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Introduction to Principles of Rehabilitation

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What is unique or different about rehabilitation versus traditional medicine? Many "traditional physicians" practice many of the principles of rehabilitation medicine without a consciousness that differentiates the two approaches. For example, pediatricians and family medicine physicians often adopt a rehabilitation/functional ability mind set when dealing with complex and chronic diseases. If asked, they reply they are merely dealing with their patients as people who are struggling against the disease in a world that sets up roadblocks for disabled or chronically ill patients.

The physician who specializes in rehabilitation combines the medical management of a disease with the management of the effects of the disease on the life of a person. Most traditional physicians have been trained extensively in the medical (disease) model—diagnosing and treating the disease entity. The rehabilitation physician has been trained in the rehabilitation (functional) model—diagnosing and treating disability and handicaps. The physician involved in long term health care for chronically disabled people is comfortable in his or her role in both the medical model and the rehabilitation model.

Impairment versus Disability versus Handicap

What is the difference between an impairment, a disability and a handicap (see Table 1)? An impairment is defined by the World Health Organization as any loss or abnormality of psychological, physical, or anatomical structure or function (1). Impairments reflect the patient's symptoms and physical signs, such as weakness, spasticity, incoordination, dysphagia, dysphasia, dysarthria, numbness, pain, and problems with bladder and bowel, vision, cognition, and sexual function.

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Disability results from impairment and involves restrictions on the ability to perform and to participate in the daily living activities required for personal independence. Examples of disability include problems with mobility, hygiene, dressing, eating, toileting, and communication, as well as home management and transportation.

A handicap is a disadvantage (due to impairment or disability) that limits or prevents the fulfillment of a role that is normal for a given individual, such as marriage, vocation, recreation, creativity, sexuality, community relations, friendships, and parenting.

Treatment interventions can be developed for the disease, the impairments, the disabilities, and the handicaps. For successful rehabilitation, it is important to identify and differentiate every level of a disease and its effect that faces a patient.

The Rehabilitation Model versus the Medical Model

Rehabilitation management necessitates a different mind-set than traditional medical management. Both physicians and patients are comfortable in their roles within the acute medical model of "life or death" situations: a strategically placed burr hole in the skull after head injury, chemotherapy for cancer, antibiotics for bacterial pneumonia. In the medical model, the orientation is to the acute disease, a specific organ, and to the physician. The physician assumes an authoritative/paternal position directing efforts to diagnose and treat a malfunctioning organ system. The patient is directed to play a passive role; "take

Table 1. *Definitions.*

Impairment	Signs and symptoms of the disease or condition
Disability	Effects of the disease or condition on daily activities.
Handicap	Effects of the disease condition on relationships and one's environment.

Table 2. *Comparison of the medical and rehabilitation models of health care.*

	Medical Model	Rehabilitation Model/Functional Model
Problem orientation	Disease, impairment	Disability, Handicap
Physician's role	Doer, knower	Teacher, facilitator, coordinator
Patient's role	Passive	Active
Care orientation	Staff oriented	Patient oriented
Organization	Fragmented, no formal team	Team approach
Therapeutic approach	Treatment of disease	Management of disabilities
Objectives	Cure, reverse impairment	Enhance functional performance, decrease disabilities and handicap, cope, heal

this medicine three times every day." The physician may use a variety of health care personnel as advisors, but there is no formal team. Although this medical model may be appropriate for acute illnesses, it contrasts markedly from a model appropriate to deal with the chronic and complex problems of the neurologically disabled. For example, the health care professional's interests may be focused on the spasticity or pain associated with a spinal cord injury, while the patient's concerns are often primarily in the functional areas such as sexuality, driving, cleaning house, shopping, loss of self-esteem, and the impact of his problem on work, family, and loss of socioeconomic stability.

The rehabilitation model has several distinct differences from the acute medical model (Table 2). In the rehabilitation model, the orientation is not toward the disease per se, but more toward the person with the disability and handicap which the disease or injury has produced. The patient develops an active role in learning to maximize his or her own residual capacities, and minimize impairments and disabilities. The physician plays a double role, acting on the disease where possible from a medical model, but also assuming the role of a teacher and facilitator and coordinator through the rehabilitation team. To successfully address the far-reaching effects of chronic illness on life-style, family and society, a team of health care professionals, working together, is required. The team attempts to not only cure the disease, but also identify disability and handicap, enhance functional performance, modify social and vocational environments, prevent unnecessary complications, and help the person and his or her family cope, i.e., heal the patient versus heal the disease.

The Rehabilitation Team

Fortunately, the physician is not alone in the efforts to accomplish the goals of rehabilitation. A team provides the expertise of several professionals coordinating their efforts in a working group (Table 3). Team members communicate freely with one another to maximize realistic goals and objectives for the patient while minimizing conflicts. Just as the interrelationship and interaction between problems (and resources) are more powerful than any single problem or resource, so it is that the interrelationship and interaction between team members are the most powerful treatment intervention of rehabilitation.

Teams may differ depending on the individual programs but many include the following health care professionals: physician, nurse, physical therapist,

Table 3. *Team member contributions.*

Physician	Occupational Therapist
Medical care	Upper extremity strength/range
Symptomatic treatment	Upper extremity tone
Team leader	Upper extremity coordination
Nurse	Sensory/perceptual compensation
Self-care skills	Activities of daily living (ADL)
Formal education	Fatigue management
Skill practice	Adaptive equipment
Counsel and support	Home management
Bowel and bladder programs	Home evaluation/modifications
Self-medication	Prevocational evaluation
Nutrition	Driving evaluation
Skin care	Wheelchair evaluation
Sexuality	Psychologist
Physical Therapist	Affective/personality changes
Strength, range of motion	Cognitive impairments
Tone	Psychological problems
Balance	Psychiatric medication/treatment effects
Coordination	Team counseling
Ambulation/mobility	Family support
Bed mobility/transfers	Speech/Language Pathologist
Posture	Dysphagia
Sensory compensation	Dysarthria/voice disorders
Breathing exercises	Communication pragmatics
Adaptive equipment	Cognitive impairments
General conditioning	Social Worker
Fatigue management	Resource identification
	Family support
	Disposition planning

Table 4. *Elements of the team approach.*

Evaluate: baseline, treatment response
Identify: problems, resources, capabilities
Set goals
Prioritize
Treat:
Modify impairments, disabilities
Problem solve: adapt, compensate
Educate
Motivate
Follow-through: discharge, next step planning

occupational therapist, speech/language pathologist, psychologist, and social worker. In certain situations, other professionals may be part of the team

In addition to these team members, consultants provide additional areas of expertise. These include consulting physicians, dietitians, aides and attendants, recreational therapists, vocational counselors, legal advisors, driving instructors, and the patient and family. In some teams, these consultants are team members, including patients and families.

Traditionally, the team leader is the physician. In addition, the physician defines the overall medical care, provides symptomatic medical treatment, and alerts the team members to other health care problems. His or her first responsibilities are to ensure the diagnosis is correct, manage medications, and contribute medical knowledge on the underlying pathophysiology which may impact the direction of treatment.

After the diagnosis is confirmed and the nature of the disease activity is identified, the health care team focuses on evaluating and treating the impairments, disabilities, and handicaps associated with the long-term course of the illness.

Team Approach to Rehabilitation

The rehabilitation team follows five steps to ensure the long-term accomplishment of rehabilitation goals (Table 4). Each team member actively participates in the team on the process of updating goals and treatment plans as the patient's course unfolds.

The baseline evaluation includes information on: 1) physical status, 2) psychological status, 3) medical history, including past response to treatments, 4) recent or pre-illness functional status, 5) rate of change in progressive or recurrent disease, 6) assistance currently required by the patient, 7) family dynamics, 8) vocational and avocational perspective and goals 9) family and community resources available to the patient, 10) physical environment at the home, work, and in the community.

Table 5. *Team problem list.*

General medical problems
Other medical conditions/treatments having a bearing on rehabilitation
Previous reaction (physical, psychological) to treatments
Complications secondary to chronic neurologic disabilities (contractures, decubitus, deconditioning, etc.)
Neurologic impairments
Weakness
Spasticity
Incoordination/tremor/impaired balance
Sensory impairment/pain
Visual impairment
Fatigue
Memory/cognitive impairment
Dysarthria
Dysphagia
Bowel/bladder/sexual management
Disabilities
Activities of daily living/community skills
Mobility
Communication
Psychological adjustment/motivation
Handicaps
Home management
Family roles
Vocation
Avocation
Finances/community resources
Accessibility to home and other environments

One aim of the evaluation is to identify specific problems. These problems are categorized into four major areas: 1) general medical problems, 2) neurologic impairments, 3) functional disabilities of the patient, and 4) handicaps facing the patient and the team (see Table 5).

After individual problems have been identified, it is important to identify residual capacities and resources, and identify the interrelationships between various problems and resources. Once the problems have been identified, the next step is establishment of goals. Goal setting is a combination of the recommendations of the professionals on the team combined with the patient's interests, values, and life-style. Goals and treatment strategies must then be prioritized to develop a plan of treatment. Priorities are based on importance to the patient and family, degree of health risk to the patient, likelihood of treatment response, and initial steps needed to reach larger overall goals.

The treatment plan is designed to help the patient achieve optimal functional capacity. The team works to maximize function through practical management of the medical problems and disabilities, and through education, communication, and motivation. Treatment interventions include medication, exercise, physical modalities, func-

tional retraining, adaptive equipment, and environmental modification.

Education and communication is not strictly reserved for the patient. Family and significant others must also be familiar with the disease, the purpose of rehabilitation, the resultant disability, and potential functional improvement. Helping the patient and family learn to communicate meaningfully with health care professionals and each other is an important step in the treatment process to increase the patient's self-esteem and feeling of control.

The patient is encouraged to focus on "What I can do now" and not, "What I can do when I get better." Many neurologic diseases have no cures at the present time. The team must constantly emphasize that although scientists are working on the cure for his or her particular problem, the patient must deal with life's challenges today. The approach to help motivate the patient differs widely depending on the patient's feelings, ideas about the disease, perception of the rehabilitation process, problem-solving abilities, and interests and values. For example, some patients respond to encouragement while others respond to being challenged or pushed. Motivation is also important for the significant others who serve as the patient's support system outside the health care facility. Motivation is enhanced through accomplishing short-term goals and building confidence through positive feedback, progress toward long-term goals and psychological support to integrate new values into life priorities.

Follow-up or continuity of care is important in the rehabilitation process. Chronic disabilities present lifelong challenges. In addition, the patient's condition may worsen. The health care team must also be responsive to the changing needs as the patient steps into the community to test newly learned skills. The team remains as one support system while emphasizing self-help and development of other community resources. Specific recommendations to the patient for follow-up include: home programs, continued therapies, and return medical check-ups.

The ultimate goal of the health care team is to improve the quality of life for the patient. Quality of life is not necessarily related to disease state or the functional status of the patient, but is more often related to how the patient perceives his or her ability to manage the illness and to retain or regain valued skills, relationships, and opportunities.

Team Leadership

Leadership of a team is a challenging and rewarding position. The team leader need not be a physician; however, traditionally the physician is the team leader. Team leader responsibility includes 1) facilitating communication and formulating goals, 2) supporting the patient's values and goals, 3) facilitating the coordination of treatment plans, 4) supportively representing team recommendations to the patient and family, 5) evaluating the team process, 6) mediating intrateam conflicts, 7) facilitating intrateam support, and 8) protecting team members from unrealistic expectations and pressures from both within the team and from the patient and family.

Intrapersonal skills for a physician considering a rehabilitation career are paramount. To have a successful program, the physician must be able to relinquish some of the traditional physician authority to other team members "to acknowledge and appropriately defer to other team members opinions" (2, Chapter 1, p. 5). Also patients need to be "perceived as co-managers of their rehabilitation and must accept more and more responsibility throughout rehabilitation process " (2, Chapter 1, p. 3). The patient who participates in the decision making and the treatment program is much more likely to "own" such a program which leads to more active participation and to a more positive outlook.

Cost versus Benefits

While the cost of these programs may seem initially high, the benefits of successful rehabilitation treatment include getting patients back to work, maintaining an intact family situation, increasing the patient's ability to participate in a healthy lifestyle, diminishing the "emotional roller coaster," decreasing attendant and institutionalized care and preventing complications. The short term investment becomes well worth the long term benefits.

Integrated Health Care System

Developing an integrated health care team means establishing a program where health care professionals work together in various settings (acute, outpatient, home care, rehabilitation) with minimal intra-team conflict. The system must integrate the various program settings so that each setting has a positive effect on the other's treatment. The various teams and health care professionals do not act independently, but take into account the past treatment, response, and recommendations and the future treatment resources that will be available to the patient, in formulating current goals and interventions.

Using MS as an example, the ultimate goal of rehabilitation is to have the patient feel and accept that he or she has multiple sclerosis, but that the multiple sclerosis is only one aspect of life. A patient's remarks best sums up the concept. "I know I have MS, but thinking about it does not occupy a large part of my energy. I have an increased understanding of what is important in life."

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