	Page in Guides
AMA Cardiac Disease			
Valvular Heart Disease	5	6	133
Coronary Heart Disease	7	6	137
Congenital Heart Disease	8	6	141
Hypertensive Cardiovascular Disease	9	6	145
Cardiomyopathies	10	6	148
Pericardial Heart Disease	11	6	149
Arrhythmias	12	6	152
Vascular Disease of the Extremities*	16	3(upper)	47
	52	3(lower)	79

* These tables and page numbers are correct. There is an error in text of Chapter 6.

Review section 6.1 through 6.8, which contain good, self-explanatory case examples and complete tables.

In many cases, diagnostic categories may overlap. For instance, a patient may have coronary artery disease, hypertension and arrhythmias. When this occurs, each area should be rated separately and then combined using the Combined Values Chart. Patients who have renal damage or cerebral damage secondary to hypertension should receive ratings in the appropriate sections and have these ratings combined with the hypertensive rating.

Hypertensive Cardiovascular Disease

Transient elevations of arterial pressure are not sufficient to determine impairment. Sustained elevated pressure (on several occasions with diastolic pressure greater than 90 mm Hg) is required.

Evaluation should focus on the target organ effects produced by sustained elevations of blood pressure (such as aortic dissection, central nervous system, and renal injury).

Identify treatable causes of hypertension, such as coarctation, renal artery obstruction, Cushing's disease, endocrine disorders, etc...

Cardiomyopathies

Some cardiomyopathies are reversible. Allow adequate period of time before estimating permanent impairment.

Pericardial Heart Disease

Some cases of inflammatory pericardial disease completely or partially reverse. Allow sufficient time for patient recovery before assessing impairment.

Vascular Disease Affecting the Extremities

These disorders are dealt with only very briefly in the *AMA Guides*. Permanent impairment of the peripheral vascular system can result from:

1) Diseases of arteries reducing blood flow and producing claudication, trophic changes, ulceration, gangrene, Raynaud's phenomenon, or even loss of an extremity;
2) Diseases of veins producing pain, edema, stasis dermatitis, ulceration; and
3) Disorders of lymphatics, leading to lymphedema, sometimes complicated by infection.

A specific diagnosis of vascular disease should be established prior to evaluating impairment.

Estimation of impairment depends upon severity and extent of lesions rather than on diagnosis.

Upper extremity ratings are determined from Table 16, page 47, and lower extremity ratings from Table 52, page 79.

This page holds the place for an article from the American Thoracic Society, *"Guidelines for the Evaluation of Impairment/Disability in Patients with Asthma"*

Smith, George M., *Am Rev Respir Dis* Vol 147, pp. 1056-1061, 1993.

This document is not available electronically for insertion into this book. Please contact the Division's Physician Accreditation Program for a copy.

See next page for clarification on translating ATS Asthma scoring to AMA Guides impairment

TRANSLATING ATS to AMA

ATS asthma score	Impairment Class	WP Impairment
0	1	0%
1-5	2	10-25%
6-9	3	26-50%
10-11	4	51-100%

(FEV1 < 50% on 20mg/d prednisone)

For means of rating occupational asthma and to help determine employability, it is crucial to thoroughly document the asthma, the precipitating exposure(s), and reports from coworkers/supervisors. May require removal from exposure.

OBJECTIVES DERMATOLOGICAL IMPAIRMENT RATING SECTION

1. Define the three elements used to determine the classifications for skin disorders.

2. Know how to utilize the dermatological ratings, neurological ratings, psychological ratings, and Chapter 9, section 2 (page 179), to determine an impairment rating for scars and other skin disorders.

3. Correctly rate a case scenario involving contact dermatosis.

DERMATOLOGICAL IMPAIRMENT RATING SECTION

INTRODUCTION

In order to rate cutaneous impairment, the functions of intact skin must be taken into account.

- A primary purpose is the provision of a protective barrier against environmental insults such as chemical irritants, allergic sensitizers, ultraviolet light and invasion from micro-organisms such as bacteria or fungi.

- The skin has a key role in temperature regulation due to proper operation of small blood vessels and sweat glands. In addition it is involved in sensory perception.

- Fluid and electrolyte balance is related to the intact stratum corneum's barrier against fluid loss.

- Cutaneous immunologic defense of the skin prevents and controls bacterial, fungal and viral infections.

- Lastly, the skin has a unique ability to regenerate its epidermis and appendages.

PERMANENT IMPAIRMENT OF THE SKIN

- Cutaneous permanent impairment of the skin is defined as a skin condition that persists following maximal medical treatment, rehabilitation, and after a length of time sufficient to permit regeneration or other physiologic adjustments. This definition includes any functional or anatomic abnormality or loss including an acquired immunologic capacity to react to antigens (allergic contact dermatitis). Physical findings should always be subject to review since the degree of permanent impairment of the skin may not be static.

- Job-related permanent impairment of the skin most commonly results from contact dermatitis.

- According to the Guides, all dermatological impairments are calculated and applied to whole person impairments.

EVALUATING CUTANEOUS IMPAIRMENT

Medical evaluation involves:

- Detailed medical history

- Complete physical examination

- Diagnostic tests - helpful ones include:
  - ► Patch testing to diagnose allergic contact dermatitis
    - Careful interpretation is necessary
    - These tests can yield false positives and false negatives
    - Results depend on proper technique, physician's skill in interpretation, proper concentration and vehicle
  - ► Prick or scratch testing
  - ► Bacterial or fungal cultures
  - ► Potassium hydroxide scrapings
  - ► Skin biopsy

With permanent impairment of the skin, the amount of <u>functional loss</u> is of tantamount importance. Other factors to consider include:

- Extent of surface involved

- Altered cosmetic appearance:
  - ► Pus
  - ► Smell
  - ► Scale
  - ► Disfigurement

- Site involvement:
  - ► Hands and feet are more important

- Risk of treatment.

Skin impairment can be associated with other body system involvement. Each system should be evaluated <u>independently</u> for its degree of impairment and then <u>combined</u> using the combined values chart to assess the total impairment of the whole person.

PRURITUS

Itching with its associate desire to scratch or rub is a commonly associated symptom of a wide variety of skin diseases. The symptom can be intolerable. Like pain, the sensation involves variable afferent stimuli interacting with the emotional state of the individual. In evaluating impairment, one should assess:

- How pruritus interferes with the performance of daily living.

- Can the severity of the pruritus be supported by objective findings:
  - Excoriations
  - Lichenification (thickened skin)
  - Hyperpigmentation
  - Hypopigmentation

- Whether psychological factors play a role. In such a case, the psychological ratings should be employed.

DISFIGUREMENT

Disfigurement is defined as an altered appearance induced through changes in skin color, shape and/or structure. It can be a result of injury, disease, or an ongoing disorder.

There is usually no loss of body function and little to no effect on activities of daily living.

The physician should state probable duration and permanency of the altered state.

If the appearance can be improved through medical or surgical therapy, or concealment with makeup or wigs, this should be addressed in the report.
Psychological ratings may be needed to assess the extent of the patient's change in self image, interactions with others or withdrawal from society.

Scars - result from healing of burned, traumatized or diseased tissue.

- Assessment should include:
  - ► Size, shape, color and texture
  - ► Anatomic location
  - ► Evidence of ulceration and need for subsequent therapy
  - ► Depressed (atrophic) or elevated (hypertrophic) skin
  - ► Sensory or range of motion defect
  - ► Involvement of sweat gland function
  - ► Related psychological or behavioral changes

- Impairment rating must include consideration of the following elements:

  - ► Sensory alterations of a scar should be rated according to the Neurological Impairment Guidelines (Chapter 4).
  - ► Contracture leading to decreased range of motion should be assessed according to the Musculoskeletal Guidelines (Chapter 3), and if chest wall excursion is limited, respiratory impairment should be rated.
  - ► Loss of sweat gland function, hair and nail growth, along with pigment production should be assessed. This should be judged according to the impact on a patient's performance of their activities of daily living using the Dermatology Guidelines.
  - ► Scars involving the face should be rated separately, according to the ENT ratings for facial disfigurement (Chapter 9, Section 2).
  - ► Behavioral changes may be assigned an appropriate impairment rating according to psychological criteria.
  - ► If no neurologic, psychiatric or facial involvement exists, and there is no loss of range of motion, then the most likely rating would be a Class I under Table 1, Chapter 13 of the Guides.

IMPAIRMENT CLASSIFICATION FOR SKIN DISEASE

Three elements are used to define the five classes of skin impairment.

1. The presence of signs and symptoms of a skin disorder
2. Intermittent or continuous treatment
3. Assessment of the limitations in performance of the activities of daily living

Class I Impairment of the Whole Person, 0 - 5%.

- Signs and symptoms are present.
- With treatment, there are none or minimal limitations in performance of activities of daily living, although exposure to certain physical or chemical agents may increase limitations temporarily.
- For example:

  Forty year old mechanic complains of a one year history of an intermittent foot rash. The eruption began on the dorsum of the foot. Recently, the eruption has spread onto his ankles. The rash improves with topical steroid therapy and on weekends when he is not working. The patient purchased new ankle high leather work boots 12 months ago. The shoes he wears at home are all made of synthetic materials. His feet sweat profusely on the job. Patch testing

revealed a 2+ reaction to potassium dichromate which is used to tan leather. The eruption was completely resolved with topical steroid treatment and switching to sturdy polyvinyl chloride work boots.

- Diagnosis:
  Allergic contact dermatitis due to chromates used in leather tanning
- Impairment:
  0% impairment of the whole person

A thirty year old woman worked as a waitress for the past eight years. Sixteen months ago she incurred a third degree burn on her arm due to a co-worker spilling scalding hot soup on her. Now she has a noticeable 10 X 6 cm atrophic scar. There is no sensory deficit or loss of range of motion. No grafting was necessary and she is able to perform activities of daily living. The patient has always worked in upscale restaurants where the waitresses wear short sleeved or sleeveless outfits. The management takes pride in their workers' appearance and had received complaints about the waitress' deformity. The patient had tried to conceal the disfigurement with various cover-up makeups with little success. Outside of work she experienced considerable embarrassment about her scar and avoids wearing short sleeved outfits on a social basis. However, she can PERFORM her job function in a competent fashion.

- Diagnosis:
  Cosmetic disfigurement secondary to a forearm scar
- Impairment:
  1-5% impairment of the whole person
- Comment:
  The patient now has a permanent cutaneous abnormality that does not result in a functional disability, but may result in minimal limitations on activities of daily living. If the patient also has behavioral changes, then the appropriate psychological rating should be instituted.

  If the scar had involved the face, then the appropriated facial disfigurement would be rated according to ENT guidelines (Chapter 9, Section 2).

Class II - Impairment of the Whole Person, 10 - 20%.

- Signs and symptoms of a skin disorder are present.
- Intermittent treatment is required.
- Limitation in performance of some activities of daily living.
- For example:

A 27 year old beautician has a chronic hand rash for the last seven years which she related to her workplace. As a child, the patient had atopic dermatitis involving mainly the popliteal and antecubital spaces which resolved as a teenager. Her current problem began when she started beautician school eight years ago. Since then, she has had increasingly difficult hand eruptions. Recently, the rash has spread to her forearms. At times, the rash has been so bad that she has had to miss work. Her job entails washing and cutting hair. She wears gloves while shampooing, but they are too cumbersome for hair cutting. While the eruption is worse on the job, she notes that everyday activities such as cooking and cleaning flares her eruption. Currently, despite precautions, a low grade dermatitis persists. Her fingerwebs and dorsal hand are primarily involved. Patch testing was negative and topical steroids improve her dermatitis. Ultimately, the patient chose to leave her job and engage in personnel work which is a "drier" environment. However, the patient still has chronic hand dermatitis.

► Diagnosis:
  Chronic irritant contact dermatitis of the hands due to chronic exposure to chemicals and irritants at her beautician job
  History of childhood atopic dermatitis

► Impairment:
  15% impairment of the whole person

► Comment:
  Patients with history of childhood atopic dermatitis are predisposed to irritant contact dermatitis on the job. It is in the best interest of this patient to avoid "wet-work" including frequent contact with water and irritating chemicals. While her worst flares occurred at work, this patient will have intermittent flares necessitating treatment due to non-specific irritant exposures at home.

Class III - Impairment of the Whole Person, 25 - 50%.

- Signs and symptoms of a skin disorder are present.
- Continuous treatment is required.
- Limitation in performance of many activities of daily living.
- For example:

A 44 year old piston molder without a history of skin problems had been with the company for 12 years. Due to budget cuts, he was switched to a machinist job where he was exposed to cutting oils over the past 18 months. No protective clothing was worn and the cutting oil would splash all over him including his arms and legs. Shortly after starting the new position, he developed a pruritic hand dermatitis which later spread to involve his arms, legs, buttock and back. Initially, the eruption cleared with topical steroids, but over the last 6 months, the dermatitis has failed to completely clear despite aggressive therapy and avoidance of exacerbating agents. Patch testing was negative. As a result, he was returned to his original molding job. Wearing protective clothing with exposure to high temperatures induced sweating, which worsened his dermatitis while on the molding job. Now, despite being off work and avoiding exacerbating factors, the eruption has not subsided. The pruritus and continuous itching has resulted in lichenification (thickening), excoriations, scale and erythema. Forty percent of his body is involved (hands, thighs, legs, arms, buttock and lower back). Since his eruption began, he has been very anxious and depressed about losing his life's work. He cannot hold down an alternate job because all appear to flare his rash. He is more socially withdrawn and feels that the chronic eruption inhibits his contact with women. In addition, he is unable to sleep at night and believes he is itching "all over".

► Diagnosis:
  Chronic irritant soluble oil contact dermatitis
  Chronic neurodermatitis

► Impairment:
  30% impairment of the whole person
  This should be combined with an appropriate psychological rating.

► Comment:
  Soluble oil contact dermatitis tends to be chronic and lasts far longer than the exposure to the oil. Non-specific irritants such as warm environments, stress, cleansers and sweating can exacerbate the dermatitis.

  His inability to sleep at night, depression and incessant scratching have resulted in a superimposed neurodermatitis (itch-scratch syndrome).

Class IV - Impairment of the Whole Person, 55 - 80%.

Signs and symptoms of a skin disorder are present.

- Continuous treatment is required.
- May include periodic confinement at home or other domicile.
- Limitation in the performance of many activities of daily living.
- For example:

A 50 year old white male cement worker for the last 30 years had a mild history of pedal edema and stasis dermatitis. His stasis dermatitis was well controlled with a 1% hydrocortisone ointment. One year ago, wet cement got trapped inside his right boot at work and he was unable to change the boot right away. He subsequently developed severe chrome-related ulcers. One healed with grafting. The other one failed multiple grafting attempts and now is approximately 3x4 cm and located near the medial malleolus. He now has increased pedal edema despite elastic stockings, diuretics and leg elevation. He is unable to stand more than 3-4 hours at a time.

► Diagnosis:
Persistent chronic ulcer secondary to cement burn

► Impairment:
55% impairment of the whole person

► Comment:
Patient suffered a cement burn on his right leg that had a previous history of poor circulation and edema.

Frequent medical care will be required indefinitely to heal this ulcer. Due to its location and his previous history, future breakdown after healing is probable.

Patient does have significant impairment of his activities of daily living due to his incapacity to stand for long periods of time.

Class V - Impairment of the Whole Person, 85 - 95%.

- Signs and symptoms of a skin disorder are present.
- Continuous treatment is required.
- Necessitates confinement at home or other domicile.
- Severe limitation of the activities of daily living.
- For example: (from AMA Guidelines)

A 25 year old man suffered burns on his body three years ago from a gasoline explosion. His daily treatment includes a 30 minute soak followed by total body Vaseline application. He still experiences a significant amount of itching and is unable to perspire except on his face. He cannot be outside in the heat or sun for prolonged periods of time due to his impaired ability to sweat and concomitant dizziness. He has difficulty writing, walking and doing non-specialized hand activities due to scar formation. He has 85% skin involvement with some dermatologic disease including residual burn scars, graft sites, donor sites, depigmentation, partial destruction of his left ear and thickened fingernails. The cheeks were mildly involved.

- Diagnosis:
  Residual skin damage with extensive scarring due to a gasoline explosion
- Impairment:
  90% impairment of the whole person

  Range of motion deficit should be rated according to the musculoskeletal section.

  Facial involvement should be rated according to ENT guidelines.

Related Articles:

Hogan, DJ, et al. The prognosis of contact dermatitis. J Am Acad Dermatol 1990; 23:300-7.

Mathias, T. Contact dermatitis and worker's compensation: criteria for establishing occupational causation and aggravation. J Am Acad Dermatol 1989; 20:842-8.

Stewart, L. Occupational contact dermatitis. Allergy & Immunology Clinics of North America. November, 1992. In Press.

OBJECTIVES – MENTAL AND BEHAVIORAL DISORDERS

1. Demonstrate the ability to utilize the most recent version of the DSM and ICD diagnostic classification in making a work-related diagnosis.

2. Understand the relationship between diagnosis and the presence, absence or degree of impairment.

3. List sources of information which may be used to obtain descriptions of an individual's impairment.

4. Describe the types and uses of psychological tests in the overall evaluation of impairment.

5. Apply the guides for mental impairment rating to the four areas of function appropriately using a case.

6. Describe the method for calculation of psychiatric impairment rating when all areas of function have been rated.

7. Define the four areas of function used in rating mental impairment and give examples of activities in each of the areas.

8. Understand the complexity of assessment of impairment due to pain perception.

9. Classify impairment due to mental and behavioral disorders using the method in this section.

MENTAL AND BEHAVIORAL DISORDERS

INTRODUCTION

The psychiatric examination for Workers' Compensation is more specialized than a general psychiatric exam because the examiner must assess causality, the course of the illness and the response to psychiatric treatment in addition to making a diagnosis.

Only those psychiatric diagnoses classified in the latest versions of the Diagnostic Statistical Manual (DSM) or International Classification of Diseases (ICD) can be attributable to a work injury. For purposes of impairment rating, case law directs that the mental status of a worker at the time of the injury is the baseline from which to evaluate impairment for every worker including those with a past history of psychiatric disorders.

The examiner should explain the nature and purpose of the examination to the worker at the outset. The rapport essential to conducting an accurate psychiatric rating may be difficult to establish because the worker and those supporting or opposing the application may presume the clinician is biased about the examination. The clinician must rely on his or her empathic skills while gathering information and is influenced by his or her own beliefs, attitudes and experiences regarding mental illness.

THE PSYCHIATRIC EXAMINATION

The development of rapport with the examiner is based on the examinee's compliance and cooperation and the interviewer's interpersonal skills. The claimant's general posture and issues of candor, openness, disclosure, defensiveness and resistance should be noted. An open-ended interview style is recommended. The psychiatric examination includes the following sections:

- Description of causal work event.
- History of immediate or ensuing physical injury.
- History of immediate emotional impact and ensuing psychiatric disorder (emotional injuries).
- Review of the worker's basic psychological development is best obtained in an empathic and genuine conversation which includes:
    - Composition of nuclear family including birthplace.
    - Earlier relationships with family members or those with significant influence.

    - Performance in school including highest level of education.
    - Social adjustment growing up.
- Experience with use of alcohol and or drugs.
- History of emotional, physical or sexual abuse
- Detailed history of past psychiatric treatment.
- Detailed occupational history.
- Family psychiatric history
- Legal history – previous workers' compensation claims, motor vehicle accidents and litigations.
- Current adjustment consisting of detailed description of a typical day's activities from getting up to going to bed.
- Description of sleep, other daily living activities and sex.
- Detailed description of current enjoyable activities including social relationships and phone calls during the day.
- Description of how the work injury has affected the worker's life in general (in worker's own words).
- Mental status examination – attempt to describe the claimant in a manner which allows the non-physician reader to see and hear the worker through the clinician.
    - Complete description of appearance, general behavior and demeanor.
    - Assessment of affect, mood, cognition and thought processes.
    - A detailed description of how the claimant got to the examiner's office may aid in describing cognitive function.

PRINCIPLES CENTRAL TO ASSESSING MENTAL IMPAIRMENT:

- Psychiatric Diagnosis

  The latest DSM and ICD are the most widely accepted classifications for mental disorders. Utilizing either classification, identify the work-related diagnosis(es).

- Longitudinal History of Impairment and Psychiatric Treatments

  The history of the psychiatric disorder(s) and treatment(s) allows for proper interpretation of the final impairment. Consider whether the diagnosis is chronic and what treatments will be required to maintain maximal improvement. Assume that permanent psychiatric impairments will require long-term maintenance treatment.

DETERMINING MMI

Workers who have not received medically necessary and appropriate treatment are not at psychiatric MMI. For example, the examiner must assess whether maximal doses of medications and psychiatric therapy have been utilized to abate symptoms before the worker is considered at psychiatric MMI.

CHRONIC PSYCHIATRIC DIAGNOSES

If a psychiatric diagnosis existed at the time of the injury, several sources can be used to establish if there had actually been a pre-existing impairment at the time of the work-related injury and whether apportionment of impairment would be required. Medical records from hospitals, clinics, psychiatrists and psychologists should be used to document psychiatric disorders.

Non-medical records from family members and any other sources can be used to document activities of daily living, social functions, concentration and response to stress.

USEFULNESS OF PSYCHOLOGICAL TESTS

Primary physicians should consider using standardized, brief tests to screen for the presence of depression, anxiety, insomnia, obesity and other work-related symptoms, requiring a psychiatric evaluation.

Other well-standardized tests such as the Rorschach, Thematic Apperception Test (TAT) and the MMPI (Minnesota Multiphasic Personality Inventory) may be useful in establishing diagnosis and chronicity. The WAIS (Wechsler Adult Intelligence Scale) may be useful in determining mental retardation. In cases of closed head injury, broad-based neuropsychological assessments such as the Halstead-Reitan or Luria-Nebraska may aid in determining brain function deficiencies. A list of available tests is found in the tabbed section of this notebook designated “Mental Impairment Forms.”

SOCIAL SECURITY ASSESSMENT METHODS

The Social Security Administration suggests four areas for assessing the severity of mental impairments which have been adopted by the *AMA Guides* and are used by the Division of Workers' Compensation impairment rating system.

1. Activities of daily living
2. Social functioning
3. Concentration, persistence and pace
4. Adaptive functioning and response to stress

DIVISION OF WORKERS' COMPENSATION PSYCHIATRIC IMPAIRMENT RATING SYSTEM

General Instructions

In order to determine impairment for each subcategory of the areas of function, the examiner must first determine the individual's pre-injury performance in that area. The baseline performance descriptions for each subcategory are based on a population "norm." If the examinee's pre-injury performance falls below the baseline or norm and into an impaired category, determine whether any additional impairment has occurred from this work-related condition. Some patients with a pre-injury performance at variance from the stated population norm do not have a specific DSM diagnosis. The pre-injury performance level is merely a reflection of that individual's general level of function. Therefore, a lower than "normal" baseline performance need not be considered an apportionable condition requiring a separate worksheet.

For example, an individual who functioned pre-injury without a significant other, who has no close friends, meaningful relationship or group affiliations, has a low baseline in interpersonal relationships and should not be rated as impaired if their level of function did not change after the injury. By contrast, the previously gregarious or friendly worker who becomes less involved and avoidant after the injury should be rated with an impairment.

After the baseline performance of the individual has been determined, assign an appropriate impairment category to the individual. In general **minimal** impairment reflects a small amount of impairment in the subcategory, within which the patient is able to function without externally noticeable difficulty. An impairment for which the individual is able to self-correct without external assistance would be considered minimal. A **mild** impairment is one which has a greater effect on an individual's function and may require a small amount of interaction with others to correct. A **moderate** impairment is one in which others have noted the individual's functional deficit and requires external interaction with the individual for partial

correction of behaviors causing moderate problematic consequences. A **marked** impairment is one in which the individual suffers frequent and serious external problems secondary to the functional deficit despite interventions from others to attempt to partially correct the impairment. Very few individuals fall into the **extreme** or **maximum** impairment category. **Extremely** impaired individuals require frequent and concentrated intervention by others in order to maintain a minimally acceptable level of function within the subcategory. **Maximum** impairment is one in which the individual requires constant supervision or help from others in order to maintain any control over the subcategory.

For example, an individual who is frequently late for work resulting in suspension has a marked impairment in performing activities on schedule. An individual who needs help from his family to stay organized in order to get to work on time has a mild impairment in performing activities on schedule.

Pain

The rating of chronic pain is controlled by the statute. Chronic pain can only be rated when there is presence of an "anatomic or physiological correlation. Anatomical correlation must be based on objective findings." §8-42-101(3.7), C.R.S.. Therefore, a rating for pain cannot be given unless there is objective, physical presence of an injury. The *AMA Guides*, 3rd Edition (revised) does not encourage a rating of chronic pain in any areas other than those covered by the physical impairment rating system. (Refer to definition of chronic pain and impairment in appendix B, p. 252.)

Psychiatric impairment ratings should be restricted to DSM or ICD diagnoses such as depression, adjustment or anxiety disorder, insomnia, obesity, or other appropriate diagnoses and should not include any pain disorder diagnosis, *per se*. Psychiatric impairment ratings, therefore, should be based on the impairments associated with all of the psychiatric work-related symptoms and disorders caused by or associated with the chronic pain, but not the pain disorder itself. The use of the following types of diagnoses *should be avoided* as a basis of psychiatric impairment: Somatic Symptom and Related Disorders, all Unspecified Mental Disorders; as well as Other Mental Disorders Due to a Medical Condition. Specific examples of the types of diagnostic classifications that should *not* be used are:

- Personality changes due to another medical condition
- Unspecified mental disorder due to another medical condition
- Somatic with predominant pain
- Other specified or unspecified somatic disorders
- Psychological factors affecting other medical conditions

One *should* instead consider using the diagnoses identified in the DSM-5 or ICD 9 or 10 as various mood, anxiety, trauma, stressor and adjustment disorders.

These principles apply to the following example. A worker's ability to travel is impaired due to chronic back pain. This impairment is rated as part of the "anatomic or physiological" physical impairment. On the other hand, if a worker was injured in a truck accident and is avoiding interstate freeways due to a phobia or post-traumatic stress disorder, this impairment is rated as a psychiatric travel impairment under activities of daily living.

Medications

Any patient on medication must be rated as they are while using the medication. If a patient has refused to take a recommended medication or treatment, the patient is rated as he/she presents, without the medication or treatment recommended.

If a patient takes maintenance medications which enable him/her to function with no psychiatric impairment—in other words, all Areas of Function on the worksheet are rated as "zero" impairment—1-3% may be assigned for the use of the medication (see section V on the Mental Impairment worksheet). This 1-3% is assigned solely due to the requirement for medication maintenance treatment that did not exist previously. This applies to patients who take new or additional medication due to the work-related condition, as well as a worker who has not taken such medication prior to the injury. Patients who merit ratable mental impairments as assessed on the worksheet should not be assigned this 1-3% under Sec. V.

Patients may also experience side effects from maintenance medication. An additional DSM or ICD diagnostic code for adverse effects of medication can be added to the list of work-related diagnoses in these cases. These side effects from psychiatric medication can be rated under the psychiatric subcategories or physical impairment as appropriate. Patients who are non-compliant with their prescribed medication should be rated as they are, but no additional points should be allowed for medication use. The physician under these circumstances may consider adjusting the final calculation using Section IV of the Mental Impairment worksheet, Final Calculation.

Evaluator Beware

Many of the functions found on the psychiatric worksheet overlap impairments which may also be present due to the physical injury. If the patient has an impairment due to a physical problem, for example chronic low back pain affecting sleep, then the condition may not be rated on the psychiatric worksheet. Only conditions caused by the DSM established diagnoses can be rated on the worksheet. This is particularly important to remember in the areas of self-care and hygiene, travel, sexual function and sleep.

Remember that neurological function and other rating sections may overlap with mental and behavioral function. The same patient may <u>not</u> receive an impairment for loss of thinking, judgment, etc., under the neurological rating <u>and</u> the psychiatric rating. A patient <u>cannot</u> receive ratings for the <u>same functional impairment</u> from two sections of the *AMA Guides*.

Many of the subcategories under the Area of Function "Thinking, Concentration and Judgment" can be affected by brain pathology rather than psychiatric disorders. If abnormalities are found which are inconsistent with the patient's established diagnosis or medication use, the patient should be referred for specialty consultation. If the patient is impaired due to a brain injury, the cognitive impairment must be rated in the neurological section and not on the mental disorder worksheet.

Occasionally workers with scars or disfigurement may qualify for an impairment rating if the scar or disfigurement causes a psychiatric disorder classified in the DSM. Any psychiatric component that is combined with the functional rating would need to be substantiated. There must be demonstrable changes in daily tasks or usual activities due to the psychological effect of the scar only, not due to any physiological effects of the scar, such as decreased range of motion.

Activities of Daily Living

No category sheets have been provided for the subcategories Self-care and Hygiene and Travel. Self-care and hygiene are usually not permanently affected by work-related psychiatric problems unless there is very severe depression which cannot be reversed with treatment. Therefore the majority of self-care and hygiene problems will be due to physical problems or pain secondary to the physical diagnosis. These issues **cannot** be rated on the psychiatric worksheet. Travel is most often affected by a physical diagnosis, such as low back pain or neck pain, rather than psychiatric diagnoses. The same precautions are true for sexual functions and sleep since these functions are commonly affected by pain from a physical source, which is rated in the physical impairment rating section rather than as a psychiatric problem. Note, however, that many psychotropic medications do cause sexual side effects which require a psychiatric impairment rating.

Apportionment

If at the time of the injury the worker's functioning was impaired from a DSM or ICD diagnosis, then the examiner may apportion the past impairment from the current impairment. This is done by evaluating the four areas of function as the patient functioned immediately prior to the current injury and subtracting that impairment rating from any present rating.

Do not assume that if a worker has a past history of a psychiatric disorder, he or she was necessarily impaired at the time of the injury. Many individuals with past psychiatric disorders return to their normal or baseline functioning. Others re-stabilize at lower baselines without a DSM or ICD diagnosis; however, some are impaired with chronic DSM or ICD diagnoses.

Further, do not assume that a worker who had a pre-existing, below-norm baseline function in a certain area was necessarily impaired (see paragraph under heading "General Instructions" earlier in this chapter). Apportionment of impairment is considered when the previous condition is subject to psychiatric diagnosis, with impairment of function.

In 2008 the law regarding apportionment of preexisting conditions changed for cases with a date of injury on or after July 1, 2008. In those cases, where the *prior* injury or condition was *non*-work-related, apportionment may only apply if that prior condition was identified, treated, and independently disabling at the time of the current work-related injury. For details, see the Apportionment of Impairment "flow chart" at the end of the "WC Reports" section of this curriculum notebook.

ISOLATED PSYCHIATRIC IMPAIRMENT UNDER THE COLORADO STATUTE

Under Colorado law mental impairment or disability can only be compensated if it occurs 1) with a work-related physical injury or 2) "as a result of an accidental injury arising out of and in the course of employment when the accidental injury involves no physical injury and consists of a psychologically traumatic event that is generally outside of a worker's usual experience and would evoke significant symptoms of distress in any worker in similar circumstances". (§8-41-301(2)(a), C.R.S.) The worker must meet one of these two definitions before impairment may be considered. In addition, the statute limits the amount of compensation for permanent impairment of mental conditions except in cases of occupational disease with neurological brain damage or victims of violent crime or physical injury. (§8-41-301(2)(b), C.R.S.) Therefore, physicians should specifically address the presence of occupational neurologic brain damage in their narrative report.

DETERMINATION OF IMPAIRMENT RATING[2]

1. Establish a work-related DSM or ICD diagnosis
2. Establish MMI
3. Interview the patient regarding function in each of the four areas of function
    a. Activities of daily living
    b. Social functioning
    c. Thinking, concentration & judgment
    d. Adaptation to stress

[2] This material, the sections on the next page and the Guidelines listed in the next section are based on the revised Division form denoted **Rev. 01/06 WC-M3-Psych**.

MECHANICS OF THE MENTAL IMPAIRMENT RATING

1. Record the DSM or ICD diagnosis on the worksheet.
2. On the worksheet, rank each element from 0 – 6 referring to the category definition guidelines and the Guidelines for elements found on the pages at the end of this section.
3. Average the two highest elements within each area of function to calculate the rating for each of the four areas of function.
4. Average the two highest areas of function ratings.
5. You may modify this number by up to 0.5 if you provide justification based on factors such as results of psychologic testing, socio-cultural factors, reliability assessed on exam and compliance with treatment.
6. Convert your final category number to a percentage rating using the conversion table.
7. Combine the final rating with any physical rating.

NARRATIVE REPORT

Categorical ratings – The narrative report accompanying your impairment rating should include a thorough discussion of the criteria you used to establish your category ranking of each element in the four areas of function. Use the general categorical guidelines describing those elements to rank the category numbers. Those guidelines may be found at the end of this section. The Permanent Mental Impairment Report Work Sheet is found in this notebook behind the tab "Mental Impairment Forms."

Continuing Medication – When maintenance medication is required, the dose of medications prescribed, the frequency of physician visits anticipated, and any monitoring laboratory tests required must be described in detail in order to obtain insurance coverage for the treatment and medication. Maintenance psychiatric visits can vary but generally should not be less frequent than every eight weeks in the first year after the worker has reached psychiatric MMI.

Work Restrictions – Some workers with a psychiatric impairment may have work restrictions due to their psychiatric condition. Any restrictions must be identified clearly in the narrative report including type and degree of stress, limitation of hours, etc. (Examples include no graveyard or early morning shifts, limited interpersonal contact, or other adjustments due to difficulty in close supervisory relationship, difficulty supervising others, difficulty concentrating on complex tasks and difficulty with multi-tasking.)

GUIDELINES

FOR ASSESSING AND RATING ELEMENTS

UNDER THE MENTAL IMPAIRMENT RATING WORKSHEET

“AREAS OF FUNCTION”

SEXUAL IMPAIRMENTS*

Baseline: First determine the usual frequency, responsiveness (orgasms, erections, ejaculations) and degree of enjoyment of sex before the injury.

Minimal: Rarely initiates but can usually climax (female)/erection (male). (Frequency is equal to slightly less than baseline frequency.)

Mild: Has sex once per month (baseline is once per week) in response to partner and can occasionally reach orgasm (female)/usually ejaculate (male). Still derives pleasure/enjoyment from sexual activity.

Moderate: Has sex once every two months or longer (baseline once per week) in response to partner and rarely reaches orgasm (female)/has occasional erectile dysfunction (male). Rarely experiences pleasure/enjoyment.

Marked: Has no interest in sex and is without orgasms (female)/always has difficulty with erections (male) and avoids sex.

* Alterations in the sexual function due to pain is included in the physical impairment rating, not rated under psychiatric impairment.

SLEEP*

Baseline: First determine the usual sleep pattern and whether they used medications before the injury.

Minimal: Has trouble falling asleep most nights but can sleep through the night. If now on medication and not before the injury, the individual is at least minimally impaired.

Mild: Awakens twice during the night but can usually fall back to sleep in less than one hour.

Moderate: Has difficulty falling asleep and wakes up one to two times per night but is usually unable to fall back to sleep for several hours.

Marked: Can't get to sleep for more than two hours at a time and regularly naps during the daytime (disturbed diurnal pattern).

* Alterations in sleep patterns due to pain is included in the physical impairment rating, not rated under psychiatric impairment.

Social Functioning
SF1

INTERPERSONAL RELATIONSHIPS

Baseline: First determine the individual's usual openness to others and how often they greeted others, made new friends, and tolerated disagreements with others without behavioral extremes or adapted to get along with others.

Minimal: Can still initiate and meet new people and behave appropriately but feels uncomfortable and would prefer to be alone. There are less frequent social contacts but they still respond when others initiate or negotiate. Can still adapt to others when they have to. May raise voice or shout in response to interpersonal conflicts more frequently than usual.

Mild: The only social contacts are initiated by others and with some coaxing; rarely initiates social contacts and resents negotiating and compromising but still can adapt; can still enjoy some social experiences but not frequently. Can be verbally abusive when faced with interpersonal conflict.

Moderate: Requires pressure or necessity to have social contacts and rarely enjoys it, difficulty compromising, negotiating, and adapting but still can for very important purposes. Or at least one episode of physically threatening or abusive behavior directed at a person

Marked-Extreme: Has no interest in others and actively avoids interactions. Derives no social pleasure and finds it difficult to adapt to others even when there are dire consequences for not compromising or attending. May have had several incidents of physically abusive behavior directed at a person with possible legal charges.

Maximum: Requires constant supervision to monitor behavior

Social Functioning
SF2

COMMUNICATE EFFECTIVELY WITH OTHERS

Baseline: Determine the usual ability to get one's ideas across effectively to others.

Minimal: Complains that it is difficult to clearly and effectively communicate with others but still can.

Mild: Sometimes requires help from others to clearly and effectively communicate with them.

Moderate: Suffered a consequence for not effectively communicating with others. This individual requires the listener to actively interpret the intent of the communication.

Marked-Extreme: Experiences serious consequences due to inability to consistently communicate effectively with others. This individual is poorly understood despite active attempts to interpret the intent of the communication.

Maximum: Inability to communicate with others except regarding basic physical needs. (e.g., autistic, catatonic)

* Many communication problems are secondary to CNS and/or ENT disorders and require evaluation using those specific guidelines instead. Examples of psychiatric disorders impairing clear and effective communications include symptoms of mood disorders (flight of ideas, loose associations, paucity of thought), symptoms of psychotic disorders (paranoia, delusions, hallucinations), substance abuse.

RECREATIONAL ACTIVITIES

Baseline: Determine the usual sedentary, active physical and spiritual activities they participated in before the injury, how frequently they initiated and participated in them and how pleasurable they were.

Minimal: Still participates in some (any) recreational activities but feels less comfortable. There is decreased frequency of initiation but they can still respond when others initiate and still derive pre-injury pleasure.

Mild: Only participates in response to others with some coaxing and cajoling. Rarely initiates recreational activity but responds when others initiate and can still derive some degree of pleasure.

Moderate: Only participates in a recreational activity under pressure and rarely enjoys it.

Marked-Extreme: Has no interest in participating in recreational activities, actively avoids it and experiences no pleasure from it.

Maximum: Participates in no recreational activities.

MANAGE CONFLICTS WITH OTHERS – NEGOTIATE, COMPROMISE

Baseline: Determine the individual's usual ability to resolve difficulties with others or reach consensus in a conflict before the accident. (The conflict is pathological.)

Minimal: Gets upset and has feelings of resentment which are not expressed. Regains composure by avoiding others and therefore prefers to work alone. Not overtly angry but internally troubled.

Mild: Sometimes gets upset and argumentative and expresses anger with the conflict eventually getting resolved. Can "go with the flow" but with some difficulty.

Moderate: Frequently argues with others when involved with or interacting with others. The conflict remains unresolved (rigid, sulks) until others intervene. The anger and conflict disrupts relationships on a team, in a family or friendship. They have suffered a consequence for inappropriate conflictual behavior.

Marked - Extreme: Frequently argues, unwilling to compromise. Gets upset and the anger and conflict are so disruptive that external control, limits, or measures are necessary. The conflict remains unresolved (rigid, sulks) and disrupts relationships. The conflict requires external help and is even then difficult to resolve. They have suffered a serious consequence for inappropriate conflictual behavior such as threatened job loss or other disciplinary action.

Maximum: Incarcerated, confined or hospitalized for aggressive behavior.

SET REALISTIC SHORT & LONG TERM GOALS

Baseline: Determine the usual level of judgment used to set attainable goals. Does he/she usually underestimate, overestimate or achieve what he/she sets out to do? How much assistance is usually needed to set realistic achievable goals?

Minimal: Finds it difficult and/or stressful to determine what he/she can or cannot do but usually doesn't underestimate or overestimate or require assistance from others.

Mild: Requires and accepts some assistance from others to determine what he/she can or cannot do and occasionally underestimates or overestimates.

Moderate: Frequently underestimates or overestimates what he/she can do which causes mild consequences unless assistance is received from others. Requires some regular external structure but has difficulty accurately determining when assistance is necessary for himself/herself. (Results in increased symptoms, material damage.) When provided, assistance is accepted.

Marked-Extreme: Frequently underestimates or overestimates what he/she can do which causes serious consequences. Unaware of need for structure and assistance and either resists or has difficulty utilizing assistance from others. (Results in increased symptoms; potential or actual serious injury to self or others.)

Maximum Unable to achieve any basic short or long-term goals.

PERFORM ACTIVITIES (including work) ON SCHEDULE

Baseline: Determine the usual punctuality of the individual. How usual is it for them to be late for work or miss important functions?

Minimal: Finds it stressful to be on time and perform at an acceptable pace.

Mild: Requires some assistance from others to be on time and perform at an acceptable pace (reminders, phone calls, physical assistance).

Moderate: Suffered minor consequences for lateness and slow performance (reprimanded, upset others, confronted by others).

Marked - Extreme: Suffered serious consequences for lateness or slowness (threat of being fired, late for or missed very important appointment).

Maximum: Cannot be expected to complete a task. (No expected performance)

ADAPT TO JOB PERFORMANCE REQUIREMENTS

Baseline: Determine the individual's ability to adapt (be flexible) to a non-negotiable change in rules or follow established procedures (new supervisor, change in shift, required meeting).

Minimal: Resistance, denial, negativity is felt but not overtly expressed.

Mild: Negative reaction to limits and rules is expressed, such as resistance, avoidance, making excuses, attempting to substitute another task for the required one.

Moderate: The behavior of the individual is called to his/her attention and they experienced mild external (corrective) consequences such as written reprimand. The individual demonstrates overt resistance to performing what is expected.

Marked- Extreme: They experienced serious disciplinary consequences such as suspension. Their behavior disrupts workplace relationships. The individual frequently does not perform required tasks.

Maximum: Due to inability to accept limits and/or follow rules, they experience dire consequences such as termination from employment, or incarceration.

COLORADO DEPARTMENT OF LABOR AND EMPLOYMENT
Division of Workers' Compensation

PERMANENT WORK-RELATED MENTAL IMPAIRMENT RATING REPORT WORK SHEET

Since the AMA Guides to the Evaluation of Permanent Impairment, 3rd Edition (Revised) does not provide a quantified method for assigning permanent impairment percentages under Chapter 14, "Mental and Behavioral Disorders," the provider shall utilize this form.

Patient Name Date of Service:
WC # Carrier #

SCORING INSTRUCTIONS:

1. This form should only be used to determine an impairment after the case has been found to meet all of the specific criteria for a Diagnostic and Statistical Manual (DSM) diagnosis.

2. The AMA Guides to Permanent Impairment, 3rd Edition (Revised) should be consulted for guidance in determining these ratings.

3. Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment.

4. Impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

5. To obtain the final overall impairment rating:

   a. The elements to be rated are divided into four Areas of Function: Activities of Daily Living; Social Functioning; Thinking, Concentration and Judgment; and Adaptation to Stress.

   b. Assign a rating (0-6) to each subcategory of the areas of function based on patient self-report, other sources of information, and the physician's clinical assessment. (See Category Definitions on Page 6 of this form.) Given the heavy reliance on the patient's subjective report for information in some of the ratings, the physician should give careful consideration to any corroborating evidence that might be available.

   c. Average the two highest subcategory ratings within each Area of Function to obtain the overall category rating. For example, if the two highest scores are 2 and 5, the category score is 3.5.

   d. To calculate the overall impairment rating, average the two highest category ratings and then, if appropriate in the case, use clinical judgment to add or subtract up to 0.5 point from the result. If the score is modified in this fashion due to clinical judgment, ***justification for doing so must be documented***. Factors influencing the physician's discretion may include the following:

      i. Factors influencing the patient's believability, such as the presence of symptom magnification, or the presence or absence of corroborating information from psychological or neuropsychological testing;

      ii. The extent to which medication ameliorates the effects of the condition;

   e. Use the Category Conversion Table in these instructions to convert the final number to a percentage.

6. Include the DSM diagnosis at the top of the worksheet.

The final determination must include ratings for all of the elements in each area of function, the category averages reached in each area of function, the overall average, the final assigned overall permanent impairment rating, and documentation for any divergence (±0.5) from the calculated score.

CATEGORY CONVERSION TABLE	
Final Score	**Percentage**
0	0
0.25	0
0.5	1
0.75	1
1	**1**
1.25	2
1.5	3 to 4
1.75	5
2	**6 to 7**
2.25	8 to 9
2.5	10 to 12
2.75	13 to 15
3	**16 to 18**
3.25	19 to 21
3.5	22 to 23
3.75	24 to 25
4	**26 to 32**
4.25	33 to 38
4.5	39 to 44
4.75	45 to 50
5	**51 to 56**
5.25	57 to 62
5.5	63 to 68
5.75	69 to 75
6	**76 to 83**
6.25	84 to 91
6.5	92 to 100

7. If apportionment is applicable, complete a separate form calculating the pre-injury rating to be subtracted from the total current rating.

8. If there is a finding of no impairment, refer to Part V on the worksheet, if appropriate.

WORKSHEET

Patient Name Date of Service:
WC # Carrier #

NOTE: Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment. Further, impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

I. DSM Diagnosis: Axis I: Axis II:

II. LEVELS OF PERMANENT MENTAL IMPAIRMENT

Category
0. No permanent impairment
1. Minimal Category of Permanent Impairment
2. Mild Category of Permanent Impairment
3. Moderate Category of Permanent Impairment
4. Marked Category of Permanent Impairment
5. Extreme Category of Permanent Impairment
6. Maximum Category of Permanent Impairment

III. AREAS OF FUNCTION3

1. Activities of Daily Living. ***Rate only impairments due strictly to the psychiatric condition.***

0 1 2 3 4 5 6	Self care and hygiene (dressing, bathing, eating, cooking)	
0 1 2 3 4 5 6	Travel (driving, riding, flying) i.e. impairments in driving, riding, flying which are generally a result of symptoms of affective or anxiety disorders	Overall Category Rating: (average of 2 highest)
0 1 2 3 4	Sexual function (participating in usual sexual activities)	
0 1 2 3 4	Sleep (restful sleep pattern)	

2. Social Functioning

0 1 2 3 4 5 6	Interpersonal relationships	Overall Category Rating: (average of 2 highest)
0 1 2 3 4 5 6	Communicates effectively with others	
0 1 2 3 4 5 6	Participation in recreational activities (consider pre-injury activities of the patient)	
0 1 2 3 4 5 6	Manage conflicts with others--negotiate, compromise	

3 See attached Appendix for further description of all or part of the listed areas of function.

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3. Thinking, Concentration & Judgment

0 1 2 3 4 5 6 Ability to perform complex or varied tasks
0 1 2 3 4 5 6 Judgment
0 1 2 3 4 5 6 Problem solving
0 1 2 3 4 5 6 Ability to abstract or understand concepts
0 1 2 3 4 5 6 Memory, immediate and remote
0 1 2 3 4 5 6 Maintain attention, concentration on a specific task
0 1 2 3 4 5 6 Perform simple, routine, repetitive tasks
0 1 2 3 4 5 6 Comprehend/follow simple instructions

Overall Category Rating:
(average of 2 highest)

4. Adaptation to Stress

0 1 2 3 4 5 6 Set realistic short & long term goals
0 1 2 3 4 5 6 Perform activities (including work) on schedule
0 1 2 3 4 5 6 Adapt to job performance requirements

Overall Category Rating:
(average of 2 highest)

IV. FINAL CALCULATIONS:

Average the two highest Area of Function ratings: + **divided by 2 =**

Add or subtract up to 0.5 from the completed calculation above, if appropriate, based on clinical judgment.
Justify this deviation below or attach a separate sheet:

Using the Category Conversion Table on page 2 of this form, convert the final number to a percentage for the overall permanent impairment rating:

Overall Psychiatric Permanent Impairment

Rating _____%

OR

V. If this patient has ZERO impairment according to the above criteria and requires continuing medication for their DSM diagnosis, an impairment of 1-3% may be assigned _____%.

IF ZERO % PSYCHIATRIC RATING

RATING_____%

VI. TOTAL IMPAIRMENT RATING (if applicable)
Total Whole Person *Physical* Impairment = _____%

Combined with psychiatric permanent impairment equals:

Total Whole Person Impairment (including psychiatric impairment) _____%

Physician: _____ Date: _____
(Signature)

APPENDIX

1. Activities of Daily Living

Sexual Function: Scoring categories 5 and 6 are not available because the maximum impairment allowed per the AMA Guides for total loss of sexual function is 30% for a male less than 40 years of age; 20% for a male 40 or older.

Sleep: Scoring categories 5 and 6 are not available because the AMA Guides allow a maximum of 50% impairment for sleep or arousal disorders. To reach a 20% rating the activities of daily living must be affected to the extent that supervision is required in some areas. To reach a 50% rating, supervision by caretakers is required.

2. Social Functioning

Social functioning refers to an individual's capacity to interact appropriately and communicate effectively with other individuals. Social functioning includes the ability to get along with others, such as with family members, friends, neighbors, grocery clerks, landlords or bus drivers. Impaired social functioning may be demonstrated by a history of altercations, evictions, firings, fear of strangers, avoidance of interpersonal relationships, social isolation, etc. Strength in social functioning may be documented by an individual's ability to initiate social contacts with others, communicate clearly with others, interact and participate in group activities, etc. Cooperative behaviors, consideration for others, awareness of others' feelings, and social maturity also need to be considered. Social functioning in work situations may involve interactions with the public, responding appropriately to persons in authority, such as supervisors, or cooperative behaviors involving co-workers.

Again, it is not the number of areas in which social functioning is impaired, but the overall degree of interference with a particular functional area or combination of such areas of functioning. For example, a person who is highly antagonistic, uncooperative, or hostile, but is tolerated by local storekeepers may nevertheless have marked restrictions in social functioning because that behavior is not acceptable in other social contexts, such as work. (*AMA Guides, 3rd Edition (revised),* p. 237)

3. Thinking, Concentration and Judgment

Thinking, concentration, and judgment refer to the ability to sustain focused attention sufficiently long to permit the timely completion of tasks and to make reasoned or logical decisions as to alternative courses of action. Deficiencies in concentration and judgment are best observed in work and work-like settings. Major impairment in this area can often be assessed through direct psychiatric examination and/or psychological testing, although mental status examination or psychological test data alone should not be used to accurately describe concentration and sustained ability to perform work-like tasks. On mental status examinations, concentration is assessed by tasks requiring short-term memory or through tasks such as having the individual subtract serial sevens from 100. In psychological tests of intelligence or memory, concentration can be assessed through tasks requiring short-term memory or through tasks that must be completed within established time limits. Strengths and weaknesses in areas of concentration can be discussed in terms of frequency of errors, time it takes to complete the task, and extent to which assistance is required to complete the task. (*Disability Evaluation Under Social Security*, p.88, Social Security Administration Pub. No. 64-039)

4. Adaptation to Stress

The individual should be able to set realistic and appropriate goals. Given that the work-related injury may have induced various limitations, the individual should demonstrate realistic adaptations to the medical/physical situation. He/she should be able to accommodate changes from pre-injury status to the current status. Adapting to performance standards requires that the individual can adequately cope with job performance and time expectations. Further, the individual should demonstrate the capacity to follow rules and policies, respond appropriately to changes in the work setting, and utilize resources available within the community, medical and family areas.

PERMANENT WORK-RELATED MENTAL IMPAIRMENT RATING
REPORT WORK SHEET

CATEGORY DEFINITION GUIDELINES

CATEGORY 0: **No Permanent Impairment.**

Mental symptoms arising from the work-related psychiatric diagnosis have been absent for the past month. ADLs are not affected. Functioning is at pre-injury baseline in social and work activities in all areas; no more than everyday problems.

CATEGORY 1: **Minimal Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, minimally impair functioning.

CATEGORY 2: **Mild Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis are not likely to remit despite medical treatment, and are mildly impairing. ADLs are mildly disrupted. Functioning shows mild permanent impairment in social or work activities.

CATEGORY 3: **Moderate Category of Permanent Impairment**.

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are moderately impairing. ADLs are moderately disrupted. Functioning shows moderate permanent impairment. Activities sometimes need direction or supervision.

CATEGORY 4: **Marked Category of Permanent Impairment**.

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are seriously impairing. ADLs are seriously disrupted. Functioning shows serious difficulties in social or work activities.

CATEGORY 5: **Extreme Category of Permanent Impairment**.

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are incapacitating. At times, ADLs require structuring. Functioning is quite poor, unsafe in work settings, at times requires hospitalization or full-time supervision. Most activities require directed care.

CATEGORY 6: **Maximum Category of Permanent Impairment**.

This impairment level precludes useful functioning in all areas. These individuals are generally appropriate for institutionalized settings, if available. All activities require directed care.

Examples of various psychological tests or screening tools follow. Most are not available in an electronic format that can be inserted here. Please contact the Division's Physicians' Accreditation Program for copies.