Assessing Work Capacity

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INTRODUCTION

The Insurance Medical Director might participate in work capacity assessments in two major contexts, the business of insurance and the insurer's in-house occupational medicine program.

For the insurer, a primary player in the Disability Benefits Matrix, disability determinations, which largely depend on work capacity assessments, comprise an important and increasingly difficult aspect of many benefits operations. For example, work capacity assessments frequently are necessary not only in Short and Long Term Disability and Individual (non-cancellable) Disability claims and Worker's Compensation claims but also in some Life claims (Waiver of Premium For Disability), Medical Benefits claims, personal injury claims and even requests for premature withdrawal of funds from certain investment vehicles. Where policies allow the insurer an offset against Social Security Administration’s approach to determining disability is also essential. Work capacity assessments also figure prominently not only in disability determinations but in various case management and rehabilitation processes as well as in some settlement work-ups. Even from an underwriting perspective the Medical Director’s input into assessing risk of future disability requires a basic understanding of work capacity parameters.

Although the business of insurance is the primary focus of most Medical Directors, many also manage their company’s occupational health program. Successful management of many vital components of that program — pre-placement evaluations, alternate duty arrangements, injury/illness management, job accommodation efforts, task design, and even preventive programs — depend on a clear definition and understanding of the factors impacting work capacity.

While the major underlying objective of these assessments is to identify existing capacity, the individuals being evaluated may or may not have a known or alleged impairment. By definition, disability claimants have alleged an impairment. In contrast, many applicants undergoing pre-employment screening do not have a known or alleged impairment. Thus their evaluation is geared towards identifying any significant unknown impairments and, whether or not any are identified, to measuring various parameters of work capacity.

Part I of the article discusses the basic requirements of any work capacity evaluation—a solid clinical knowledge and experience base; objectivity, both in terms of lack of bias and the use of quantitative, reliable and valid measurement tools; comprehensiveness; competence; timeliness; and clear, logical reports that squarely address the issues that are within the examiner’s competence and the scope of the evaluation. It also reviews the distinction between impairment and disability, the objectives of work capacity evaluations, and the role of the examiner.

Part II looks at demand/supply concepts of work capacity, and tracks the various clinical scenarios that result in a relative inadequacy of supply. It also reviews different approaches to categorizing demand (work requirements) and supply (functional capacity).

Part III focuses on the actual evaluation of capacity and the process of arriving at an opinion regarding functional capacity, and highlights the difficulties surrounding the evaluation of pain complaints.

Overall, the objective of this article is not to provide a comprehensive review or protocol for this complex subject, but rather to clarify basic concepts and to describe various approaches.

PART I: BASIC REQUIREMENTS FOR ADEQUATE WORK CAPACITY EVALUATIONS

Despite a trend toward standardization and “objectification” in this arena, the fulfillment of certain basic requirements will always be integral to good evaluations.

An Adequate Clinical Knowledge Base

A quality education, training and experience base is essential for quality performance in clinical medicine, and that base is equally necessary in evaluating work capacity. In addition, the evaluator should have in-depth knowledge of the natural history of impairments.

Objectivity

It goes without saying that objectivity is crucial to valid and reliable decision-making whether in the purely clinical or the medical-legal context but let us examine some major aspects of this concept — personal bias, degree of subjectivity in the data base, and validity, reliability and application of “objective” diagnostic methods. First, the evaluator must try to shed any bias which might diminish the value of an evaluation. That bias might be, for example, that the disability claimant “needs the money more than the insurance company,” or that the job applicant would not “fit in” to the corporate environment for non-medical reasons.
Deliberate falsification by the clinician, either overstating or understating the impairment or its impact on capacity, is of course not only unethical but may expose the clinician to liability problems (which may not be covered by a malpractice policy).

A certain degree of subjectivity in the data base is, of course, inevitable in most situations, particularly in the history. Still, much can be done by the examiner to minimize the impact of subjectivity on accuracy, including review of reports from or taken by different sources for consistency and taking extra effort to pinpoint impairment descriptors.

A third bias relates to the willingness to use tests for which there is no reasonable consensus regarding validity in the particular application being considered, or for which standards to assure reliability have not been developed. And, of course, objectivity requires faithful application of acceptable tests to assure a reliable and valid result.

Finally, the method of reporting can also impact objectivity. For example, consider failure to state some important negative findings. The distinction between requests for documentation and requests for opinions is useful in analyzing potential impact of lack of objectivity, although both types of requests require objectivity. Reporting a patient's history, describing the course of treatment, identifying specific physical findings on exam or through objective testing, usually constitute documentation. The exception would be where an opinion is necessary in interpreting a particular finding or test result. In the latter case, lack of objectivity could have a potentially greater impact because the user of this portion of an analysis is often a non-clinician, who might well have the perception that because the text is "objective" the interpretation itself is necessarily objective. Examples of opinion requests include causation, whether maximum medical improvement has occurred and potential for rehabilitation. Objectivity in this context includes restricting one's opinion to what is justified by the limitations of the data base and the examiner's competence. One would hope that as we all gain greater knowledge and experience in assessing functional capacity using objective clinical measurements to the greatest extent feasible, the question of work capacity would involve an increasing amount of documentation and a decreasing amount of opinion, but the opinion of a seasoned examiner working with a good data base will always be important.

Comprehensiveness is another crucial aspect of performing these evaluations, although that doesn't necessarily mean long evaluations. A competent clinician can assess comprehensively an individual's trauma-induced finger deficit, including impact on function, in a very short time.

Competence cannot be assumed, and requires more than an adequate clinical knowledge base. One recent text on occupational medicine strongly recommends that "if a physician is going to undertake impairment disability evaluations (sic), then the expertise and guidance of a fellow physician who is knowledgeable and willing to share his expertise should be sought."

The creation and evolution of various regional and national organizations aimed at developing and disseminating such expertise is a manifestation of the increasing need for special knowledge and competence in this area, even though a sound clinical training and experience are essential underpinnings.

Timeliness in performing the evaluation and in reporting is also crucial. Many inappropriate outcomes result from lack of timely input. Similarly, some otherwise excellent input is often lost to decisionmakers because of poor legibility, failure to include important documentation and other poor reporting habits.

Objectives of Work Capacity Evaluations

While the primary objective is to identify functional capacity relative to certain requirements there are other objectives in many cases. For example, identification of the underlying diagnosis not only provides direction to the nature of treatment required but also helps answer the question of causation (relevant in Worker's Compensation cases and personal injury suits, as well as in formulating restrictions). Identification of the extent and pattern of disease, and an opinion on prognosis for survival or return of function, may also be important. Assessment of the impact of disease on the affected organ or part often allows some inference of functional capacity level relative to that system, just as impact on a measure of whole body function may also be estimated. For example atherosclerosis might have resulted in LAD and RCA occlusions of 80%; impact on the heart might be poor left ventricular function with a drop in ejection fraction with exercise; impact on functional capacity might be manifest by angina at a certain level of effort, and could be defined more clearly by a positive exercise test (e.g., angina and ST changes) at a low level of effort. In turn, based on that result, an evaluator might estimate cardiac capacity to perform certain tasks.

Impairment vs. Disability

Most readers of this journal will be well aware of the important distinction between disability and impairment. Impairment is the loss or reduction of function in a body part or system (a medical concept), while disability is a legal concept with many definitions, only one of which might be relevant in a particular case. However, the vast majority of important disability definitions are work-referenced, and do attempt to tie the disability concept to a threshold work capacity.

Three common examples illustrate this concept: under a typical "own occupation" disability definition, the claimant must be unable to perform the material and substantial duties of his own occupation to be found disabled. Moving toward the stricter end of the spectrum, an "any occupation" definition requires that the claimant be unable to perform any occupation for which he is basically qualified by training, education, and experience. More strict, even, is the Social Security Disability Insurance Program's definition which requires essentially that the claimant be unable to perform any
gainful employment because of an impairment likely to result in death, or last on a continuous basis for at least twelve months. Clearly, then, any definition of disability is program or policy-specific. Moreover, state law may well alter the “working definition” of disability in certain cases. Figure 1 shows a question from a typical attending physician’s statement, requesting the physician’s opinion regarding work capacity relative to both the claimant’s “own occ” and to “any occ.” This reflects the fact that many disability policies provide own occupation coverage for the first two years of disability, but after that the stricter “any occ” definition comes into play. Many authors discussing disability evaluation routinely begin with the caveat that the physician evaluator can measure impairment, but that disability determination is a non-physician function. While in most (but not all) contexts this is technically accurate, many decisionmakers do request and seriously consider the evaluator’s opinion regarding disability. It seems fundamental that to express a valid opinion the evaluator must know, in addition to an individual’s physical or mental capacity, both the working definition of disability and the threshold physical and mental requirements of the relevant occupation(s). When the latter data are not available the evaluator should limit the opinion to work capacity relative to well defined tasks.

Figure 1.
Typical Attending Physician’s Statement (APS)
Question On Work Capacity

![Figure 1. Typical Attending Physician’s Statement (APS)](image)

Similarly, the evaluator must be comfortable with and able to work within a myriad of contexts, ranging from the standard doctor-patient relationship to a whole range of administrative-legal contexts in which the assessment outcome is the primary goal.

PART II: WORK CAPACITY — DEMAND AND SUPPLY

Figure 2.
The Supply/Demand Concept of Work Capacity

![Figure 2. The Supply/Demand Concept of Work Capacity](image)

Figure 2 defines the basic operative equations in assessing work capacity. Simply put, in most cases the individual has adequate work capacity if his or her supply of functional capacity (taking into account any limitations and reasonable restrictions) exceeds the minimum capacity required (demand) given any task accommodations necessary and feasible. Exceptions exist, though. For example, a job may require not only adequate capacity to perform at this point in time but also freedom from evidence of certain underlying diseases. The airline pilot who fails his physical because of evidence of heart disease (even though he can in fact fly a plane) is an example. In other words, not every person who has work capacity for a particular job can be cleared for that job — or, put another way, required minimum work capacity might include a low probability of certain future risks.

The converse, though, may also be true: a person might have work capacity for his or her own occupation but not for a specific job. That “own occ” versus “own job” distinction can be very important, particularly in the context of disability evaluations. For example, an administrative assistant might be severely allergic to chemical fumes invading his work environment. If the fumes arise from a nearby manufacturing plant which has nothing whatsoever to do with his employment, he might well not have work capacity for that specific job at the site, but in all likelihood would have work capacity relative to the occupation, since he could perform the duties of that occupation in other settings. Thus in identifying relevant work requirements the evaluator must know whether the individual’s “own occ” or “own job” is at issue. In many disability insurance contracts, the yardstick is the claimant’s “own occ.”
Figure 3 describes the mirror-image process for working with these equations. Relevant job requirements must be identified and described using reasonably quantitative parameters if possible. Similarly, and alleged impairments require identification and objective, quantitative description to the extent feasible. If limitations and restrictions result in a lower functional capacity that that required, job requirements are assessed for potential accommodation or re-design, and an absolute minimum or threshold required functional capacity is generated. At that point, the basic equations are applied. Every practitioner with experience in this field knows these evaluations are seldom this clear-cut, and often these are major data gaps on both sides of the assessment interface. Still, adherence to the basic approach of knowing the required minimum functional capacity as well as the individual’s actual capacity is essential.

The Triggering Event

The standard scenario, of course, is that an injury or an illness occurs suddenly, causing work capacity of a previously unimpaired worker to fall below the threshold job requirements, which remain stable. In other words, the individual’s supply of capacity drops from “enough” to “not enough” relative to a given work requirement (Figure 4A). However, there are several other important scenarios which trigger evaluations of work capacity.

**Figure 4.** Capacity Supply/Demand Dynamics

![Diagram showing supply and demand dynamics](image)

Supply of Capacity

First, the individual may well have a long-standing impairment which has seriously but not critically reduced available capacity. He then suffers an injury or illness which exacerbates the prior impairment, rendering him incapable of performing a specific job (Figure 4B). In some cases, the current condition might, combined with the prior impairment, produce a greater impact on functional capacity than the sum of the impact expected from each. An example of the latter is the quite dramatic impact a relatively minor injury can have on a patient with Parkinson's Disease. Similarly, the recent injury might directly impact the very part or function the individual relied upon to adapt to the prior impairment. Moreover, many illnesses manifest their impact on capacity as a gradual, not sudden loss (Curve C).

Demand for Capacity

From the demand perspective, a common problem occurs when an individual with a stable impairment who has had adequate functional capacity relative to specific job requirements is confronted with increased job demands (Curve D).

Often, of course, both supply and demand factors are at play in various combinations. Moreover, there are frequently a number of important non-medical and non-vocational factors which impact both sides of the work capacity equation.

Quantifying Demand: Work Requirements

To provide a meaningful opinion on the issue of work capacity relative to a specific task or job the examiner needs to know the relevant work requirements. A typical job description may or may not be sufficient, depending on the type of job. Often, a more detailed, function-oriented job analysis is essential. In many cases, threshold work capacity boils down to the ability to perform one or a small number of specific work requirements. Optimally the evaluator will be able to obtain the crucial information prior to the evaluation.

Once the examiner understands the threshold job requirements, he or she can translate those requirements into “minimum functional capacity” necessary to perform the specific job. Practically, the individual must be able to meet each of the integral physical and mental demands of the job under the stated working conditions to be said to have full work capacity.

There are numerous schemes for categorizing work requirements, but any approach used must consider, where relevant, the physical demands and mental demands which arise not only from the job tasks per se but also from the relevant working conditions. One document in fairly common use is “Physical Demands And Working Conditions,” an appendix to the Dictionary of Occupational Titles12. This outline provides broad categorizations, and while it is of limited utility, it certainly helps provide a focus on work requirements. For example, regarding physical demands, five degrees of four important strength factors (lifting, carrying, pushing and/or pulling) are provided, with “very heavy work” defined as “lifting objects in excess of 100 lbs. with frequent lifting and/or carrying of objects weighing 50 lbs. or more. The other four degrees (heavy work, light work,
etc.) are defined with similar parameters. Certain working conditions (eg., temperature extremes) are also categorized.

Another approach to categorizing work requirements is provided in the final report of the Medical Standards Project. This report includes a "Physical Abilities Analysis Manual" and a "Working Conditions Analysis Manual." To illustrate, physical abilities such as strength, stamina, flexibility, body movement, use of the arm and hands, and other abilities are described. Each ability is broken down into components. For example, body movement involves mobility, speed of limb movement, gross body coordination, and gross body equilibrium. Next, each component is described and the job is assessed on a scale of 1 to 7, 1 being the lowest quantum of capacity that might be required and 7 being the highest. The spectrum of gross body equilibrium, for example, ranges from "keeping or getting back balance when one force which is fairly weak works against body balance" all the way to "keeping or getting back body balance when many forces are working against body balance" with the extenuating factor in the latter case being that "these forces work randomly so that one can't tell when next force will act on him, how long it will last or how strong it will be." The manual gives examples of activities that fall in different parts of the spectrum of this component. Mowing a flat area of grass would be rated 1 or 2 while working on high-rise constructions would be a 6. Similarly, working conditions are described in considerable detail, including not only the "usual" ones (temperature extremes, humidity levels, etc.) but some additional on-point conditions requiring consideration (sudden temperature changes, slippery surfaces, vibration, and many others). Moreover, it also addresses conditions which might impact mental/psychological requirements, such as working in confined spaces (consider the individual with claustrophobia), responsibility for safety of other persons, and irregular work hours.

Yet another approach is a statement of specified physical qualifications required for a particular job, typified by regulations prescribed by the U.S. Department of Transportation regarding physical qualifications of drivers. That particular example incorporates certain capacity requirements (for example, relating to visual acuity) as well as calling for "no history or diagnosis of" various conditions.

Whatever reference or approach is used, it is extremely important for the evaluator to know threshold requirements, not so much to determine the end point of testing, although that might be appropriate in some cases, but to be able to narrow the test focus within legal constraints to the requirements most likely to be the limiting ones for the particular individual being tested.

Quantifying Supply: Measurement of Functional Capacity

If there is a need for better methods of quantifying and standardizing expressions of work requirements, there is an even greater need for objective quantification of functional capacity. Again, various approaches are available, particularly in the impairment evaluation setting. The most well known and important is the AMA Guides to the Evaluation of Permanent Impairment, 2nd Edition. A second, more specific example is the American Thoracic Society's official statement entitled "Evaluation of Impairment/Disability Secondary to Respiratory Disease."

The Social Security Administration publishes a periodically updated "listing of Impairments" as an appendix to regulations governing rules for determining disability and blindness. For the most part, this listing provides very useful and often sophisticated information which many evaluators find helpful in describing the extent of an impairment, whether or not they are working with the Social Security definition of disability.

PART III: EVALUATING THE INDIVIDUAL

The Tools of the Evaluator

Just as in day-to-day medical care, the history, the physical exam, and tests constitute the armamentarium of the clinician evaluating work capacity. Often missing, or course, are time and an opportunity to employ and evaluate the impact of various therapeutic modalities. As discussed earlier, of course, an adequate "demand side" data base is essential.

The history is apt to be more comprehensive and at the same time more targeted than the standard history performed in a routine "H&P". While it may seem trivial in this context, it is integral that the examiner know up front the "chief complaint," if any. What does the individual feel is the limiting impairment and its mechanism or manifestations? History descriptors used in impairment analysis, such as symptoms, timing characteristics, pattern and associations, contribute greatly to a work capacity evaluation, and the effort taken to elicit these descriptors carefully usually correlates with a good evaluation. History may be obtained from various sources other than the subject (who may be a patient, claimant, applicant, etc.) including records from prior evaluating physicians or attending physicians, the employer, attorneys and others. The examiner must test for consistency: are the nature, extent and course of symptoms and signs consistent with the precipitating event, the underlying diagnosis and the treatment rendered?

The physical exam must be thorough relative to the context. The examiner needs to assess for clinical signs which may provide important positive or negative findings in the impairment analysis, including evidence of full cooperation, or lack thereof.

Similarly, the examiner should select tests that are clinically appropriate in the context. Given the enormous range of tests available, examiners must keep themselves up to date on new tests and applications. Also, examiners need to be very familiar with basic statistical concepts, reliability and validity, sensitivity and specificity, and methods for identifying the predictive value of the specific tests being considered for a particular individual. There are some excellent reviews of these concepts for clinicians. Validation studies of certain software packages used in evaluating post-test probability of disease (for example, the CADENZA program relative to coronary artery disease) are also of interest.
Translating Extent of Impairment Into Impact on Functional Capacity

Practically, of course, there is an important step that follows identification of the extent of an impairment: estimation of the impact of that impairment on functional capacity, or put another way, an estimate of residual capacity — what the individual can do.

There are many protocols which attempt to quantify the impact of a given impairment on function. Again, the AMA Guides are useful to some extent in some contexts. The New York Heart Association’s Functional Classification is also widely known. Again, while it is useful in focusing the clinician’s attention on impact on function, it has limitations similar to those of many other schemes. Specifically, “ordinary physical activity,” “heavy physical exertion” etc. are not defined with a high degree of specificity, so that to a point the classification, at least as applied in practice, is inherently subjective.

Tables are available defining the energy costs of various activities in adults, and correlating these costs with different levels of performance (in METs) on different types of treadmill protocols.

The Medical Standards Project, referred to earlier, takes a slightly different, more comprehensive approach. Basically, for each body system, common impairments are identified, and where indicated, classified by extent. For example, under “Heart,” an individual with coronary heart disease, functional class II, who is currently following good health practices and has no other significant impairments might be considered able to perform a job with physical demand not greater than a “4” on stamina, a “5” on explosive strength, etc. A limitation in this particular example may be that it relies on a subjective classification. Moreover, obviously each case is different, and the evaluator might have other clinical data which would alter this “translation.” The point here is the process used rather than the specific standards.

Again, clinical validation of any method used is essential. An example of an effort to assess one impairment classification within the first edition (not the current edition) of the AMA Guides is worth reviewing. Much progress in validation is needed, though, and we should look to those with expertise in clinical evaluation, particularly those with follow-up and analytical capacity, to publish their findings.

Evaluating the impact of pain complaints on functional capacity is particularly difficult. Many tools are available, but most rely on subjective (self-report) methods and indirect indicators relative to pain behavior. A competent evaluator must have a good understanding of the classification of chronic pain, and of its important clinical and epidemiological aspects.

Reasonable restrictions can constitute an important aspect of functional capacity, and accurate quantification is essential. The all-too-common example in the industrial setting occurs when the attending physician, finding his patient has a mild carpal tunnel syndrome attributed to work on a VDT, restricts the patient from the workplace, rather than restricting performance of certain functions which would exacerbate the condition, wherever performed. The latter scenario might allow for alternate duty. The term “restriction and limitations” is often used inappropriately. Figure 5 defines the terms in the clinical context.

Figure 5.
Restrictions and Limitations

Restrictions: WHAT THE PATIENT SHOULD NOT DO

Reflection of physician’s opinion that performing the restricted activities would aggravate condition or delay healing

Limitations: WHAT THE PATIENT CANNOT DO

Reflection of documented loss of function

Figure 6.
Excerpt from a Worker’s Compensation Functional Capacities Evaluation Form

Tags:
functions or working conditions? The value of the evaluators' input is potentially limited for various reasons, not the least of which is that there is considerable lack of definition in the demands presented. For example, to one evaluator, lifting 25 pounds "frequently" might mean lifting a bulky package, with weight distributed unevenly from floor to above shoulder level with a half-turn twice every five minutes. To another, it might mean lifting a 25 pound symmetrical object with well designed handles from waist level to shoulder level without rotation twice every 5 minutes. Obviously, these are very different demands. The more we develop objective methods of quantifying these various functional demands the more valuable (reliable and valid) the evaluators' opinions can become.

CONCLUSION

The next decade will see an explosive growth in the need for objective clinical assessment of work capacity. First, many awards are for conditions which are increasingly difficult to assess. There may well be an increased trend to monitor claimants who have established disability in the past more closely. More disability programs and policies cover more individuals. There is a trend toward greater specification of job requirements. Pre-employment screening is becoming more common. For all these and other reasons, valid, reliable objective work capacity evaluations, as well as diagnostic tests with high predictive value will clearly be in greater demand, as will be those with the knowledge base, experience and competence to perform and interpret them. The recent launching of the American Journal of Clinical Assessment is evidence of the increased focus on work capacity among the many different players in this arena.

Insurance Medical Directors with expertise and knowledge in this area are well situated not only to enhance their company's various benefits and underwriting operations and occupational health programs but also to help shape the evolution of this important process.

References

5. "Medical Risks: Patterns of Mortality and Survival" (1976), Lewis Levison, D. C. Heath & Co., Richard B. Singer, M.D., Editor (Note: The successor to this volume is expected in 1988.)
10. Occupational Medicine, ibid, p. 66.
11. The American Disability Evaluation Research Institute, The American Academy of Disability Evaluating Physicians, etc.