

Chapter 1

Philosophy, Purpose, and Appropriate Use of the *Guides*

- 1.1 History**
- 1.2 Impairment, Disability, and Handicap**
- 1.3 The Organ System and Whole Body Approach to Impairment**
- 1.4 Philosophy and Use of the Combined Values Chart**
- 1.5 Incorporating Science with Clinical Judgment**
- 1.6 Causation, Apportionment Analysis, and Aggravation**
- 1.7 Use of the *Guides***
- 1.8 Impairment Evaluations in Workers' Compensation**
- 1.9 Employability Determinations**
- 1.10 Railroad and Maritime Workers**
- 1.11 The Physician's Role Based on the Americans with Disabilities Act (ADA)**
- 1.12 Summary**

1.1 History

The *Guides* was first published in book form in 1971 in response to a public need for a standardized, objective approach to evaluating medical impairments. Sections of the first edition of the *Guides* were originally published in the *Journal of the American Medical Association*, beginning in 1958 and continuing until August 1970.¹ Since then, the *Guides* has undergone four revisions, culminating in the current, fifth edition. The purpose of this fifth edition of the *Guides* is to update the diagnostic criteria and evaluation process used in impairment assessment, incorporating available scientific evidence and prevailing medical opinion. Chapter authors were encouraged to use the latest scientific evidence from their specialty and, where evidence was lacking, develop a consensus view. This chapter was revised from the earlier edition in response to specific requests from user groups concerning the definitions, appropriate use, and scope of application of the *Guides*.

The fifth edition includes most of the common conditions, excluding unusual cases that require individual consideration. Since this edition encompasses the most current criteria and procedures for impairment assessment, it is strongly recommended that physicians use this latest edition, the fifth edition, when rating impairment.

1.2 Impairment, Disability, and Handicap

1.2a Impairment

The *Guides* continues to define **impairment** as “a loss, loss of use, or derangement of any body part, organ system, or organ function.”² This definition of impairment is retained in this edition. A medical impairment can develop from an illness or injury. An impairment is considered permanent when it has reached **maximal medical improvement (MMI)**, meaning it is well stabilized and unlikely to change substantially in the next year with or without medical treatment. The term *impairment* in the *Guides* refers to **permanent impairment**, which is the focus of the *Guides*.

An impairment can be manifested objectively, for example, by a fracture, and/or subjectively, through fatigue and pain.³ Although the *Guides* emphasizes objective assessment, subjective symptoms are included within the diagnostic criteria. According to the *Guides*, determining whether an injury or illness results in a permanent impairment requires a medical assessment performed by a physician. An impairment may lead to functional limitations or the inability to perform activities of daily living.

Table 1-1, adapted from a report by the AMA Council on Scientific Affairs, lists various definitions of impairment and disability used by four main authorities: the AMA *Guides*, the World Health Organization, the Social Security Administration, and a state workers’ compensation statute.⁴ Although a nationally accepted definition for impairment does not exist, the general concept of impairment is similar in the definitions of most organizations. Several terms used in the AMA definition, and their application throughout the *Guides*, will be discussed in this chapter and Chapter 2.

Loss, loss of use, or derangement implies a change from a normal or “preexisting” state. **Normal** is a range or zone representing healthy functioning and varies with age, gender, and other factors such as environmental conditions. For example, normal heart rate varies between a child and adult and according to whether the person is at rest or exercising. Multiple factors need to be considered when assessing whether a specific or overall function is normal. A normal value can be defined from an individual or population perspective.

When evaluating an individual, a physician has two options: consider the individual’s healthy preinjury or preillness state or the condition of the unaffected side as “normal” for the individual if this is known, or compare that individual to a normal value defined by population averages of healthy people. The *Guides* uses both approaches. Accepted population values for conditions such as extremity range-of-motion or lung function are listed in the *Guides*; it is recommended that the physician use those values as detailed in the *Guides* when applicable. In other circumstances, for instance, where population values are not available, the physician should use clinical judgment regarding normal structure and function and estimate what is normal for the individual based on the physician’s knowledge or estimate of the individual’s preinjury or preillness condition.

Table 1-1 Definitions and Interpretations of Impairment and Disability

Organization	Impairment	Disability	Physicians' Role	Comments
<i>Guides to the Evaluation of Permanent Impairment</i> (5th ed, 2000)	A loss, loss of use, or derangement of any body part, organ system, or organ function.	An alteration of an individual's capacity to meet personal, social, or occupational demands because of an impairment.	Determine impairment, provide medical information to assist in disability determination.	An impaired individual may or may not have a disability.
World Health Organization (WHO) (1999)	Problems in body function or structure as a significant deviation or loss. Impairments of structure can involve an anomaly, defect, loss, or other significant deviation in body structures.	Activity limitation (formerly disability) is a difficulty in the performance, accomplishment, or completion of an activity at the level of the person. Difficulty encompasses all of the ways in which the doing of the activity may be affected.	Not specifically defined; assumed to be one of the decision-makers in determining disability through impairment assessment.	Emphasis is on the importance of functional abilities and defining context-related activity limitations.
Social Security Administration (SSA) (1995)	An anatomical, physiological, or psychological abnormality that can be shown by medically acceptable clinical and laboratory diagnostic techniques.	The inability to engage in any substantial, gainful activity by reason of any medically determinable physical or mental impairment(s), which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months.	Determine impairment; may assist with the disability determination as a consultative examiner.	Physicians and nonphysicians need to work together to define situational disabilities.
State Workers' Compensation Law (typical) ^a	"Permanent impairment" is any anatomic or functional loss after maximal medical improvement has been achieved and which abnormality or loss, medically, is considered stable or nonprogressive at the time of evaluation. Permanent impairment is a basic consideration in the evaluation of permanent disability and is a contributing factor to, but not necessarily an indication of, the entire extent of permanent disability. (<i>Idaho Code</i> section 72-422)	"Temporary disability" means a decrease in wage-earning capacity due to injury or occupational disease during a period of recovery. (<i>Idaho Code</i> section 72-102[10]) "Permanent disability" results when the actual or presumed ability to engage in gainful activity is reduced or absent because of permanent impairment and no fundamental or marked change in the future can be reasonably expected. (<i>Idaho Code</i> section 72-423)	"Evaluation (rating) of permanent impairment" is a medical appraisal of the nature and extent of the injury or disease as it affects an injured employee's personal efficiency in the activities of daily living, such as self-care, communication, normal living postures, ambulation, elevation, traveling, and nonspecialized activities of bodily members. (<i>Idaho Code</i> section 72-424)	Purpose is to provide sure and certain relief to those who become injured by accident or suffer effects of disease from exposure to hazards arising out of and in the course of employment.

Data from healthy populations, when available and widely referenced, are incorporated into chapters of the *Guides*. In some organ or body systems, such as respiratory, certain measurements of lung function have been standardized for age and gender. In other body systems, such as the musculoskeletal, age and gender differences are not reflected in most of the values. While there may be age and gender differences anticipated for some musculoskeletal values, such as range of motion in the spine and extremities, this edition of the *Guides* mainly reflects average range of motion from healthy populations of mixed age and gender. The normal values presented in the musculoskeletal section are based on a review of studies measuring range of motion, as cited in the text. Evaluating physicians may use their clinical judgment, however, and comment on any significant age or gender effect for a particular individual. For instance, the “normal” preinjury range of motion for a gymnast with hypermobility may exceed the listed normal values.

If an individual had previous measurements of function that were below or above average population values, the physician may discuss that prior value and any subsequent loss for the individual, as well as compare it to the population normal. For example, a highly functioning athlete with documented, above-normal lung function, who has sustained an injury and now has decreased lung function that is nonetheless similar to population averages, has experienced a loss in his or her lung function and has sustained an impairment. Based only on a population comparison, the athlete would be given a 0% impairment rating. However, it would be more appropriate in this instance for the physician to assign an impairment rating based on the degree of change from the athlete’s preinjury to postinjury state.

In evaluating impairment, the *Guides* considers both anatomic and functional loss. Some chapters place a greater emphasis on either anatomic or functional loss, depending upon common practice in that specialty. *Anatomic loss* refers to damage to the organ system or body structure, while *functional loss* refers to a change in function for the organ or body system. An example of an anatomic deviation is development of heart enlargement; functional loss includes a loss in ejection fraction or the ability of the heart to pump adequately. Anatomic loss receives greater emphasis in the musculoskeletal system, as in measurements such as range of motion. Functional considerations receive greater emphasis in the mental and behavioral section.

The impairment criteria outlined in the *Guides* provide a standardized method for physicians to use to determine medical impairment. The impairment criteria include diagnostic criteria, incorporating anatomic and functional measures. The impairment criteria were developed from scientific evidence as cited and from consensus of chapter authors or of medical specialty societies.

Impairment percentages or ratings developed by medical specialists are consensus-derived estimates that reflect the severity of the medical condition and the degree to which the impairment decreases an individual’s ability to perform common **activities of daily living (ADL)**, *excluding* work. Impairment ratings were designed to reflect functional limitations and not disability. The **whole person impairment percentages** listed in the *Guides* estimate the impact of the impairment on the individual’s overall ability to perform activities of daily living, *excluding* work, as listed in Table 1-2.

Table 1-2 Activities of Daily Living Commonly Measured in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) Scales ^{6,7}

Activity	Example
Self-care, personal hygiene	Urinating, defecating, brushing teeth, combing hair, bathing, dressing oneself, eating
Communication	Writing, typing, seeing, hearing, speaking
Physical activity	Standing, sitting, reclining, walking, climbing stairs
Sensory function	Hearing, seeing, tactile feeling, tasting, smelling
Nonspecialized hand activities	Grasping, lifting, tactile discrimination
Travel	Riding, driving, flying
Sexual function	Orgasm, ejaculation, lubrication, erection
Sleep	Restful, nocturnal sleep pattern

The medical judgment used to determine the original impairment percentages could not account for the diversity or complexity of work but could account for daily activities common to most people. Work is not included in the clinical judgment for impairment percentages for several reasons: (1) work involves many simple and complex activities; (2) work is highly individualized, making generalizations inaccurate; (3) impairment percentages are unchanged for stable conditions, but work and occupations change; and (4) impairments interact with such other factors as the worker's age, education, and prior work experience to determine the extent of work disability. For example, an individual who receives a 30% whole person impairment due to pericardial heart disease is considered from a clinical standpoint to have a 30% reduction in general functioning as represented by a decrease in the ability to perform activities of daily living. For individuals who work in sedentary jobs, there may be no decline in their work ability although their overall functioning is decreased. Thus, a 30% impairment rating does not correspond to a 30% reduction in work capability. Similarly, a manual laborer with this 30% impairment rating due to pericardial disease may be completely unable to do his or her regular job and, thus, may have a 100% work disability.

As a result, impairment ratings are not intended for use as direct determinants of work disability. When a physician is asked to evaluate work-related disability, it is appropriate for a physician knowledgeable about the work activities of the patient to discuss the specific activities the worker can and cannot do, given the permanent impairment.

Most impairment percentages in this fifth edition have been retained from the fourth edition because there are limited scientific data to support specific changes. It is recognized that there are limited data to support some of the previous impairment percentages as well. However, these ratings are currently accepted and should not be changed arbitrarily. In this edition, some percentages have been changed for greater scientific accuracy or to achieve consistency throughout the book.

A 0% whole person (WP) impairment rating is assigned to an individual with an impairment if the impairment has no significant organ or body system functional consequences and does not limit the performance of the common activities of daily living

indicated in Table 1-2. A 90% to 100% WP impairment indicates a very severe organ or body system impairment requiring the individual to be fully dependent on others for self-care, approaching death.

The activities of daily living, as originally developed for the *Guides* in the first and second editions,^{1,6} signify common activities currently represented in scales of Activities of Daily Living and Instrumental Activities of Daily Living.⁷ The *Guides* refers to common ADLs, as listed in Table 1-2. The ADLs listed in this table correspond to the activities that physicians should consider when establishing a permanent impairment rating. A physician can often assess a person's ability to perform ADLs based on knowledge of the patient's medical condition and clinical judgment. When the physician is estimating a permanent impairment rating, Table 1-2 can help to determine how significantly the impairment impacts these activities. Using the impairment criteria within a class and knowing the activities the individual can perform, the physician can estimate where the individual stands within that class.

There are many scales that measure ability to perform ADLs with greater degrees of accuracy. Many of these scales are concerned with more severe levels of disability, relevant to institutionalized patients and the elderly.⁷ During the 1970s, the ADL concept was extended to consider problems experienced by those living in the community, a field that has come to be termed Instrumental Activities of Daily Living (IADL).⁷ There is a continued effort to validate these scales; some of the more commonly utilized, validated IADL and ADL scales are listed in Table 1-3.⁷ Scales vary in their appropriateness for a given individual, based upon the level of impairment, body systems affected, and degree of accuracy required. Some scales are most appropriate for an active, working population; others are more suited to a chronically ill, disabled population. Since there is no agreed-upon scale for a working population and physicians who use the *Guides* may evaluate different populations of individuals (ie, healthy or chronically ill), a physician may choose the most appropriate of any of the validated scales for a more in-depth assessment of ADL, to obtain further information to supplement clinical judgment, or to gain assistance in determining where an individual stands within an impairment range.

Table 1-3 Scales for Measurement of Instrumental Activities of Daily Living (IADL) and Activities of Daily Living (ADL)**IADL**

Scale	Design/Description	Target Population	Measures	Comment
The OECD Long-Term Disability Questionnaire ⁸	Summary of the impact of ill health on essential activities of daily living.	General population	<ul style="list-style-type: none"> • Eyesight • Hearing • Speaking • Carry an object of 5 kg for 10 meters • Run 100 meters • Walk 400 meters without resting • Move between rooms • Get in and out of bed • Dress and undress • Cut toenails • Bend and pick up a shoe from floor • Cut food • Bite and chew hard food 	An early attempt to develop an international set of disability items; European content
The Health Assessment Questionnaire ⁹	Measures difficulty in performing activities of daily living	Used to assess adult arthritics in a wide range of research settings to evaluate care	<ul style="list-style-type: none"> • Dressing and grooming • Arising • Eating • Walking • Hygiene • Reach • Grip • Outdoor activity 	Widely used instrument; pays close attention to rigorous measures
The Functional Independence Measure ¹⁰	Assesses physical and cognitive disability, monitors patient progress, and assesses outcomes of rehabilitation	General population	<ul style="list-style-type: none"> • Self-care • Sphincter control • Mobility • Locomotion • Communication • Social cognition 	Based on the Barthel index

ADL

The Barthel Index (Formerly the Maryland Disability Index) ¹¹	Measures functional independence in personal care and mobility; completed by health professionals	Used in patients with chronic conditions, before and after treatment	Ten-item version evaluates: <ul style="list-style-type: none"> • Feeding • Moving from wheel-chair to bed and return • Personal toilet • Getting on and off toilet • Bathing self • Mobility • Ascending and descending stairs • Dressing • Controlling bowels • Controlling bladder 	Measures what a patient does; widely applied
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Scale	Description	Target Population	Measures	Comment
The Index of Independence in Activities of Daily Living ¹²	Describes primary biological and psychosocial function; limited information on ambulation	Originally developed for elderly and chronically ill patients with strokes and fractured hips	Assesses independence in six activities: <ul style="list-style-type: none"> • Bathing • Dressing • Toileting • Transferring from bed to chair • Continence • Feeding 	Widely used with children and adults, with the mentally retarded and the physically disabled, in the community and institutions
The Functional Status Rating System ¹³	Based on a method developed to provide national statistics on hospital utilization and treatment outcomes	Rehabilitation patients	<ul style="list-style-type: none"> • Functional Status in Self-Care (eating/feeding, personal hygiene, toileting, bathing, bowel/bladder/skin management, bed activities, dressing) • Functional Status in Mobility (transfers, wheelchair skills, ambulation, stairs, community mobility) • Functional Status in Communication (reading, talking, motor communication, written language expression) • Functional Status in Psychosocial Adjustment (emotional adjustment, social support, adjustment to limitations) • Functional Status in Cognitive Function (attention span, judgment, reasoning, memory) 	
The OARS Multidimensional Functional Assessment Questionnaire ¹⁴	A combined 7 ADL and 7 IADL scale that covers functional and services assessment	General population, especially elderly	<ul style="list-style-type: none"> • Individual functioning (basic demographics, social, economic resources) • Mental health • Physical health • ADL • Services assessment (transportation, social/recreational) 	Flexible instrument, reliable, and valid ADL and IADL sections
The Medical Outcomes Study Physical Functioning Measure ¹⁵	An extended ADL scale that is sensitive to variations at relatively high levels of physical function	General population	<ul style="list-style-type: none"> • Vigorous activities (running, lifting heavy objects, strenuous sports) • Moderate activities (moving a table, pushing a vacuum cleaner, bowling, playing golf) • Lifting or carrying groceries • Climbing <i>several</i> flights of stairs • Climbing <i>one</i> flight of stairs • Bending, kneeling, or stooping • Walking <i>more than one mile</i> • Walking <i>several blocks</i> • Walking <i>one block</i> • Bathing or dressing self 	Recognizes differences in people's values regarding functional ability by including a question on satisfaction with physical performance

1.2b Disability

The term *disability* has historically referred to a broad category of individuals with diverse limitations in the ability to meet social or occupational demands. However, it is more accurate to refer to the specific activity or role the “disabled” individual is unable to perform. Several organizations are moving away from the term *disability* and instead are referring to specific *activity limitations* to encourage an emphasis on the specific activities the individual can perform and to identify how the environment can be altered to enable the individual to perform the activities associated with various social or occupational roles. (Table 1-1).⁴

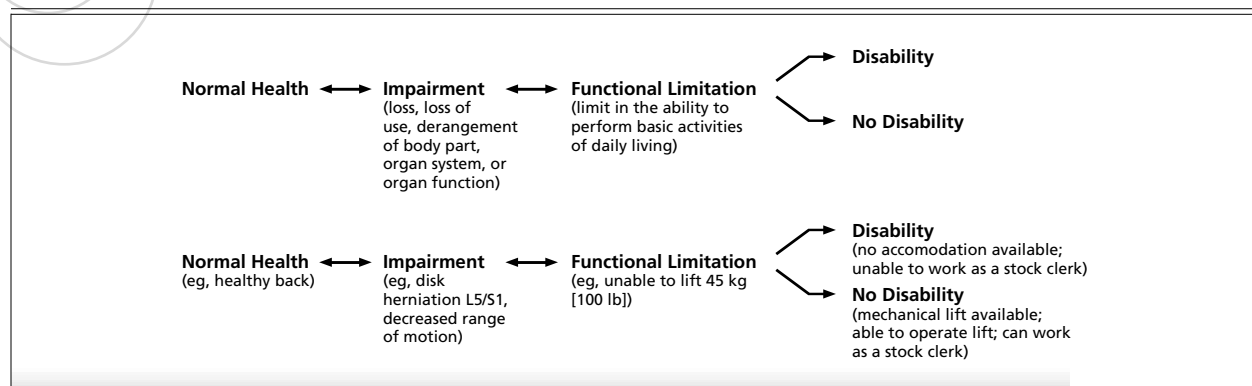
According to a 1997 Institute of Medicine Report, “disability is a relational outcome, reflecting the individual’s capacity to perform a specific task or activity, contingent on the environmental conditions in which they are to be performed.”¹⁶ Disability is context-specific, not inherent in the individual, but a function of the interaction of the individual and the environment.

The World Health Organization (WHO) is revising its 1980 *International Classification of Impairments, Disabilities and Handicaps* and has released a draft document, *The International Classification of Impairments, Activities and Participation (ICIDH-2)*.¹⁷ The term *disability* has been replaced by a neutral term, *activity*, and limits in ability are described as *activity limitations*. The change in terminology arose for several reasons: to choose terminology without an associated stigma, to avoid labeling, and to emphasize the person’s residual ability. Representatives world-wide are reviewing this international classification scale of impairments, function, and activities.

The *Guides* continues to define **disability as an alteration of an individual’s capacity to meet personal, social, or occupational demands or statutory or regulatory requirements because of an impairment.**² An individual can have a disability in performing a specific work activity but not have a disability in any other social role.² Physicians have the education and training to evaluate a person’s health status and determine the presence or absence of an impairment. If the physician has the expertise and is well acquainted with the individual’s activities and needs, the physician may also express an opinion about the presence or absence of a specific disability. For example, an occupational medicine physician who understands the job requirements in a particular workplace can provide insights on how the impairment could contribute to a workplace disability.

The impairment evaluation, however, is only one aspect of disability determination. A disability determination also includes information about the individual’s skills, education, job history, adaptability, age, and environment requirements and modifications.³ Assessing these factors can provide a more realistic picture of the effects of the impairment on the ability to perform complex work and social activities. If adaptations can be made to the environment, the individual may not be disabled from performing that activity.

Figure 1-1 The Relationship Among the Concepts of Normal Health, Impairment, Functional Limitation, and Activity Disability (Performance Limitation)



As discussed in this chapter and illustrated in Figure 1-1, medical impairments are not related to disability in a linear fashion. An individual with a medical impairment can have no disability for some occupations, yet be very disabled for others. For example, severe degenerative disk disease may impair the functioning of the spine of both a licensed practical nurse and a bank president in a similar fashion when performing their activities of daily living. However, in terms of occupation, the bank president is less likely to be disabled by this impairment than the licensed practical nurse. An individual who develops rheumatoid arthritis may be disabled from work as a tailor but may be able to work as a child care aide. A pilot who develops a visual impairment, correctable with glasses, may be able to perform all of his daily activities but is no longer able to fly a commercial plane. An individual with repeated hernias and repairs may no longer be able to lift more than 20 kg (40 lb) but could work in a factory where mechanical lifts are available.

The *Guides* is not intended to be used for direct estimates of work disability. Impairment percentages derived according to the *Guides* criteria do not measure work disability. Therefore, it is inappropriate to use the *Guides*' criteria or ratings to make direct estimates of work disability.

1.2c Handicap

Handicap is a term historically used in both a legal and a policy context to describe disability or people living with disabilities. Though the term continues to be used, generally it is being replaced with the preferred term *disability*.

1.3 The Organ System and Whole Body Approach to Impairment

The *Guides* impairment ratings reflect the severity and limitations of the organ/body system impairment and resulting **functional limitations**. Most organ/body systems chapters in the *Guides* provide impairment ratings that represent the extent of whole person impairment. In addition to listing whole person impairments, the musculoskeletal chapters provide regional impairment ratings (eg, upper extremity, lower extremity); regional ratings are then converted into whole person impairment ratings. Within some musculoskeletal regions, a consensus group developed weights to reflect the relative importance of certain regions. For example, different fingers or different areas of the spine are given different weights, representing their unique and relative importance to the region's overall functioning. These weights, which have gained acceptance in clinical practice, have been retained to enable regulatory authorities to convert from a regional body to whole person impairment when needed.

1.4 Philosophy and Use of the Combined Values Chart

The **Combined Values Chart** (p. 604) was designed to enable the physician to account for the effects of multiple impairments with a summary value. A standard formula was used to ensure that regardless of the number of impairments, the summary value would not exceed 100% of the whole person. According to the formula listed in the combined values chart, multiple impairments are combined so that the whole person impairment value is equal to or less than the sum of all the individual impairment values.

A scientific formula has not been established to indicate the best way to combine multiple impairments. Given the diversity of impairments and great variability inherent in combining multiple impairments, it is difficult to establish a formula that accounts for all situations. A combination of some impairments could decrease overall functioning more than suggested by just adding the impairment ratings for the separate impairments (eg, blindness and inability to use both hands). When other multiple impairments are combined, a less than additive approach may be more appropriate. States also use different techniques when combining impairments. Many **workers' compensation statutes** contain provisions that combine impairments to produce a summary rating that is more than additive. Other options are to combine (add, subtract, or multiply) multiple impairments based upon the extent to which they affect an individual's ability to perform activities of daily living. The current edition has retained the same combined values chart, since it has become the standard of practice in many jurisdictions. Other approaches, when published in scientific peer-reviewed literature, will be evaluated for future editions.

In general, impairment ratings within the same region are combined before combining the regional impairment rating with that from another region. For example, when there are multiple impairments involving abnormal motion, neurologic loss, and amputation of an extremity part, these impairments first should be combined for a regional extremity impairment. The regional extremity impairment then is combined with an impairment from another region, such as from the respiratory system. Spinal impairments in multiple regions are combined. Exceptions, as detailed in the musculoskeletal chapter, include impairments of the joints of the thumb, which are added, as are the ankle and subtalar joints in the lower extremity: both situations include complex motions.

1.5 Incorporating Science with Clinical Judgment

The *Guides* uses objective and scientifically based data when available and references these sources. When objective data have not been identified, estimates of the degree of impairment are used, based on clinical experience and consensus. Subjective concerns, including fatigue, difficulty in concentrating, and pain, when not accompanied by demonstrable clinical signs or other independent, measurable abnormalities, are generally not given separate impairment ratings. Chronic pain is discussed in Chapter 18. Physicians recognize the local and distant pain that commonly accompanies many disorders. Impairment ratings in the *Guides* already have accounted for commonly associated pain, including that which may be experienced in areas distant to the specific site of pathology. For example, when a cervical spine disorder produces radiating pain down the arm, the arm pain, which is commonly seen, has been accounted for in the cervical spine impairment rating.

The *Guides* does not deny the existence or importance of these subjective complaints to the individual or their functional impact. The *Guides* recommends that the physician ascertain and document subjective concerns. Because the presence and severity of subjective concerns varies among individuals with the same condition, the *Guides* has not yet identified an accepted method within the scientific literature to ascertain how these concerns consistently affect organ or body system functioning. The physician is encouraged to discuss these concerns and symptoms in the impairment evaluation.

Research is limited on the **reproducibility** and **validity** of the *Guides*.¹⁸⁻²⁰ Anecdotal reports indicate that adoption of the *Guides* results in a more standardized impairment assessment process. As relevant research becomes available, subsequent editions of the *Guides* will incorporate these evidence-based studies to improve the *Guides'* reliability and validity.

Given the range, evolution, and discovery of new medical conditions, the *Guides* cannot provide an impairment rating for all impairments. Also, since some medical syndromes are poorly understood and are manifested only by subjective symptoms, impairment ratings are not provided for those conditions. The *Guides* nonetheless provides a framework for evaluating new or complex conditions. Most adult conditions with measurable impairments can be evaluated under the *Guides*. In situations where impairment ratings are not provided, the *Guides* suggests that physicians use clinical judgment, comparing measurable impairment resulting from the unlisted condition to measurable impairment resulting from similar conditions with similar impairment of function in performing activities of daily living.

The physician's judgment, based upon experience, training, skill, thoroughness in clinical evaluation, and ability to apply the *Guides* criteria as intended, will enable an appropriate and reproducible assessment to be made of clinical impairment. Clinical judgment, combining both the "art" and "science" of medicine, constitutes the essence of medical practice.

1.6 Causation, Apportionment Analysis, and Aggravation

1.6a Causation

Physicians may be asked to provide an opinion about the likelihood that a particular factor (injury, illness, or preexisting condition) caused the permanent impairment. Determining causation is important from a legal perspective, as it is a factor in determining liability.

The term **causation** has multiple meanings.

Dorland's Illustrated Medical Dictionary lists 12 different types of "cause" including constitutional, exciting, immediate, local, precipitating, predisposing, primary, proximate, remote, secondary, specific, and ultimate.²¹ For purposes of the *Guides*, causation means an identifiable factor (eg, accident or exposure to hazards of a disease) that results in a medically identifiable condition.

Medical or scientifically based causation requires a detailed analysis of whether the factor could have caused the condition, based upon scientific evidence and, specifically, experienced judgment as to whether the alleged factor in the existing environment did cause the permanent impairment.²² Determining medical causation requires a synthesis of medical judgment with scientific analysis.

The legal standard for causation in civil litigation and in workers' compensation adjudication varies from jurisdiction to jurisdiction.²³ The physician needs to be aware of the different interpretations of causation and state the context in which the physician's opinion is being offered.

1.6b Apportionment Analysis

Apportionment analysis in workers' compensation represents a distribution or allocation of causation among multiple factors that caused or significantly contributed to the injury or disease and resulting impairment. The factor could be a preexisting injury, illness, or impairment. In some instances, the physician may be asked to apportion or distribute a permanent impairment rating between the impact of the current injury and the prior impairment rating. Before determining apportionment, the physician needs to verify that all the following information is true for an individual:

1. There is documentation of a prior factor.
2. The current permanent impairment is greater as a result of the prior factor (ie, prior impairment, prior injury, or illness).
3. There is evidence indicating the prior factor caused or contributed to the impairment, based on a reasonable probability (> 50% likelihood).

The apportionment analysis must consider the nature of the impairment and its possible relationship to each alleged factor, and it must provide an explanation of the medical basis for all conclusions and opinions. Most states have their own customized methods for calculating apportionment. Generally, the most recent permanent impairment rating is calculated, and then the prior impairment rating is calculated and deducted. The remaining impairment rating would be attributed or apportioned to the current injury or condition.

A common verbal formulation in the workers' compensation context might state, "in cases of permanent disability less than total, if the degree of disability resulting from an industrial injury or occupational disease is increased or prolonged because of a pre-existing physical impairment, the employer shall be liable only for the additional disability from the injury or occupational disease."⁵

For example, in apportioning a spine impairment rating in an individual with a history of a spine condition, one should calculate the current spine impairment. Then calculate the impairment from any preexisting spine problem. The preexisting impairment rating is then subtracted from the present impairment rating to account for the effects of the former. This approach requires accurate and comparable data for both impairments.²³

1.6c Aggravation

Aggravation, for the purposes of the *Guides*, refers to a factor(s) (eg, physical, chemical, biological, or medical condition) that alters the course or progression of the medical impairment. For example, an individual develops low back pain and sciatica associated with the finding of an L3-L4 herniated disk. Symptoms continue but are intermittent and do not interfere with performing activities of daily living. A few years later, the individual twists his body while lifting a heavy package and develops constant, severe, acute low back pain and sciatica. Imaging studies show no change in the herniated disk compared to earlier studies. The lifting is considered to have aggravated a preexisting condition.

Terms such as *causation*, *apportionment*, and *aggravation* may all have unique legal definitions in the context of the system in which they are used. The physician is advised to compare these definitions with terminology accepted by the appropriate state or system.

1.7 Use of the Guides

Because of the scope, depth, standardized approach, and foundation in science and medical consensus, the *Guides* is used worldwide to estimate adult permanent impairment. A survey completed in 1999 indicates that in the United States, 40 of 51 jurisdictions (50 states and the District of Columbia) use the *Guides* in workers' compensation cases because of statute or regulations, or by administrative/legal practice.²⁴

The *Guides* is formally accepted through adoptive language in each jurisdiction's statutes (laws passed by a state legislature or the US Congress), court-made law (case law or precedent), or administrative agency regulation (rules promulgated by administrative agencies such as a state workers' compensation board). It is this statutory, judicial, or regulatory adoptive language that determines which edition of the *Guides* is mandated in a particular jurisdiction. Some states, such as Oregon and Florida, have developed their own impairment criteria, modeled on the concepts and material in the *Guides*. The *Guides* is also extensively used by the federal systems, eg, FECA (Federal Employees' Compensation Act). The most recent edition of the *Guides* is recommended as the latest blend of science and medical consensus.

Beyond the United States, the *Guides* is used in Canada, Australia, New Zealand, South Africa, and European countries for different applications, including workers' compensation, personal injury, and disability claim management. There is a growing international trend to adopt a standardized, medically accepted approach to impairment assessment such as in the *Guides*. As previously stated, the *Guides* is not to be used for direct financial awards nor as the sole measure of disability. The *Guides* provides a standard medical assessment for impairment determination and may be used as a component in disability assessment.

1.8 Impairment Evaluations in Workers' Compensation

In the United States, workers' compensation is a no-fault system for providing cash benefits, medical care, and rehabilitation services to individuals with work-related injuries and diseases. All 50 states and the District of Columbia have workers' compensation acts. Most acts share similar features, although no two are exactly alike. An employee normally must experience a "personal injury by accident arising out of and in the course of employment" to be eligible for benefits. All states provide benefits for workers with occupational diseases, but that coverage is restricted in many states. The claimant receives payments to compensate for lost wages due to temporary total, temporary partial, permanent total, and permanent partial disability. Survivors receive death benefits. For each category of benefits, the state prescribes a maximum and minimum weekly benefit. Many states stipulate partial compensation for a partial loss, based upon a proportion of the number of weeks' compensation allowed for total loss of the body part.²⁵ Determining eligibility of benefits and the extent of disability is specified by statute and case law.

Because schedules usually do not cover all conditions arising from injuries, many laws allow or require that, in unlisted cases of permanent disability, the jurisdiction must determine the percentage by which the "whole man" or "industrial use" of the employee's body was impaired. The board, commission, or court also must consider the nature of the injury and the employee's occupation, experience, training, and age and then award proportional compensation. Medical information is essential for the decision process in these cases.

Physicians who perform impairment and/or disability assessments for workers' compensation purposes need to identify the state workers' compensation law that applies to the situation, which is usually the state where the incident occurred. The physician needs to determine which edition of the *Guides* or other state guidelines are required for these assessments. This information can usually be obtained from the state workers' compensation board or the state medical society. If the *Guides* is recommended or *required*, copies may be ordered through the AMA (see copyright page) or other vendors.

Unfortunately, there is no validated formula that assigns accurate weights to determine how a medical condition can be combined with other factors, including education, skill, and the like, to calculate the effect of the medical impairment on future employment. Therefore, each commissioner or hearing official bases a decision on the assessment of the available medical and nonmedical information. The *Guides* may help resolve such a situation, but it cannot provide complete and definitive answers. Each administrative or legal system that bases disability ratings on permanent impairment defines its own process of converting impairment ratings into a disability rating that reflects the degree to which the impairment limits the capacity to meet personal, social, occupational, and other demands, or to meet statutory requirements. The *Guides* is a tool for evaluation of permanent impairment.^{26, 27}

Impairment percentages derived from the *Guides* criteria should not be used as direct estimates of disability. Impairment percentages estimate the extent of the impairment on whole person functioning and account for basic activities of daily living, not including work. The complexity of work activities requires individual analyses. Impairment assessment is a necessary first step for determining disability.

1.9 Employability Determinations

Physicians with the appropriate skills, training, and knowledge may address some of the implications of the medical impairment toward work disability and future employment. The physician may be asked whether an impaired individual can return to work in a particular job. The employer can provide a detailed job analysis, with the actual and anticipated essential requirements of the job and a review of the work environment, including potential hazards and the need for personal protective equipment. The physician can then determine whether the individual's abilities match the job demands. The physician needs to determine that the individual, in performing essential job functions, will not either be endangered or endanger colleagues or the work environment. For example, it would be unsafe for an individual with a new, unstable seizure disorder to operate mechanical equipment. The physician and other responsible persons should keep in mind the potential for impairment aggravation, as well as the possibility of

changing an individual's job responsibilities. After reviewing all the necessary information, the physician may then make an objective and reproducible assessment of the ability of the individual to safely perform the essential functions of the job.

More complicated are the cases in which the physician is requested to make a broad judgment regarding an individual's ability to return to any job in his or her field. A decision of this scope usually requires input from medical and nonmedical experts, such as vocational specialists, and the evaluation of both stable and changing factors, such as the person's education, skills, and motivation, the state of the job market, and local economic considerations.

Physicians who follow the procedures outlined in the *Guides*, who review the same information from medical and employment records, and who examine the same patient with a stable condition should obtain approximately the same findings.

1.10 Railroad and Maritime Workers

State workers' compensation laws are not the only means by which employees are compensated for injuries or illnesses. In 1908, Congress passed the Federal Employer's Liability Act (FELA), which put in place a comprehensive injury compensation system for railroad workers. FELA provides a modified tort system for injured railroad workers, and it supersedes state workers' compensation laws. The Jones Act, passed in 1920, covers compensation for maritime workers injured due to a ship owner's negligence. That law provides for the same rights and remedies that were extended through FELA.

A lawsuit filed under FELA must be based on the railroad's negligence in providing the employee with a safe workplace. An injured employee must prove that the railroad should have foreseen that a condition or activity might cause the injury or disease. The test determines whether the employer's negligence played any part in producing the injury. Recoverable amounts include those for necessary medical expenses, pain and suffering, loss of past earnings, and future losses due to diminished earning capacity. An important condition for recovery is that a physician must diagnose the effects of the injury.

Under FELA, all cases must go before a jury or judge, and there are no limits to the amount awarded. In contrast, the awards under state workers' compensation systems are fixed and limited. Under FELA, the jury decides on the degree of the injured person's disability. The physician is obligated to obtain a reliable history, confirm past employment by obtaining records, and collect all available medical information.

1.11 The Physician's Role Based on the Americans with Disabilities Act (ADA)

Physicians, particularly occupational physicians, are frequently asked questions pertaining to work disability and capacity, in light of increasing attention to compliance with the **Americans with Disabilities Act (ADA)**. The ADA is a civil rights law that President Bush signed in 1990.²⁸ It was intended "to provide a clear and comprehensive national mandate to end discrimination against individuals with disabilities and bring those individuals into the economic and social mainstream of American life."¹⁸ Under the ADA, individuals with disabilities are protected against discrimination in such diverse areas as employment, government service entitlement, and access to public accommodations (eg, health care services, lodging).

The ADA defines *disability* as a physical or mental impairment that substantially limits one or more of the major life activities of an individual; a record of impairment; or being regarded as having an impairment (see Table 1-1). A person needs to meet only one of the three criteria in the definition to gain the ADA's protection against discrimination. The physician's input often is essential for determining the first two criteria and valuable for determining the third.

To be deemed “disabled” for purposes of ADA protection, an individual generally must have a physical or mental impairment that substantially limits one or more major life activities. A “physical or mental impairment” could be any mental, psychological, or physiological disorder or condition, cosmetic disfigurement, or anatomical loss that affects one or more of the following body systems: neurologic, special sense organs, musculoskeletal, respiratory (including speech organs), reproductive, cardiovascular, hematologic and lymphatic, digestive, genitourinary, skin, and endocrine.²⁹

Conditions that are temporary or not considered to be severe (eg, normal pregnancy) are not considered impairments under the ADA. Other nonimpairments include features and conditions such as hair or eye color, left-handedness, old age, sexual orientation, exhibitionism, pedophilia, voyeurism, sexual addiction, kleptomania, pyromania, compulsive gambling, gender identity disorders not resulting from physical impairment, smoking, and current illegal drug use or resulting psychoactive disorders.

On June 23, 1999, in answer to a case seeking refinement of the definition of “who is disabled” under the ADA, the Supreme Court stated that individuals who function normally with aids such as glasses or medication could not generally be considered disabled, despite their physical impairments.³⁰

To have the protection of the ADA, a physical or mental impairment must substantially limit the ability to perform a “major life activity.” Major life activities include “basic activities that the average person in the general population can perform with little or no difficulty,” including caring for oneself, manual tasks, hearing, walking, learning, speaking, breathing, working, and reproduction. Major life activities do not have to occur frequently or be part of daily life.³¹ Note that the major life activities listed here include work, unlike the *Guides*’ impairment criteria.

The person must be presently, or perceived to be (not potentially or hypothetically), substantially limited in order to demonstrate a disability. It is difficult to determine if an impairment “substantially limits” a major life activity. An impairment’s nature, extent, duration, impact, and effect on the individual are all considerations in assessing the “substantiality” of the limitations.³²

For some major life activities, such as work, the physician may provide an opinion on the medical impairment’s limitations. However, as indicated by the recent Supreme Court ruling, how much a limitation of a major life activity results in a determination of disability depends on the interaction between the remaining functional abilities and the possible types of accommodation being sought.³³

The third criterion that may establish protection under the ADA is an erroneous perception that the individual is substantially limited in a major life activity or is being discriminated against on the basis of a real or perceived characteristic that does not substantially limit a major life activity.

It is the physician’s responsibility to determine if the impairment results in functional limitations. The physician is responsible for informing the employer about an individual’s abilities and limitations. It is the employer’s responsibility to identify and determine if reasonable accommodations are possible to enable the individual’s performance of essential job activities.

1.12 Summary

The purpose of this chapter is to discuss the philosophical assumptions and appropriate use of the *Guides*. The physician needs to comply with prescribed local, state, and federal practices for impairment evaluations. Generally, the physician evaluates all available information and provides as comprehensive a medical picture of the patient as possible, addressing the components listed in the Report of Medical Evaluation form discussed in Chapter 2. A complete impairment evaluation provides valuable information beyond an impairment percentage, and it includes a discussion about the person’s abilities and limitations, including the ability to perform common activities as listed in Table 1-2. Combining the medical and nonmedical information, and including detailed information about essential work activities if requested, is a basis for improved understanding of the degree to which the impairment may affect the individual’s work ability.

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