

Physical Rehabilitation

FIFTH EDITION

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S E C T I O N O N E

Introduction to Patient Care: Decision Making, Psychosocial Factors, and Values

LEARNING OBJECTIVES

1. Define clinical reasoning. What factors impact on clinical decision making?
2. Describe the key steps in the patient/client management process.
3. Define the major responsibilities of the physical therapist in planning effective treatments.
4. Identify potential problems that could adversely affect the physical therapist's clinical reasoning.
5. Discuss strategies to ensure patient participation in the plan of care.
6. Discuss the importance of evidence-based practice in developing the plan of care.
7. Identify key elements of physical therapy documentation.
8. Differentiate between expert versus novice therapist clinical decision making.
9. Analyze and interpret patient/client data, formulate realistic goals and outcomes, and develop a plan of care when presented with a clinical case study.

Clinical Decision Making

Susan B. O'Sullivan, PT, EdD

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Clinical Reasoning/Clinical Decision Making

Clinical reasoning is a multidimensional process that involves a wide range of cognitive skills physical therapists use to process information, reach decisions, and determine actions. Reasoning can be viewed as an internal dialogue that one continuously employs while meeting the challenges of daily life; clinical reasoning forms the basis of patient/client management. A number of factors influence the clinical reasoning process. The clinician's goals, values and beliefs, psychosocial skills, knowledge base and expertise, problem-solving strategies, and procedural skills all impact on clinical reasoning. Many of these factors are the focus of discussion in later chapters in this text. Clinical reasoning is also influenced by patient/client characteristics (goals, values and beliefs, physical, psychosocial, educational, and cultural factors) as well as environmental factors (clinical practice environment, overall resources, time, level of financial support, level of social support). Experienced or expert clinicians tend to utilize a *forward reasoning process* in which the clinician is able to recognize cues and patterns as similar to previously identified cases. Decisions

are formulated based on intuition. Hypothesis testing is not typically verbalized. Thus, actions are based on pattern recognition and experiential clinical knowledge. In contrast, a *backwards reasoning process* (also termed hypothetico-deductive process) is likely to be utilized by the novice or inexperienced clinician. This involves identifying cues, proposing a hypothesis, gathering supporting data and evaluating the hypothesis, and determining appropriate actions. Experts may use hypothesis-testing methods when routine problem recognition fails or they are practicing out of their area of expertise.¹

Rothstein and Echternach developed a Hypothesis-Oriented Algorithm for Clinicians (HOAC) in 1986² and revised it in 2003 as the Hypothesis-Oriented Algorithm for Clinicians II (HOAC II).³ An algorithm is a step-by-step guide designed to assist clinicians in decision making. It is based on specific clinical problems and identifies the decision steps and possible choices for remediation of a problem. A series of questions are posed, typically in yes/no format, addressing whether the measurements met testing criteria, the hypotheses generated were viable, goals were met, strategies were appropriate, and tactics were implemented correctly. Hypotheses are defined as the underlying reasons for the patient's problems, representing

the therapist's conjecture as to the cause. Problems are defined in terms of functional limitations. A "no" response to any of the questions posed in an algorithm is an indication for reevaluation of the viability of the hypotheses generated and reconsideration of the decisions made. In using HOAC II as a model for clinical decision making, the therapist also distinguishes between existing problems and anticipated problems, defined as deficits that are likely to occur if an intervention is not used for prevention. The value of an algorithm is that it guides the therapist's decisions and provides an outline of the decisions made. See Chapter 20, Figures 20.8 to 20.10, for examples of problem-centered algorithms.

Clinical decisions are the outcomes of the clinical reasoning process. Physical therapists today practice in complex environments and are called upon to reach increasingly complex decisions under significant practice constraints. For example, the therapist may be required to determine a plan of care for the complicated patient with multiple comorbidities within 72 hours of admission to a rehabilitation facility. Reduced levels of treatment authorization with shorter and shorter stays in rehabilitation also complicate the decision making process. Novice practitioners can easily become overwhelmed. This chapter introduces a framework for patient/client management that can assist in organizing and prioritizing data and in planning effective treatments compatible with the needs and goals of the patient/client and members of the health care team. The disablement model has been widely incorporated into physical therapy practice and into the Guide to Physical Therapist Practice.⁴ It provides an important framework for decision making. Evidence-based practice is another important element of decision making that allows the clinician to utilize research findings to inform and validate decision choices. Later chapters focus on interpreting and integrating the knowledge base with the framework for decision making needed to manage specific clinical problems and disabilities.

Steps in Patient/Client Management

Steps in patient/client management include: (1) examination of the patient; (2) evaluation of the data and identification of problems; (3) determination of the diagnosis; (4) determination of the prognosis and plan of care (POC); (5) implementation of the POC; and (6) reexamination of the patient and evaluation of treatment outcomes (Fig. 1.1).

Step 1. Examination

Examination involves identifying and defining the patient's problem(s) and the resources available to

determine appropriate intervention. It consists of three components: the patient history, a review of relevant systems, and tests and measures. Examination begins with patient referral or initial entry, and continues as an ongoing process throughout the course of rehabilitation. Reexamination allows the therapist to evaluate progress and modify interventions as appropriate.⁴

History

Information about the patient's past history and current health status is obtained from review of the medical record and interviews. The medical record provides detailed reports from members of the health care team; processing these reports requires an understanding of disease and injury, medical terminology, differential diagnosis, laboratory and other diagnostic tests, and medical management. The use of resource material or professional consultation can assist the novice clinician. The types of data that may be generated from a patient history are presented in Figure 1.2.

The interview is an important tool used to obtain information directly from the patient, family, significant others, caregivers, and other interested persons. The therapist asks the patient to provide general information including past and present medical conditions/complications, mechanism of injury, prior diagnostic imaging/testing, medications, and prior surgical and therapy history. The patient is asked to describe his or her current condition/problem(s) and primary complaint (reason for referral to physical therapy). Typically the patient will describe his or her difficulties in terms of functional limitations or disabilities. The patient is then asked a series of questions designed to delineate the nature and history of the current condition/primary complaint. The therapist also needs to determine the patient's age, gender, ethnicity, primary language, cultural background, customs or religious beliefs that might affect care, educational level, social/health habits (e.g., smoking history, alcohol use, exercise likes and dislikes, frequency and intensity of regular activity), and family history. Sample interview questions are included in Box 1.1.

Pertinent information can also be obtained from the patient's family or caregiver. For example, patients with central nervous system deficit and severe cognitive and/or communication deficits or pediatric patients will be unable to accurately communicate their existing problems. The family member/caregiver then assumes the primary role of assisting the therapist in identifying problems and providing relevant aspects of the history.

The therapist should be sensitive to differences in culture and ethnicity that may influence how the patient or family member responds during the interview or examination process. Different beliefs and attitudes toward health care may influence how cooperative the patient will be. During the interview, the therapist should listen carefully to what the patient says. The patient should be observed for

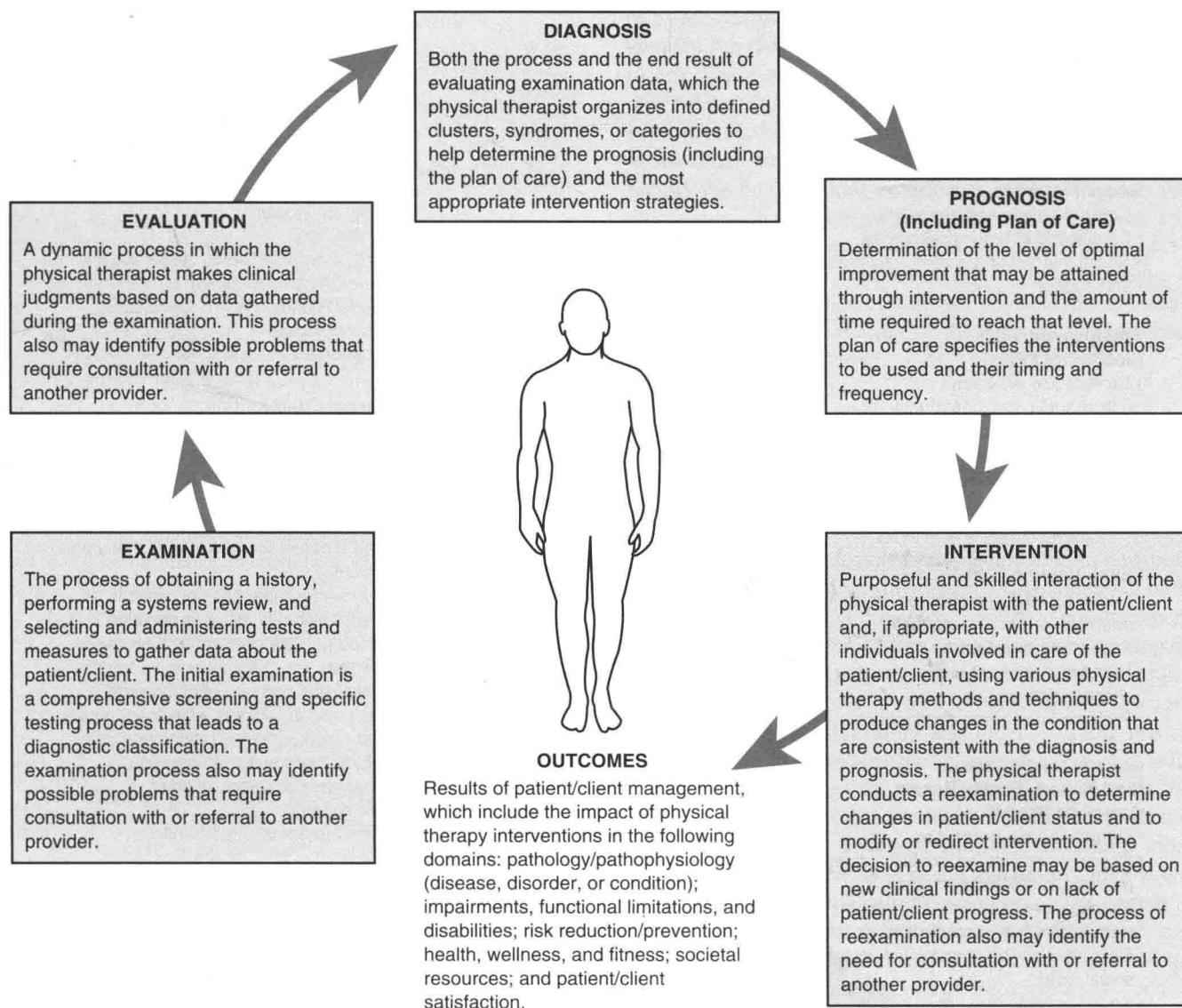


Figure 1.1 Elements of patient management leading to optimal outcomes. (From APTA Guide for Physical Therapist Practice,⁴ p. 35 with permission.)

any physical manifestations that reveal emotional context, such as slumped body posture, grimacing facial expression, poor eye contact, and so forth. Finally, the interview should be used to establish rapport, effective communication, and mutual trust. Patient cooperation serves to make the therapist's observations more valid and becomes crucial to the success of any rehabilitation plan of care.

Systems Review

The use of a brief **screening examination** allows the therapist to quickly scan the body systems and determine areas of intact function and dysfunction: cardiopulmonary, integumentary, musculoskeletal, and neuromuscular. Information is also obtained about communication, affect,

cognition, and learning style. Areas of deficit confirm the need for further detailed examination by a physical therapist or referral to another health professional. Consultation with another physical therapist is appropriate if the needs of the patient/client are outside the scope of the expertise of the therapist assigned to the case. If the deficit is outside the scope of physical therapy, then referral to another health care provider is indicated.

Screening exams are also used for healthy populations. For example, the physical therapist can screen individuals to identify risk factors for disease such as decreased activity levels, stress, and obesity. Screening is also conducted in the case of pediatric clients (e.g., scoliosis screening), geriatric clients (e.g., to identify fall risk factors), athletes

General Demographics

- Age
- Sex
- Race/ethnicity
- Primary language
- Education

Social History

- Cultural beliefs and behaviors
- Family and caregiver resources
- Social interactions, social activities, and support system

**Employment/Work
(Job/School/Play)**

- Current and prior work (job/school/play), community, and leisure actions, tasks, or activities

Growth and Development

- Developmental history
- Hand dominance

Living Environment

- Devices and equipment (eg, assistive, adaptive, orthotic, protective, supportive, prosthetic)
- Living environment and community characteristics
- Projected discharge destinations

**General Health Status
(Self-Report, Family Report, Caregiver Report)**

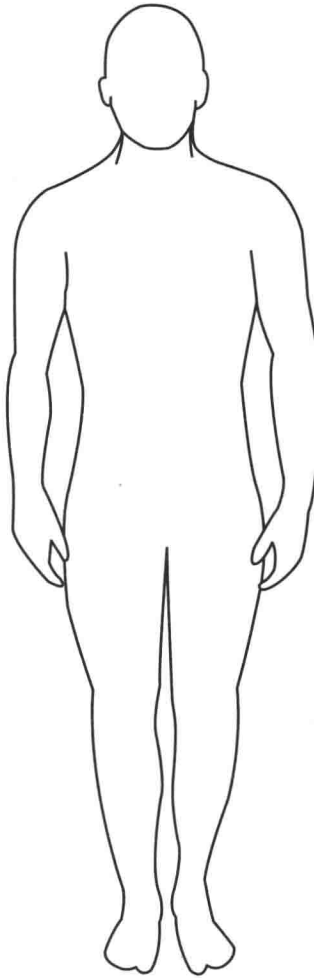
- General health perception
- Physical function (eg, mobility, sleep patterns, restricted bed days)
- Psychological function (eg, memory, reasoning ability, depression, anxiety)
- Role function (eg, community, leisure, social, work)
- Social function (eg, social activity, social interaction, social support)

**Social/health Habits
(Past and Current)**

- General health perception
- Physical function (eg, mobility, sleep patterns, restricted bed days)
- Psychological function (eg, memory, reasoning ability, depression, anxiety)
- Role function (eg, community, leisure, social, work)
- Social function (eg, social activity, social interaction, social support)

Family History

- Familial health risks

**Medical/Surgical History**

- Cardiovascular
- Endocrine/metabolic
- Gastrointestinal
- Genitourinary
- Gynecological
- Integumentary
- Musculoskeletal
- Neuromuscular
- Obstetrical
- Prior hospitalizations, surgeries, and preexisting medical and other health related conditions
- Psychological
- Pulmonary

Current Condition(s)/**Chief Complaint(s)**

- Concerns that led the patient/client to seek the services of a physical therapist
- Concerns or needs of patient/client who requires the services of a physical therapist
- Current therapeutic interventions
- Mechanisms of injury or disease, including date of onset and course of events
- Onset and patterns of symptoms
- Patient/client, family, significant other, and caregiver expectations and goals for the therapeutic intervention
- Previous occurrence of chief complaint(s)
- Prior therapeutic interventions

Functional Status and Activity Level

- Current and prior functional status in self-care and home management, including activities of daily living (ADL) and instrumental activities of daily living (IADL)
- Current and prior functional status in work (job/school/play), community, and leisure actions, tasks, or activities

Medications

- Medications for current condition
- Medications previously taken for current condition
- Medications for other conditions

Other Clinical Tests

- Laboratory and diagnostic tests
- Review of available records (eg, medical, education, surgical)
- Review of other clinical findings (eg, nutrition and hydration)

Figure 1.2 Types of data that may be generated from patient history. (From APTA Guide for Physical Therapist Practice,⁴ p 36 with permission.)

Box 1.1 Sample Interview Questions

- I. Interview questions designed to identify the nature and history of the current problem(s):
 - What problems bring you to therapy?
 - When did the problem(s) begin?
 - What happened to precipitate the problem(s)?
 - How long has the problem(s) existed?
 - How are you taking care of the problem(s)?
 - What makes the problem(s) better?
 - What makes the problem(s) worse?
 - What are your goals and expectations for physical therapy?
 - Are you seeing anyone else for the problem(s)?
- II. Interview questions designed to identify desired outcomes in terms of essential functional activities include:
 - What activities do you normally do at home/work/school?
 - What activities are you unable to do?
 - What activities are done differently and how are they different (i.e., extra time, extra effort, different strategy)?
 - What activities do you need help to perform that you would rather do yourself?
 - What leisure activities are important to you?
 - How can I help you be more independent?
- III. Interview questions designed to identify environmental conditions in which patient activities typically occur include:
 - Describe your home/school/work environment.
 - How do you move around/access areas in the home (i.e., bathroom, bedroom, entering and exiting the home)? How safe do you feel?
 - How do you move around/access areas in the community (i.e., workplace, school, grocery store, shopping center, community center, stairs, curbs, ramps)? How safe do you feel?
- IV. Interview questions designed to identify available social supports include:
 - Who lives with you?
 - Who assists in your care (i.e., Basic Activities of Daily Living [BADLs], Instrumental Activities of Daily Living [IADLs])?
 - Who helps you with the activities you want to do (i.e., walking, stairs, transfers)?
 - Are there activities you have difficulty with that would benefit from additional assistance?
- V. Interview questions designed to identify the patient's knowledge of potential disablement risk factors include:
 - What problems might be anticipated in the future?
 - What can you do to eliminate or reduce the likelihood of that happening?

Sources: Section I: from the Documentation Template for Physical Therapist Patient/Client Management in the *Guide to Physical Therapist Practice*⁴, pp 707–712; Section II–IV adapted from Randall.⁵, p 1200

(e.g., pre-performance exams), and working adults (e.g., to identify the risk of musculoskeletal injuries in the workplace). These screens can involve any of the above steps: observation, chart review, oral history, and/or a brief examination. Additional screening exams may be mandated by institutional settings. For example, in a long-term care facility the therapist may be asked to review the chart for indications of changes in functional status or need for physical therapy, based on a review of the discharge notes from the prior acute care setting. The therapist makes a determination of the need for further physical therapy services based on an evaluation of the information obtained from the screening exam.⁶

Tests and Measures

More definitive tests and measures are used to provide objective data to accurately determine the degree of specific function and dysfunction (e.g., manual muscle test [MMT], range-of-motion [ROM] test, oxygen consumption, and so forth). Adequate training and skill in performing specific tests and measures are crucial in ensuring both validity and reliability of the tests. Failure to correctly perform an examination procedure can lead to the gathering of inaccurate data and the formation of an inappropriate plan of care. Later chapters focus on specific tests and measures and discuss issues of validity and reliability. The use of disability-specific standardized instruments (e.g., for individuals with stroke, the Fugl-Meyer Assessment of Physical Performance) can facilitate the examination process but may not always be appropriate for each individual patient. The therapist needs to carefully review the unique problems of the patient to determine the appropriateness and sensitivity of an instrument. Therapists should resist the tendency to gather excessive and extraneous data in the mistaken belief that more information is better. Unnecessary data will only confuse the picture, rendering clinical decision making more difficult and unnecessarily raising the cost of care. If problems arise that are not initially identified in the history or systems review, or if the data obtained are inconsistent, additional tests or measures may be indicated. Consultation with an experienced therapist can provide an important means to clarify inconsistencies and determine the appropriateness of specific tests and measures. Box 1.2 presents the categories for tests and measures identified in the *Guide to Physical Therapist Practice*.⁴

Step 2. Evaluation

Data gathered from the initial examination must then be analyzed and organized. Physical therapists must consider a number of factors when evaluating data, including the level of impairments, the degree of functional loss and disability, the patient's overall health and activity level, availability of social support systems, living environment, and potential discharge destination. Multisystem involvement,

Box 1.2 Categories for Tests and Measures

Aerobic Capacity/Endurance
 Anthropometric Characteristics
 Arousal, Attention, and Cognition
 Assistive and Adaptive Devices
 Circulation (Arterial, Venous, Lymphatic)
 Cranial and Peripheral Nerve Integrity
 Environmental, Home, and Work (Job/School/Play) Barriers
 Ergonomics and Body Mechanics
 Gait, Locomotion, and Balance
 Integumentary Integrity
 Joint Integrity and Mobility
 Motor Function (Motor Control and Motor Learning)
 Muscle Performance (Including Strength, Power, and Endurance)
 Neuromotor Development and Sensory Integration
 Orthotic, Protective, and Supportive Devices
 Pain
 Posture
 Prosthetic Requirements
 Range of Motion (Including Muscle Length)
 Reflex Integrity
 Self-Care and Home Management (Including Activities of Daily Living and Instrumental Activities of Daily Living)
 Sensory Integrity
 Ventilation and Respiration/Gas Exchange
 Work (Job/School/Play), Community, and Leisure
 Integration or Reintegration (Including Instrumental Activities of Daily Living)

Adapted from APTA Guide for Physical Therapist Practice.⁴

severe impairment and functional loss, extended time of involvement (chronicity), comorbid conditions, and medical stability of the patient are important parameters that increase the difficulty and shape the decision making process.⁴

Disablement Terminology

Nagi used the terms pathology/pathophysiology, impairment, functional limitation, and disability to describe health status.⁷⁻⁹ These terms can be used to categorize clinical observations systematically. **Disease** is “a pathological condition of the body or abnormal entity with a characteristic group of signs and symptoms that affect the body.”^{4, p 686} Etiology can be known or unknown. **Signs** are directly observable or measurable evidence of physical abnormality while **symptoms** are the more subjective reactions to the physical abnormality. **Impairments** (*direct*) are the result of pathology or disease states and include any loss or abnormality of physiologic, anatomic, or psychologic structure or function.⁴ For a patient with stroke, examples of impairments that are the direct result of pathology might include sensory loss, paresis, dyspraxia, and hemianopsia. Impairments may or may not be permanent. **Secondary impairments** (*indirect*) are the sequelae or complications

that originate from other systems.⁴ They can result from preexisting impairments or the expanding multisystem dysfunction that occurs with prolonged inactivity, lack of adherence to suggested strategies/interventions, an ineffective plan of care, or lack of rehabilitation intervention. Examples of indirect impairments include decreased vital capacity, disuse atrophy and weakness, contractures, decubitus ulcers, deep venous thrombosis, renal calculi, urinary tract infections, pneumonia, and depression.

Functional limitation is defined as “the restriction of the ability to perform, at the level of the whole person, a physical action, task, or activity, in an efficient, typically expected, or competent manner.”^{4, p 687} Common functional limitations that might affect a person with stroke include limitations in the performance of locomotor tasks (gait), other basic mobility tasks (transfers), **basic activities of daily living** (BADLs: dressing, feeding, bathing), or **instrumental activities of daily living** (IADLs: housecleaning, preparing meals, shopping, telephoning, managing finances, and so forth). Thus functional limitations occur as a result of the inability to perform actions, tasks, and activities that constitute the “usual activities” for a given individual.

The term **disability** refers to societal rather than individual functioning. It is defined as an “inability to perform or a limitation in the performance of actions, tasks, and activities usually expected in specific social roles that are customary for the individual or expected for the person’s status or role in a specific sociocultural context and physical environment. Categories of required roles included are self-care, home management, work (job/school/play), and community/leisure.”^{4, p 686} Thus the individual is unable to assume societal roles such as working, parenting, going to school, attending church or other group activities, or participating in leisure activities (sports, recreation, trips, and so forth).

The American Physical Therapy Association (APTA), in the *Guide to Physical Therapist Practice*,⁴ as well as other professional bodies (National Advisory Board on Medical Rehabilitation Research⁸), have adopted Nagi’s terminology framework. The World Health Organization has published a revised classification of its terminology, the International Classification of Impairments, Disabilities, and Handicaps (ICIDH-2).⁹ Box 1.3 presents a guide to Disablement Terminology and is a compilation of these two sources. Clinical examples and applications of this terminology for decision making of patients with orthopedic and neurological dysfunction are evident in the physical therapy literature.¹⁰⁻¹⁴

Data obtained from functional examinations allow the therapist to determine functional limitations and disabilities. The level of performance is typically rated from complete independence to modified dependence to complete dependence. Figure 1.3 presents the Functional Independence Measure (FIM) levels of function and scoring rubric.¹⁵ This instrument is used in the majority of rehabilitation

Box 1.3 Disablement Terminology

Activity: the nature and extent of functioning at the level of the person. Activities may be limited in nature, duration, and quality.⁹

Context: includes the features, aspects, attributes of, or objects, structures, human-made organization, service provision, and agencies in, the physical, social, and attitudinal environment in which people live and conduct their lives.⁹

Disability: inability to perform or a limitation in the performance of actions, tasks, and activities usually expected in specific social roles that are customary for the individual or expected for the person's status or role in a specific sociocultural context and physical environment. Categories of required roles are self-care, home management, work (job/school/play), and community/leisure.⁴

Disablement: an interaction/complex relationship between the health condition and the contextual factors (i.e., environmental and personal factors).⁹

Disease: a pathological condition of the body or abnormal entity with a characteristic group of signs and symptoms affecting the body and with known or unknown etiology.⁴

Function: those activities identified by an individual as essential to support physical, social, and psychological well-being and to create a personal sense of meaningful living.⁴

Functional limitation: the restriction of the ability to perform, at the level of the whole person, a physical action, task, or activity, in an efficient, typically expected, or competent manner.⁴

Health: state of complete physical, mental, and social well-being, and not merely the absence of disease and infirmity.

Health-related quality of life (HRQOL): the total effect of individual and environmental factors on function and health status; includes three major dimensions: physical function (BADLs, IADLs), psychological function, and social function.

Illness: forms of personal behavior that emerge as the reality of having a disease is internalized and experienced by an individual.

Impairment (direct): any loss or abnormality of anatomical, physiological, or psychological structure or function; the natural consequence of pathology or disease.⁴

Quality of life: the sense of total well-being that encompasses both the physical and psychosocial aspects of the patient's life.

Participation: the extent of a person's involvement in life situations in relation to impairments, activities, health condition, and contextual factors. Participation may be restricted in nature, duration and quality.⁹

Secondary impairment (indirect): sequelae or complications that originate from other systems, the result of preexisting impairments or expanding multisystem dysfunction.

Signs: directly observable or measurable changes in an individual's organs or systems as a result of pathology or disease.⁴

Symptoms: subjective evidence of physical abnormality the reactions to the changes experienced by an individual as a result of pathology or disease.⁴

Some terms from: (1) Guide to Physical Therapist Practice;⁴ and (2) the International Classification of Impairments, Disabilities, and Handicaps (ICIDH-2).⁹

	ADMISSION*	DISCHARGE*	GOAL
SELF-CARE			
A. Eating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Grooming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Bathing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Dressing – Upper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Dressing – Lower	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Toileting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SPHINCTER CONTROL			
G. Bladder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Bowel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TRANSFERS			
I. Bed, Chair, Wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J. Toilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K. Tub, Shower	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LOCOMOTION			
L. Walk/Wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M. Stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COMMUNICATION			
N. Comprehension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O. Expression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SOCIAL COGNITION			
P. Social Interaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q. Problem Solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R. Memory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Leave no blanks. Enter 1 if not testable due to risk.

FIM LEVELS

No Helper

7 Complete Independence (Timely, Safety)

6 Modified Independence (Device)

Helper – Modified Dependence

5 Supervision (Subject = 100%)

4 Minimal Assistance (Subject = 75% or more)

3 Moderate Assistance (Subject = 50% or more)

Helper – Complete Dependence

2 Maximal Assistance (Subject = 25% or more)

1 Total Assistance or not testable (Subject less than 25%)

Figure 1.3 UDSmrSM FIMSM instrument. (Reprinted with permission of the Uniform Data System for Medical Rehabilitation, a division of U B Foundation Activities, Inc. [UDSmrSM]. Copyright 1996. Guide for the Uniform Data Set for Medical Rehabilitation [including the FIMSM instrument], Version 5.0. Buffalo, NY: State University of New York at Buffalo, 1996.)

facilities in the United States and is discussed more fully in Chapter 11.

Jette¹⁴ suggests disablement risk factors and buffers should be evaluated. He defines **disablement risk factors** as behaviors, attributes, or environmental influences that increase the chances of developing impairments, functional limitations, or disability when an individual demonstrates an active pathology. For example, an individual may demonstrate predisposing characteristics (negative affect, psychosocial instability), demographics (limited financial/health resources, limited education), social and lifestyle factors (inadequate family support, disengaged life-style), or restrictive environment (numerous architectural barriers). **Buffers**, on the other hand, are defined as the actions or interventions on the part of the individual to resist the development of impairments, functional limitations, or disability. For example, an individual may adopt behaviors (positive attitudes, prayer, meditation) or helping strategies (use of adaptive equipment, peer support groups). Sometimes the strategies adopted are ineffective, leading to increased disablement (e.g., increased alcohol use).

Impairments, functional limitations, and disabilities must be analyzed to identify causal relationships. For example, shoulder pain in the patient with hemiplegia may be due to several factors, including hypotonicity and immobility, which are direct impairments, or soft tissue damage/trauma, which is an indirect impairment. Determining which of these factors is the primary cause of the problem is a difficult yet critical step in determining appropriate treatment interventions and resolving the patient's pain. An impairment may not be a major contributor to a patient's functional limitations and disability. Thus a plan of care that focuses on remediating the impairment is not likely to achieve successful clinical outcomes. Rather, the major focus of treatment should be on producing meaningful changes at the personal/social level by reducing functional limitations and disability. Achieving independence in ambulation or daily activities, return to work, or participation in recreational activities is far more important to the patient in terms of improving **quality of life (QOL)**.¹⁶ QOL can be defined as the sense of total well-being that encompasses both physical and psychosocial aspects of the patient's life. Finally, not all impairments can be remediated by physical therapy. Some impairments are permanent and progressive, the direct result of unrelenting pathology such as amyotrophic lateral sclerosis (ALS). Therapists need to recognize the scope of physical therapy intervention. In this example, a primary emphasis on reducing the number and severity of indirect impairments and functional limitations is far more appropriate.

The generation of an **asset list** is also an important part of the clinical decision making process. The therapist analyzes the data and determines patient strengths, abilities, and buffers. These areas can be reinforced and emphasized

during therapy, providing the patient with the opportunity for positive reinforcement and success. For example, the patient with stroke may at the same time have intact communication skills, cognitive skills, and good function of the uninvolved extremities. Assets can also include supportive and knowledgeable family members/caregivers, and an appropriate living environment. Improved motivation and compliance are the natural outcomes of reinforcement of patient assets.

Step 3. Diagnosis

A *medical diagnosis* refers to the identification of a disease, disorder, or condition (pathology/pathophysiology) by evaluating the presenting signs, symptoms, history, laboratory test results, and procedures. It is identified primarily at the cellular level. Physical therapists use the term **diagnosis** to "identify the impact of a condition on function at the level of the system (especially the movement system) and at the level of the whole person."^{4, p 45} Thus the term takes on a different meaning and is used to clarify the body of knowledge in physical therapy and the role of physical therapists in health care. For example:

Medical diagnosis: cerebrovascular accident (CVA)

Physical therapy diagnosis: impaired motor function and sensory integrity associated with nonregressive disorders of the central nervous system—acquired in adolescence or adulthood^{4, p 365}

Medical diagnosis: spinal cord injury (SCI)

Physical therapy diagnosis: impaired motor function, peripheral nerve integrity, and sensory integrity associated with nonregressive disorders of the spinal cord^{4, p 437}

The use of diagnostic categories specific to physical therapy facilitates successful reimbursement when linked to functional outcomes and enhances direct access of physical therapy services.¹⁶⁻²¹

The diagnostic process includes integrating and evaluating the data obtained during the examination to describe the patient/client condition in terms that will guide the prognosis, the plan of care, and intervention strategies. The *Guide to Physical Therapist Practice* organizes diagnostic categories by **Preferred Practice Patterns**.⁴ There are four main categories of conditions: Musculoskeletal, Neuromuscular, Cardiovascular/Pulmonary, and Integumentary with preferred practice patterns identified in each (Appendix A). The patterns are described fully according to the five elements of patient/client management. Each pattern also includes reexamination to evaluate progress, global outcomes, and criteria for termination of physical therapy services. Inclusion and exclusion criteria for the practice pattern and criteria for multiple-pattern classification are also presented. The patterns represent the collaborative effort of experienced physical therapists who detailed the broad categories of problems commonly seen by physical therapists within the scope of

their knowledge, experience, and expertise. Expert consensus was thus used to develop and define the preferred practice patterns. The primary focus of preferred practice patterns is at the level of impairments and functional limitations. This is a far more appropriate level for clinical decision making by physical therapists than the medical diagnosis. Therapists unable to determine an identifiable practice pattern when referring to the *Guide to Physical Therapist Practice*⁴ will need to plan interventions based on the specific deficits identified.

Therapists also need to identify the ICD-9-CM codes related to the preferred practice pattern, also listed in the *Guide to Physical Therapist Practice*.⁴ The coding is from the World Health Organization's International Classification of Diseases. These codes are needed for billing purposes for some payers, including Medicare.

Step 4. Prognosis and Plan of Care

The term **prognosis** refers to "the predicted optimal level of improvement in function and amount of time needed to reach that level."^{4, p 46} An accurate prognosis may be determined at the onset of treatment for some patients. For other, more complicated patients with extensive disability and multisystem involvement such as the patient with severe traumatic brain injury, a prognosis or prediction of level of improvement can be determined only at various increments during the course of rehabilitation. Knowledge of recovery patterns (stage of disorder) is sometimes useful to guide decision making. The amount of time needed to reach optimal recovery is an important determination, one that is required by Medicare and other insurance providers. Predicting optimal levels of recovery and time frames can be a challenging process for the inexperienced therapist. Use of experienced, expert staff as resources and mentors can facilitate this step in the decision making process. For each preferred practice pattern, the *Guide to Physical Therapist Practice*⁴ includes a broad range of expected number of visits per episode of care.

The **plan of care (POC)** outlines anticipated patient management. The therapist must integrate data obtained from the patient history and examination to determine the diagnosis, prognosis, and appropriate interventions. This process requires skills in both interpretation and integration of data, as well as clinical reasoning. Essential components of the POC include (1) goals and outcomes; (2) specific interventions to be used; (3) duration and frequency of the interventions; and (4) criteria for discharge.

Anticipated Goals and Expected Outcomes

An important first step in the development of the POC is the determination of **anticipated goals** and **expected outcomes**. Goal and outcome statements address predicted changes in impairments, functional limitations, and disabilities. They can also address predicted changes in

overall health, risk reduction and prevention, wellness and fitness, and optimization of patient/client satisfaction. All delineate the intended results of patient/client management. The difference is in terms of time frame. Outcomes define the patient's expected level at the conclusion of the episode of care or rehabilitation stay while goals define the interim steps that are necessary to achieve expected outcomes.⁴

Goal and outcome statements should be objective, measurable, and time limited. There are four essential elements:

1. **Individual:** Who will perform the specific behavior or aspect of care? Goals and outcomes are focused on the *patient* (individuals who receive direct care physical therapy services), or the *client* (individuals who benefit from consultation and advice, or services focused on promoting, health, wellness, and fitness). Goals can also be focused on family members or caregivers, for example, the parent of a child with a developmental disability.
2. **Behavior/Activity:** What is the specific behavior or activity the person will demonstrate? Goals and outcomes include changes in impairments (e.g., ROM, strength, balance) and changes in functional limitations or disability (e.g., transfers, ambulation, activities of daily living [ADLs]).
3. **Condition:** What are the conditions under which the patient's behavior is measured? The goal or outcome statement specifies the specific conditions or measures required for successful achievement, for example, distance achieved, required time to perform the activity, the specific number of successful attempts out of a specific number of trials. Statements focused on functional changes should include a description of the conditions required for acceptable performance (e.g., amount of supervision, verbal cues, assistance, use of assistive devices). The functional levels of performance used in the Functional Independence Measure (FIM) are defined in Figure 1.3. The type of environment required for a successful outcome of the behavior should also be specified: clinic/ home (e.g., one flight of eight stairs, carpeted surfaces), and community (e.g., uneven grassy surfaces, curbs, ramps).
4. **Time:** How long will it take to achieve the stated goal or outcome? Goals can be expressed as **short-term** (generally considered to be 2 to 3 weeks) and **long-term** (longer than 3 weeks). Outcomes describe the expected level of functional performance attained at the end of the episode of care or rehabilitation stay. In instances of severe disability and incomplete recovery, for example, the patient with traumatic brain injury, the therapist and team members may have difficulty determining the expected outcomes at the beginning of rehabilitation. Long-term goals can be used that focus on the expectations for a specific stage of recovery (e.g., minimally conscious states, confusional states). Goals