

The International Classification of Functioning, Disability, and Health: Therapeutic Recreation Code Sets and Salient Diagnostic Core Sets

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In 2001 the World Health Organization published their latest model for classifying health, human function, and disability. The International Classification of Functioning, Disability, and Health (ICF) is now gaining global acceptance and use in many sectors of government, health-care settings, social services, and health-related disciplines and organizations. In order to fully participate in the globalization of an increasing ICF-based health-related framework, the profession of therapeutic recreation needs to be aware and active in utilizing important concepts of the ICF within practice, research, and higher education. This article has two primary objectives. First, to identify and describe components of the ICF germane to therapeutic recreation/recreation therapy and functional outcomes. Second, to identify published literature

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that links the ICF to disease and population-specific diagnoses that therapeutic recreation specialists may find useful.

KEYWORDS: *World Health Organization, ICF, therapeutic recreation, recreation therapy, code set, core set*

The *International Classification of Functioning, Disability, and Health* (ICF) is the second and latest attempt by the World Health Organization (WHO) to provide a conceptualization of health and disability (WHO, 2001). The WHO's first conceptualization was published in 1980 and was called the *International Classification of Impairments, Disabilities, and Handicaps* or ICIDH (WHO, 1980). The current WHO *Family of International Classifications* includes the ICF and the often-used *International Statistical Classification of Diseases and Related Health Problems* (ICD-10). The ICF is unique because it is a classification of health and health-related domains that lists and describes body functions and structures, activities and participation and is experiencing acceptance and utilization throughout the world.

A commonly used term, *globalization* refers to the development of a new global consciousness that is based on changing conceptions of reality (Harris & Seid, 2004; Robertson, 1992). The WHO attempts to create that reality and infuse a new global consciousness as illustrated in the four primary aims of the ICF. These are: a) to provide a scientific basis for understanding and studying health and health outcomes, b) to establish a common language for describing health in order to improve communication at all levels of health and society, c) to permit comparison of data across countries, health care disciplines, and health-related services, and d) to provide a systemic coding scheme for health information systems. In addition to these aims, the WHO proposes five ways in which the ICF may be applied in the future. These are as a) statistical tool for collecting and recording data, b) research tool to measure outcomes and quality of life or environmental factors, c) clinical tool

during assessment or to assist matching treatments with a person health condition, d) social policy tool when designing, as examples, social security or compensation systems, and e) educational tool for design of curriculum or to raise awareness or undertake social action for the betterment of society and its individuals (WHO, 2001).

Because an individual's health, level of functioning, and/or disability status occurs within the context of his or her whole life and the environment in which he or she lives, the ICF identifies environmental factors that potentially impact the person. This perspective fits with the philosophy of therapeutic recreation services which tend to address the whole person and often utilizes a holistic approach. Complementary to this, the ICF is intended to aid efforts to maximize health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). In the United States and Canada, the North America Collaborating Center on ICF has held meetings for more than a decade to discuss and educate practitioners, scholars, and policy makers on the use of WHO classifications. Therapeutic recreation (TR) professionals have attended and participated in these proceedings for the past four years (Greenberg, 2006; Howard, 2006; McCormick, Lee, & Jacobson, 2004).

The purpose of this article is to provide the reader with an understanding of the components of the ICF believed to be most germane to therapeutic recreation (TR) professionals. This will be accomplished by: a) identifying aspects of the ICF which are thought by the authors to be the most salient to TR and b) identifying published literature that ties the ICF to disease-specific and population-specific diagnoses or conditions, and certain treatment

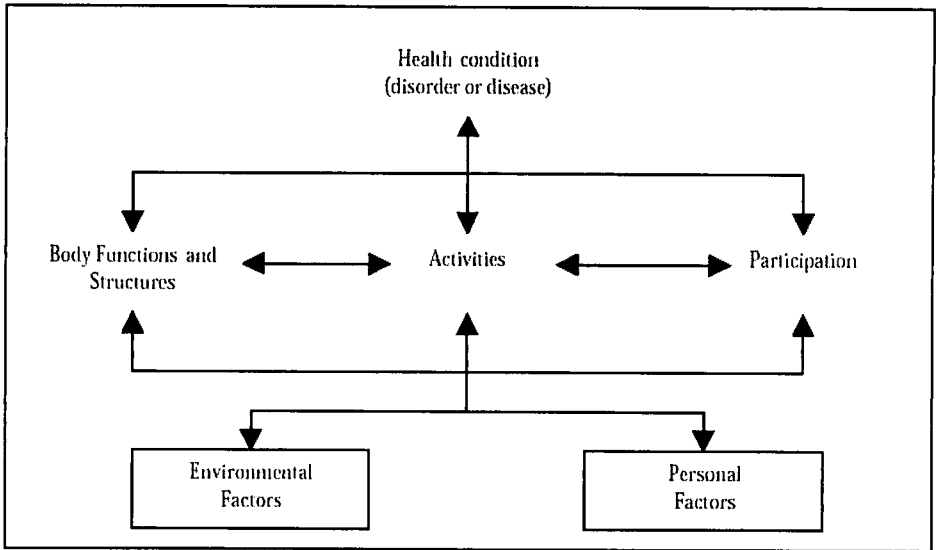


Figure 1. *International Classification of Functioning, Disability and Health*. From World Health Organization (2001). *International Classification of Functioning, Disability, and Health*. Geneva, Switzerland: World Health Organization, p. 18.

settings. The information contained herein will help TR practitioners, researchers, policy-makers and educators to link this globally-accepted classification system to day-to-day practice. This will occur, in part, by adopting the common language of the ICF when working along side other health professionals when addressing the broad needs of people with disabilities. Note: For maximum benefit, it is recommended that the reader have a basic understanding of the ICF in order to better utilize the information in this article. A basic understanding may be obtained by reading the article by Porter and Van Puymbroeck ([In press]) in this issue of the *Therapeutic Recreation Journal*, or by accessing the *Beginner's Guide* found at the WHO's ICF website (<http://www3.who.int/icf/icftemplate.cfm>).

ICF Codes and the TR Profession

Conceptually, the ICF is a multi-component model attempting to depict the holistic and interactive nature of an individual and his

or her health. As seen in Figure 1, the primary components of the ICF are: a) body functions and structures, b) activities and participation, and c) contextual factors found either within the person and/or within his or her environment.

Because TR professionals work in so many varied community and clinically-based settings, the health-related problems of clients are diverse. According to the National Council for Therapeutic Recreation Certification (2005), 35% of TR practitioners work in settings serving people with psychiatric diagnoses, while 30% work with older adults in places such as nursing homes or skilled living facilities. Eighteen percent of TRS work in physical rehabilitation settings, 14% with clients who have developmental disorders, and 3% in "other" settings. By age groupings, 38% of TR practitioners work with older adults, 37% with adults, 12% with adolescents, 5% with pediatric populations, and 8% "other" where the TR respondent indicated working with clients in more than one age group.

Because of this diversity in practice settings, the needs and problems of clients who may potentially interact with a therapeutic recreation specialist (TRS) also vary greatly. The TRS who works in health care settings provides interventions that are decidedly treatment focused, oriented to improving functional outcomes (referred to by many as *recreation therapy*). However, TR has both the opportunity and responsibility to be aware of social conditions and to be active in preventing illness, injury and disease. We also work within community and cultural environments to ensure that post-treatment lives are lived independently and satisfactorily, with minimized impact of the initial disability or potential secondary conditions. As the focus of our discipline is on quality of life, and the holistic nature of recreation, leisure, sport, and free-time activity and its central role in quality of life, the TRS often addresses physical, intellectual, emotional, social, cultural, sexual, and spiritual facets. Regardless of a TR professional's setting or scope of practice, the ICF has relevance and adds meaning and definition for practice, research, and education.

The codes presented in this article as salient to TR are not, however, meant to be an all-inclusive list of codes for TR, nor are they endorsed by any one professional TR organization. They are presented to aid the reader's awareness of the scope of the ICF while generating discussion and further efforts to enhance the standing of TR as a profession with a place and purpose in today's world of health care and health promotion efforts. In creating this manuscript, it is the intent of the authors to present information objectively and with examples that illustrate balance of practice philosophies and recognition of the wide continuum of services a TRS may provide.

The three areas of the ICF most salient to TR are body functions, activities and participation, and environmental factors. We will discuss each area to help the reader understand its relevance to TR practice, beginning with how codes are constructed. Codes in the ICF begin with a letter representing

different domains. Body functions begin with a "b," body structures with an "s." Activity and participation codes always start with a "d" and environmental codes begin with an "e." Personal factors, given the number and complexity of personal factors in people's lives, are not presently coded. In each case, the code and its meaning can be identified based on its connection with the behaviors, skills, or attributes believed to be an integral part of human life. Coding becomes more specific as numbers are added to indicate levels of greater specificity. For example, *b2* is considered a first-level item and refers to "body function, second chapter," which is "sensory functions and pain." *b210* is a second-level item and is the code for, "seeing functions." *b2102* extends the specificity to the third-level and now refers to "quality of vision." The fourth-level item, and most specific code is *b21021*, "color vision." Tying this example of a code to TR, using code *b21021*, consider a TRS working with a person who has a visual impairment. Through the use of table or board games, sports where participants wear colored uniforms or certain art projects, a TRS can evaluate an individual's vision and his or her ability to differentiate or match colors [see WHO, 2001, p. 62-3]. From this assessment a TRS can advise activity modification tools and offer assistance in coping with changes to one's style of participation in order to maintain life satisfaction.

Body Structures and Functions

Body structures and functions within the ICF framework are identified in eight sections, called chapters. See Table 1 for a list of these chapters. Within each of these chapters and their codes, the term *impairment* is used when there is a significant deviation, loss, or problem in a body function or structure (WHO, 2001). Within the ICF coding scheme, *qualifiers* allow a practitioner to indicate the level or severity of impairment from 0 (no impairment) to 4 (complete impairment). As indi-

Table 1.
ICF: Body Functions and Structures Chapters

Chapter	Body Functions	Body Structures
1	Mental functions	Structures of the nervous system
2	Sensory functions and pain	The eye, ear, and related structures
3	Voice and speech functions	Structures involved in voice and speech
4	Functions of the cardiovascular, hematological, immunological, and respiratory systems	Structures of the cardiovascular, immunological, and respiratory systems
5	Functions of the digestive, metabolic, and endocrine systems	Structures related to the digestive, metabolic, and endocrine systems
6	Functions of the genitourinary and reproductive systems	Structures related to the genitourinary and reproductive systems
7	Neuromusculoskeletal and movement-related functions	Structures related to movement
8	Functions of the skin and related structures	Skin and related structures

cated above in the example of vision, classification of codes (and corresponding therapeutic recreation interventions) can be specific to the third or fourth level. Identification of codes within this article, in most cases, does not exceed the second-level of classification.

Body functions and corresponding body structures are central to people's quality of life. Other disciplines' scope of practice may more directly focus their attention on body function (e.g. medicine, physical therapy, speech therapy). The TRS should be aware of and realize the potential impact of TR services on specific body functions of clients, in addition to realizing the interaction between body functions and important life events, including recreation and leisure functioning. Therefore, an awareness of body function codes and how they are classified is important to the TR professional (see Table 1). For each of the eight body function chapters of the ICF, a general statement of its relationship to TR practice is provided,

along with some specific examples. Given the lengthy list of relevant ICF codes to TR practice, space does not allow for example of each and every code. It is hoped, however, that future manuscripts will further breakdown TR practice relative to specific components of the ICF and provide theoretical and important empirical research findings. Bulleted lists are provided for chapters with a large number of relevant codes, but for chapters where only a few codes are deemed relevant to TR, these are included within paragraph style.

Body Functions: Chapter 1— Mental Functions

Therapeutic recreation professionals should be keenly aware and are often focused on assessing and improving the mental functioning of clients. Mental functions of clients have a central role in how the TRS assesses and works with clients' strengths and weaknesses.

Mental functions codes salient to TR are:

- **Consciousness** (b110)—State of awareness and alertness.
- **Orientation** (b114)—Knowing and ascertaining one's relation to self, to others, time, and surroundings.
- **Intellectual** (b117)—Understanding and constructive integration of all cognitive functions and their development over the life span.
- **Global psychosocial** (b122)—Integration of mental functions that lead to the formation of interpersonal skills needed for reciprocal social interactions.
- **Temperament and personality** (b126)—Mental functions integral to constitutional disposition of the individual as they react to situations and form characteristics that makes the individual distinct from others.
- **Energy and drive** (b130)—Mental functions of physiological and psychological mechanisms that cause the individual to move toward satisfying specific needs or general goals in a persistent manner.
- **Attention** (b140)—Focusing on an external stimuli or internal experience for a required period of time.
- **Memory** (b144)—Registering, storing, and retrieving information.
- **Psychomotor functions** (b147)—Control over both motor and psychological events at the body level.
- **Emotional functions** (b152)—Feeling and affective components of the processes of the mind.
- **Perceptual functions** (b156)—Recognizing and interpreting sensory stimuli.
- **Thought functions** (b160)—Mental functions related to the ideational component of the mind.
- **Higher-level cognitive functions** (b164)—Complex goal-directed behaviors such

as decision-making, abstract thinking, and planning.

- **Mental functions of language** (b167)—Recognition and use of signs, symbols, and other components of language.
- **Calculation** (b172)—Being able to determine, approximate, and manipulate mathematical symbols and processes.
- **Mental function of sequencing complex movements** (b176)—Sequencing and coordinating complex, purposeful movements.
- **Experience of self and time** (b180)—Awareness of one's identity, one's body, one's position in the reality of one's environment and of time (b1801 *body image* corresponds to mental functions related to the representation and awareness of one's body).

As the majority of TR professionals work in settings where mental health and intellectual functioning is a central focus, outcomes of TR indeed encompass many, if not all, of the ICF codes listed above. Generally-speaking, TR interventions may include sensory stimulation to augment orientation and engagement, as well as treatment activities that enhance cognition, memory, and the realization and appreciation of one's body and identity as an individual. In particular settings, other examples include a TRS in a nursing home setting assessing an older person's level of consciousness and awareness of his or her surrounding, a TRS in a pediatric psychiatric facility providing interventions to help youth become aware of their temperament and the affect of their personality on others, and/or a TRS in a rehabilitation setting assisting a person who recently had a stroke to relearn language skills or regain the ability to coordinate complex physical movements.

Body Functions: Chapter 2— Sensory Functions and Pain

Sensory functions and the perception of pain impact the quality of life of clients and

affect the nature and scope of TR services that are delivered. Participation in sports or games, communication with others during leisure activity, teaching a client meditation or guided imagery techniques to cope with pain related to cancer, helping a client fully appreciate the sights, sounds, and smells of a trip to a local park are all examples of the relevance of this chapter and its codes to TR practice.

Sensory functions and pain codes salient to TR are:

- **Seeing** (b210)—Sensing the presence of light and the form, size, shape, and color of visual stimuli.
- **Hearing** (b230)—Sensing the presence of sounds and discriminating the location, pitch, loudness, and quality of sounds.
- **Vestibular** (b235)—Functions of the inner ear related to position, balance, and movement.
- **Taste** (b250)—Sensing qualities of bitterness, sweetness, sourness, and saltiness.
- **Smell** (b255)—Sensing odors and smells.
- **Proprioceptive** (b260)—Sensing the relative position of body parts.
- **Touch** (b265)—Sensing surfaces and their texture or quality.
- **Sensory functions related to temperature** (b270)—Sensing temperature, vibration, pressure, and noxious stimulus.
- **Sensation of pain** (b280)—Sensation of unpleasant feelings indicating potential or actual damage to some body structure.

Body Functions: Chapter 3—Voice and Speech Functions

Vocal communication, since it is an inherent part of interpersonal interactions for most people, is directly related to the quality of experiences people have as they carry out work, family, and free-time activities. Voice and speech functions are obviously relevant to

recreation, leisure, and sport participation. Impairments experienced in this area are of concern to the TRS and require him or her to assist the client accordingly. Codes from this chapter likely relevant to TR include:

- **Voice functions** (b310)—producing various sounds by the passage of air through the larynx.
- **Articulation** (b320)—producing speech sounds.
- **Fluency and rhythm of speech** (b330)—producing flow and tempo of speech
- **Alternative vocalization** (b340)—producing other manners of vocalization).

Body Functions: Chapter 4— Functions of the Cardiovascular System

Components of this chapter are applicable to TR inasmuch as cardiovascular health impacts participation in recreation, leisure, sport as part of life. The TRS may assist the client or other health care staff in monitoring heart rate (b4100), in addition to concern about the maintenance of blood pressure (b4202), the immune system (b435), respiration rate (b4400), exercise tolerance (b455), general physical endurance (b4550), aerobic capacity (b4551), and fatigability (b4552). The treatment-oriented TRS may initiate interventions to increase aerobic capacity and maintain a healthy blood pressure, while reducing fatigability. A TRS in a community-based health promotion setting, say perhaps working to address the country's problem with obesity, may stress improvements in exercise tolerance and physical endurance. The body functions of this chapter are certainly significant for a TRS working with people with AIDS whose immune system is compromised, or people whose lives are impacted by chronic obstructive pulmonary disorder (COPD).

Body Functions: Chapter 5— Functions related to the Digestive System

Components of this chapter are applicable to TR inasmuch as the health and function of the digestive system is relevant to activities that include shopping for food, cooking, eating at home, eating out at restaurants, ethnic festivals, or sports arenas; along with nutritional aspects of diet that impact daily life and participation in recreation, leisure, and sports. Many TRS working in a variety of settings conduct, for example, cooking groups, or conduct community integration outings wherein an awareness of these components is necessary.

Digestive system functions codes salient to TR are:

- **Ingestion** (b510)—Taking in and manipulating solids or liquids through the mouth into the body.
- **Digestion** (b515)—Transporting foods through the gastrointestinal tract, breakdown of food, and absorption of nutrients.
- **Assimilation** (b520)—Functions by which nutrients are converted into components of the living body.
- **Defecation** (b525)—functions of elimination of waste and undigested food as feces.
- **Weight management** (b530)—Maintaining appropriate body weight, including weight gain during the developmental period.
- **General metabolic functions** (b540)—Regulation of essential components of the body such as carbohydrates, proteins and fats, the conversion of one to the other, and their breakdown into energy.
- **Maintenance of water balance** (b54501)—Functions in maintaining optimal amount of water in the body.
- **Maintenance of body temperature** (b5501) - Maintaining optimal body tem-

perature as environmental temperature changes.

Body Functions: Chapter 6— Genitourinary and Reproductive Functions

This chapter is applicable to TR inasmuch as genitourinary and reproductive function impacts the quality of life of clients, in addition to potentially impacting leisure or free time activity. As a normal human function, the process of eliminating bodily waste is relevant to all health care settings and professional care givers. Likewise, sex is a basic human function and concerns relative to sexuality, intimate relationships, and psychosocial and sexual issues of people with disabilities are relevant to many populations the TRS works with. Sex is typically a voluntary, free-time activity and many participate in sexual expression for its attributes of recreation and relationship enhancement. Also, because the TRS may be approached by the client or the treatment team to ameliorate sexuality or intimacy problems related to disability, the recreation therapist should have competence and confidence to intervene appropriately. Codes within this ICF chapter salient to TR include: monitoring urination (b620) and sexual functions (b640)—specifically sexual arousal phase (b6400), sexual preparatory phase (b6401), orgasmic phase (b6402), and sexual resolution (b6403); menstruation (b650); and procreation (b660). As further examples, a TRS working with older adult populations is likely to encounter men who have been diagnosed with prostate cancer. The treatment for prostate cancer often results in incontinence and erectile dysfunction. Each of these conditions, along with possible threats to masculinity, fatigue, embarrassment, anxiety, and/or depression may impact many leisure and activities (e.g. travel, sports, exercise), including sexual relationships (Howard, 2004). Also, the recreation therapist working in physical rehabilitation may encounter client issues related to quality of life, social leisure, and community

reintegration resulting from traumatic brain injury (Ponsford, 2003) or spinal cord injuries (Datillo, Caldwell, Lee, & Kleiber, 1998; Elliot, 2006; Lee & McCormick, 2006). Social leisure may be considered an important part of meeting people and forming relationships, some of which develop into ones including intimacy and sexuality (Howard & Young, 2002). Dealing with individuals with traumatic brain injury or spinal cord injury often includes coping with potential sexual dysfunction or frustration (Howard & Nelson, 2005).

Body Functions: Chapter 7— Neuromusculoskeletal and Movement-Related Functions

The ability of clients to move their body within the context of accessing and participating in recreation and leisure activities is of great importance to the TR practitioner. Often, collaboration with other disciplines (such as physical therapy) may occur when the TRS introduces interventions that relate to structures and functions identified within this chapter. Provision of recreation therapy in a rehabilitation unit may focus on motor improvement to allow for independent task performance or to increase muscle power, tone, and endurance, as well as improving joint mobility and fine and gross motor coordination (Andrews, Gerhart, & Hosack, 2004; Sell & Murrey, 2006).

Neuromusculoskeletal and movement-related functions codes salient to TR are:

- **Mobility of joint** (b710)—Range and ease of movement of a joint.
- **Stability of joint** (b715)—Maintenance of structural integrity of the joints.
- **Mobility of bone** (b720)—Range and ease of movement of the scapula, pelvis, carpal, and tarsal bones.
- **Muscle power** (b730)—Functions related to the force generated by the contraction of a muscle or muscle groups.
- **Muscle tone** (735)—Functions related to tension present in the resting muscles

and the resistance offered when trying to move the muscles passively.

- **Muscle endurance** (b740)—Sustaining muscle contraction for the required period of time.
- **Motor reflex** (b750)—Involuntary contraction of muscles automatically induced by specific stimuli.
- **Involuntary movement reaction** (b755)—Involuntary contractions of large muscles or the whole body induced by body position, balance, and threatening stimuli.
- **Control of voluntary movement** (b760)—Control over and coordination of voluntary movements.
- **Involuntary movement** (b765)—Unintentional, non- or semi-purposive involuntary contractions of a muscle or group of muscles.
- **Gait pattern** (b770)—Movement patterns associated with walking, running, or other whole body movements.
- **Sensations related to muscles and movement** (b780)—Sensations related with the muscles or muscle groups of the body and their movement.

Body Functions: Chapter 8— Functions of the Skin and related Structures

Components of this chapter are applicable to TR inasmuch as the health of skin and related structures does relate to the function and enjoyment of individuals during recreation, leisure, and play. The TRS should be involved in education and preventative measures to ensure good health of the skin during activities, especially those that occur outside in direct sunlight. In this instance, teaching clients to use sunscreen when outside is important. Other examples are medication education and sun-sensitivity, the use of gloves or other protective measure, and proper hygiene after exercise or participation in recreational or

hobbies where the skin was exposed to dirt, paint, chemicals, or other potentially harmful substances.

The reader should note that *Body Structures* are listed in the ICF separately from body functions and are identified with their own codes, beginning with an "s." Referring to the example used earlier about *seeing functions*, relevant body structure codes include the structure of the eye socket (s210) and the structure of the eyeball (s220), inclusive of the cornea (s2201), iris (s2202), retina (s2203), lens of eyeball (s2204), and vitreous body (s2205). Body structures are applicable to therapeutic recreation inasmuch as body structures are implicitly part of body functions which allow participation in major life areas such as employment, education, civic involvement, as well as recreation, leisure, sports, play, games, and other free-time activity.

Activities and Participation

A major feature of the ICF, perhaps of greatest importance to TR professionals, are the activity and participation (A&P) sections of the ICF. The ICF describes *activity* as being able to execute and complete tasks (e.g., reading, thinking, walking, dressing, solving problems, interpersonal interactions, making decisions). *Participation* is defined as involvement in a life situation (e.g., going shopping, time spent on a hobby, dating, completing work tasks, volunteerism, remunerative employment, attending a sporting event). Difficulties experienced while trying to perform tasks are called *activity limitations*. *Participation restrictions* include any and all situations that interfere with participating in life events (WHO, 2001). In the ICF, A&P comprise nine chapters which are identified in Table 2.

The ICF coding scheme for A&P, similar to body functions and structure, provides for the use of qualifiers after each A&P code to indicate the degree of problem being encountered by the client (on a 0 = no problem to 4 = complete problem scale). Since 2002, leaders within the American Therapeutic Recreation

Table 2.

ICF: Activities and Participation Chapters

Chapter 1	Learning and applying knowledge
Chapter 2	General tasks and demands
Chapter 3	Communication
Chapter 4	Mobility
Chapter 5	Self-care
Chapter 6	Domestic life
Chapter 7	Interpersonal interactions and relationships
Chapter 8	Major life areas
Chapter 9	Community, social and civic life

Association (ATRA), along with other professional membership organizations (e.g. physical therapy, social work, occupational therapy) have assisted the American Psychological Association in creation of the *Procedural Manual and Guide for a Standardized Application of the ICF* intended to help guide practitioners use the ICF. This manual is expected to be published in 2007. As space will not allow for specific examples pertaining to each code, for each of the following chapters and the codes listed within, the TR professional is encouraged to identify and contemplate examples for each A&P component salient to their specific setting.

Activities & Participation: Chapter 1—Learning and Applying Knowledge

The TRS is highly interested in the clients' capacity and ability to learn information and apply that knowledge to important life situations. A TRS may work in an alternative high school settings may aim to increase basic learning of student and the application of that knowledge in other areas of life. A recreation therapist in a correctional setting may work with inmates preparing for parole to identify recreational or leisure interests and how he or she can overcome barriers to the opportunities, resources, and facilities available to them for participation. This chapter includes three sub-

sections that directly impact TR service delivery. These are:

- **Purposeful sensory experiences** including watching (d110), listening (d115), and other purposeful sensing (d120).
- **Basic learning** including copying (d130), rehearsing (d135), learning to read (d140), learning to write (d145), learning to calculate (d150), and acquiring skills (d155)—either basic or complex.
- **Applying knowledge** including focusing attention (d160), thinking (d163), reading (d166), writing (d170), calculating (d172), solving problems (d175)—simple or complex, and making decisions (d177).

Activities & Participation: Chapter 2—General Tasks and Demands

This chapter pertains to general aspects of carrying out single or multiple tasks, organizing routines, and handling stress. These items can be conceptualized in conjunction with more specific tasks or as actions to help identify the underlying features of tasks within different circumstances. Salient codes to TR within this chapter include:

- **Undertaking a single task** (d210)—whether it is simple (d2100), complex (d2101), undertaken independently (d2102), or in a group (d2103).
- **Undertaking multiple tasks** (d220)—including elements of carrying out (d2200) or completing (d2201) multiple tasks.
- **Carrying out daily routine** (d230)—including managing (d2301) or completing (d2302) the daily routine or one's own activity level (d2303)
- **Handling stress and other psychological demands** (d240)—inclusive of handling responsibilities (d2400), handling stress (d2401), or handling a crisis (d2402).

The latter code is often relevant to stress management groups, often conducted by TR professionals in both clinical and community settings. Specifically, a TRS may utilize different modalities or relaxation techniques (e.g. deep breathing, progressive muscle relaxation, biofeedback training, or imagery/visualization). As the TRS works in a myriad of settings that address an individual's general tasks and demands, a central role of the recreation therapist is to improve functional abilities and independence in life activities.

Activities & Participation: Chapter 3—Communication

This chapter of the ICF is about general and specific features of communication. Specific codes most significant to TR include:

- **Communicating with and receiving spoken message** (d310)
- **Communicating with and receiving nonverbal messages** (d315)
- **Communicating with and receiving sign language messages** (d320)
- **Communicating with and receiving written messages** (d325)
- **Speaking** (d330)
- **Producing nonverbal messages** (d335)
- **Producing messages in formal sign language** (d340)
- **Writing messages** (d345)
- **Conversation** (d350)—Inclusive of starting (d3500), sustaining (d3501), and ending (d3502) a conversation; conversing with one person (d3503) or many people (d3504).
- **Discussion** (d355)—With one person (d3550) or many people (d3551)
- **Using communication devices and techniques** (d360).

Conversation is an integral part of social skills training that the TRS often focuses on - specifically, starting a conversation (d3500),

sustaining a conversation (d3501), ending a conversation (d3502), or conversing with one person (d3503) or many people (d3504). As a specific example, the TR working with young children with developmental disabilities, may utilize scripted play as a language intervention (Neeley, Neeley, Justen III, & Tipton-Sumner, 2001).

Activities & Participation: Chapter 4—Mobility

This chapter contains information relative to people moving through changing body position or location or by transferring from one place to another. It is highly important for the TRS to identify and take into consideration these components as activities germane to basic daily tasks, meaningful participation in significant areas of life, as well as the relevance of many of these chapter codes within many, if not most, recreation and leisure activities. Any TR practitioner whose scope of practice includes interventions that focus on outcomes that include or result in body motion, should be aware of this chapter and its four sections:

- **Changing and maintaining basic body position** (d410) including: lying down (d4100), squatting, (d4101), kneeling (d4102), sitting (d4103), standing (d4104), bending (d4105), and shifting the body's center of gravity (d4106); maintaining a body position (d415), and transferring oneself (d420).
- **Carrying, moving, and handling objects** including: lifting and carrying objects (d430), moving objects with lower extremities (d435), fine hand use (d440), and hand and arm use (d445).
- **Walking and moving** including: walking (d450)—including short distances (d4500), long distances (d4501), on different surfaces (d4502), and around obstacles (d4503); moving around (d455)—including climbing (d4551), running (d4552), jumping (d4553), and swimming

(d4554); moving around in different locations (d460), and moving around using equipment (d465).

- **Moving around using transportation** including: using transportation (d470)—as a passenger, using human-powered vehicles (d4700), private motorized (d4701), or public transportation (d4702); driving (d475), and riding animals for transportation (d480).

Activities & Participation: Chapter 5—Self-Care

This chapter pertains to activities done for self-care and the TRS may participate in educational activities (perhaps in collaboration with the nursing department or occupational therapy). These codes include: washing oneself (d510), caring for body parts (d520), toileting (d530), dressing (d540), eating (d550), drinking (d560), and looking after one's health (d570). At a minimum, a TRS likely takes part in educating a client about the importance of washing oneself and caring for the body after physical activities (e.g. exercise, gardening) or how to appropriately dress for participation in events taking place in formal vs. casual settings, or in cold vs. hot weather.

Activities & Participation: Chapter 6—Domestic

This chapter is applicable to the practice and work of TR professionals inasmuch as domestic life (e.g., acquiring a place to life (d601), acquisition of goods and services (d620), preparing meals (d630), doing housework (d640), caring for household objects (d650), and assisting others (d660)) is connected to significant activities, inclusive of those done within the context of recreation, leisure, and play.

Activities & Participation: Chapter 7—Interpersonal Interactions and Relationships

This chapter is highly salient to TR professional practice as it relates to tasks and

actions of their clients required for basic and complex interactions with other people in a contextually and socially appropriate manner. The TRS is often asked to facilitate social skills interventions where clients are taught how to create, maintain, and enhance relationships with family, friends, colleagues, and others with whom they may interact in the course of day-to-day life. The chapter's two sections are:

- **General interpersonal interactions** including: basic interpersonal interactions (b710)—including respect and warmth (d7100), appreciation (d7101), tolerance (d7102), criticism (d7103), social cues (d7104), and physical contact (d7105); complex interpersonal interactions (d720)—including forming relationships (d7200), terminating relationships (d7201), regulating behavior within interactions (d7202), interacting within social rules (d7203), and maintaining social space (d7204).
- **Particular interpersonal relationships** including: relating with strangers (b730), formal relationships (b740)—with person of authority (d7400), with subordinates (d7401), with equals (d7402); informal social relationships (d750)—with friends (d7500), neighbors (d7501), acquaintances (d7502), co-inhabitants (d7503), and peers (d7504); family relationships (d760)—including parent-child (d7600), child-parent (d7601), sibling relationships (d7602), and extended family (d7603); intimate relationships (b770)—including romantic (d7700), spousal (d7701), and sexual (d7702).

Activities & Participation: Chapter 8—Major Life Areas

This chapter is applicable to TR inasmuch as major life areas (e.g., education, work and employment, and economics) create and relate to the context within which recreation, leisure,

and play activity exists. Items in this chapter pertain to carrying out tasks and actions required to engage and benefit from education and employment, as well as conducting economic transactions. Codes potentially salient to therapeutic recreation and the livelihood sought for clients include: acquiring, keeping, and terminating a job (d845). As an essential part of successful community integration, the TR may need to teach skills associated with basic (d860) or complex economic transactions (d865) and economic self-sufficiency (d870) inclusive of personal resources (d8700) and public entitlements (d8701).

Activities & Participation: Chapter 9—Community, Social, and Civic Life

This chapter pertains to actions and tasks required to engage in organized life outside the family, within the community, and in social and civic areas of life. Salient areas include: community life (d910), recreation and leisure (d920), religion and spirituality (d930), human rights (d940), and political life and citizenship (d950). Of likely interest to the TR professional, d920 *recreation and leisure* is further specified in terms of play (d9200), sports (d9201), arts and culture (d9202), crafts (d9203), hobbies (d9204), and socializing (d9205). Leisure education may likely include the assessment of leisure motivations and interests and participation satisfaction.

Personal and Environmental Factors

Within the ICF are two types of contextual factors - environmental and personal. Personal factors include characteristics and phenomena that may potentially impact or influence an individuals' health or experience with disease, disability, or disabling condition. Some of these personal factors include: gender, race, age, fitness, lifestyle, behavioral patterns or habits, upbringing, religion, sexual orientation, coping styles, social background, economic (dis)advantages, education, profession, life ex-

Table 3.

ICF: Environmental Factors Chapters

Chapter 1	Products and technology
Chapter 2	Natural environment and human-made changes to environment
Chapter 3	Support and relationships
Chapter 4	Attitudes
Chapter 5	Services, systems, and policies

periences (past, present, goals/dreams for the future), and individual psychological and personality traits. Because of the large social and cultural variations associated with them, personal factors are not classified or given codes in the ICF. Discussion is occurring, however, that may see classification of personal factors within future editions of the ICF (Badley, 2006). Personal factors are important to the health and perceived quality of life of a client. One example is now offered. In illustration of how personal factors interact with other components of the ICF (e.g. A&P Chapter 6: Domestic Life), the TRS may be aware of barriers to recreation and leisure for women challenged by pressure to complete domestic duties at the expense of meaningful free-time involvement (Shaw, 1999), or in light of changing employment demographics that have women working more outside the home while maintaining traditional levels of responsibility within the home (Kay, 1996).

Environmental factors are classified within five chapters listed in Table 3. It is significant to note that environmental factors can be qualified as either a barrier or a facilitator, whereas other ICF codes are currently qualified negatively as *impairments* (body functions and structures) or *difficulties* (activities and participation). The opportunity to indicate environmental factors as facilitators allows the health care professional to identify strengths and positives that contribute to the health of an individual or client (WHO, 2001).

***Environmental Factors: Chapter 1—
Products and technology***

Several product and technology codes are applicable to TR since these classify aspects used to facilitate a person's participation in recreation, leisure, and play (e.g. daily living, mobility, or communication). Of particular interest is *e140: Products and technology for culture, recreation, and sport* which include the use of adapted or specifically designed equipment, products, and technology. Porter and Burlingame (2006) include a list of twenty-four types of equipment within their handbook of ICF-based TR practice. Other codes of potential relevance to the provision of TR services include products/substance and/or technology for personal: consumption (e110), use in daily living (e115), and indoor and outdoor mobility and transportation (e120). Further, codes exist for either *general* or *assistive* products and technology for: communication (e125), education (e130), employment (e135), the practice of religion and spirituality (e145), the design and construction of buildings for public (e150) or private (e155) use, and relative to land development (e160) rural, suburban, or urban.

***Environmental Factors: Chapter 2—
Natural environment and human-made changes to environment***

Information within this chapter is applicable inasmuch as the natural environment and human-made changes to one's environment can greatly impact and interact with an individual's experience, inclusive of participation in recreation, leisure, play, and sports. Salient aspects of this chapter include: physical geography (e210), population (e215), plants and animals (e220), climate (e225), natural events (e230), human-caused events (e235), light (e240), time-related changes (e245), sound (e250), vibration (e255), and air quality (e260).

Environmental Factors: Chapter 3— Support and relationships

This chapter is highly applicable to TR practice given that interpersonal relationships are often deemed a crucial part of life and many recreation, leisure, and play experiences. Recreation therapists may facilitate and assist physical and emotional support (including the use animals) and interpersonal relationships for clients in health care settings. Community-based TR professionals may seek to create or enhance social support, tolerance, and cooperation within neighborhoods and cities. Specific codes exist pertaining to immediate family (e310), extended family (e315), friends (e320), acquaintances, peers, neighbors (e325), people in positions of authority (e330), people in subordinate positions (e335), personal care providers and personal assistants (e340), strangers (e345), domesticated animals (e350), health professionals (e355), and other professionals (e360).

Environmental Factors: Chapter 4—Attitudes

This chapter is about the attitudes that exist as observable consequences of customs, ideologies, values, norms, scientific beliefs, religious beliefs, and practices within one's society. This is highly applicable to TR because attitudes related to family (e410), friends (e420), people in positions of authority (e430), personal care providers (e440), strangers (e445), in addition to societal attitudes (e460) and social norms (e465) impact the employment, education, religious, and cultural fabric of our communities. Attitudes as a factor of human experience also can impact recreation, leisure, and play experience of all people, especially those with disabilities that may negatively experience stigma, discrimination, and/or stereotype (Bedini, 1998; Smart, 2000).

Environmental Factors: Chapter 5— Services, systems, and policies

Services, systems, and policies (regarding consumer goods, architecture and construc-

tion, open space, housing, utilities, communication, transportation, civil protection, legal, associations and organizations, the media, social security, general social supports, health services, education and training, employment, and politics) impact human life and a person's ability to learn about, access, and fully participate in recreation, leisure, and play experiences of their choosing. Of possible interest, the TR professional will find recreation and leisure specifically mentioned within open space planning (e520), and associations and organizational services (e555). *e580 Health services, systems, and policies* is relevant to the need for societies to create and maintain the resources needed to prevent and treat health problems, provide medical rehabilitation, and promote a healthy lifestyle for its citizenry.

Disease, Population, and Setting- Specific Core Sets

The reader is encouraged to seek and utilize information about disease and population-specific ICF "core sets" that have been created and published utilizing "linking rules" established to connect technical and clinical measures, health-status measures and interventions to the ICF (Cieza et al., 2005). To alleviate possible confusion of the reader, health care disciplines may create "code sets" to align their professional practice with the ICF (as is intended in this article). However, "core sets" is the term found in the literature when ICF codes are identified describing facets of health conditions relative to diseases or a specific human population.

These core set manuscripts identify important aspects of a person's experience with a health condition, linked to ICF categories of body structures, body functions, activities and participation, and environmental factors. The process of developing a core set is a stringent one and, as illustrated in a recent manuscript providing a core set for spinal cord injury, included the following steps: empirical study, focus groups, expert survey, systematic re-

view, and an ICF core set consensus conference (Biering-Sorensen et al., 2006). Using a university or public library computer system, search engines such as PubMed or Medline provide resources about the use and applicability of the ICF to practice settings where TR professionals work. For this article, using both Medline and Pubmed database search engines, a literature search resulted in finding numerous articles linking the ICF to certain disease or disabling conditions.

Listed in alphabetical order, these manuscripts are identified as introducing a core set showing ICF components applicable to the following diseases or conditions:

- **Brain injury rehabilitation** (Bilbao et al., 2003)
- **Breast cancer** (Brach et al., 2004)
- **Cardiopulmonary conditions** (Boldt et al., 2005; Wildner et al., 2005)
- **Chronic ischaemic heart disease** (Cieza, Stucki, Geyh et al., 2004)
- **Chronic widespread pain** (Cieza, Stucki, Weigl, Kullmann et al., 2004)
- **Depression** (Cieza, Chatterji et al., 2004)
- **Diabetes mellitus** (Ruof et al., 2004)
- **Low back pain** (Cieza, Stucki, Weigl, Disler et al., 2004)
- **Lupus** (Aringer et al., 2006)
- **Multiple Sclerosis** (Khan & Pallant, 2007)
- **Musculoskeletal conditions** (Scheuringer et al., 2005; Stoll et al., 2005; Weigl, Cieza, Kostanjsek, Kirschneck, & Stucki, 2006)
- **Neurological conditions** (Ewert et al., 2005; Grill, Lipp, Boldt, Stucki, & Koenig, 2005; Stier-Jarmer et al., 2005)
- **Obesity** (Stucki, Daansen, et al., 2004)
- **Obstructive pulmonary disease** (Stucki, Stoll, et al., 2004)
- **Osteoarthritis** (Dreinhofer et al., 2004)
- **Osteoporosis** (Cieza, Schwarzkopf et al., 2004)
- **Rheumatoid arthritis** (Coenen et al., 2006; Stucki, Cieza, et al., 2004)
- **Spinal cord injury** (Biering-Sorensen et al., 2006)
- **Stroke** (Geyh et al., 2004)

The following manuscripts describe attributes of diagnosis and treatment relative to certain populations to the ICF:

- **Assessment of deafblindness** (Moller, 2003)
- **Cerebral palsy** (Rosenbaum & Stewart, 2004)
- **Childhood disability** (Simeonsson et al., 2003)
- **Children with cognitive, motor, and complex disabilities** (Battaglia et al., 2004)
- **Chronic conditions** (Cieza, Ewert et al., 2004)
- **Common disease conditions** (Grimby, Harms-Ringdahl, Morgell, Nordenskiold, & Sunnerhagen, 2005)
- **Communication disabilities in children** (Simeonsson, 2003)
- **Geriatric care** (Okuchi, Utsunomiya, & Takayashi, 2005)
- **Geriatric patients in early post-acute rehabilitation facilities** (Grill, Stucki, Boldt, Joisten, & Swoboda, 2005)
- **Human behavior** (Wade & Halligan, 2003)
- **Severe disability** (Bornman, 2004)
- **Stuttering** (Yaruss & Quesal, 2004)

It may interest the reader to note the ICF has been examined as a tool to assist in classifying the impact of human disasters (e.g. the attacks on the World Trade Center and Pentagon) (Seltser, Dicowden, & Hendershot, 2003). The following articles link the ICF only to specific treatment settings or facilities or

health issue: *acute hospital settings* (Grill, Huber et al., 2005), *acute hospital and early post-acute rehabilitation* (Grill, Ewert, Chatterji, Kostanjsek, & Stucki, 2005), *early post-acute rehabilitation* -comparison of the ICF with three functional measures (Grill, Stucki, Scheuringer, & Melvin, 2006), and *functional status information in health records* (Ustün, Chatterji, Kostansjek, & Bickenbach, 2003).

Other articles linking the ICF to health-related issues of potential interest to the TR professional include: the International Disability Rights movement (Hurst, 2003), medicine (Stucki & Grimby, 2004), rehabilitation medicine (Stucki, 2005), and work-capacity assessment and back-to-work predictors (Schult & Ekholm, 2006). It should also be noted that a special version of the ICF, based on children's unique characteristics and developmental needs, has been created (Lollar & Simeonson, 2005) and is accessible on-line (WHO, 2007). TR practitioners who work with children can therefore use the ICF-CY to classify their practice efforts. Furthermore, signs indicate greater application of ICF concepts and components within the formation of assessment instruments, the creation of programs and health care strategies, and potentially, reimbursement and compensation systems. As TR professionals, we can begin by "cross-walking" our assessments, job descriptions, recreation and leisure activities, interventions, and standards of practice with the ICF.

Conclusion and Future Directions

The ICF presents an excellent framework to describe and conceptualize TR practice. Within this article, we hope to have demonstrated how TR practice fits with the ICF model of health and its classification system. The body function chapters and, in particular, codes associated with activities and participation within the ICF have great relevance to functional outcomes sought for by recreation therapists in clinical settings, along with objectives related to health promotion, inclusion, and health education salient to all TR profes-

sionals. The ICF does indeed describe human functioning in all settings, and is not just applicable to health care service and settings. Therefore, the ICF provides TR professionals with a conceptual framework to link their profession practice in any and all settings with a globally-accepted taxonomy.

It is anticipated that the ICF will create an opportunity for greater awareness of TR services. As a discipline, TR has much to offer. Therapeutic recreation must be part of future discussion and the further development of the ICF and its potential to revolutionize the paradigm of health care and health promotion throughout the world. Doing so will most easily occur when TR practice is, first, shown to be aligned with the WHO's holistic view of health and disability; and second, is exemplified when TR adopts and uses the common language, terms, and definitions of the ICF in concert with other health professionals working collaboratively to address the broad needs of people with disabilities. To this end, the ATRA Public Health-WHO Team has existed for four years striving to meet important goals and objectives. Some of these include educating members through presentations at national and regional conferences (approximately fifteen the past four years), attending and presenting at North America Collaborating Center conferences on the ICF (Howard, 2006; McCormick et al., 2004), participating in the editing, review, and publication of the APA clinical manual, and presenting TR at international conferences (Howard & Browning, 2005).

It is hoped that all TR professionals, including other professional organizations such as NTRS, will become more actively involved in ensuring that TR services in clinical and community settings thrive, in large part, based on an infusion of the ICF within TR practice. The ICF lays the framework for establishing a comprehensive and scientific basis for understanding and affecting health and health outcomes. It provides a common language to improve communication at all levels of health and society, along with supporting comparison

of data across the world, within and between health care disciplines, and relative to health-related services. The ICF provides a systematic coding scheme for health information. The TR profession should be consciousness of efforts relative to the globalization of health as we communicate our body of knowledge with others, i.e., those outside of our nation and our profession. In an increasingly global society, the TR profession needs to be connected with allied health professions, nationally and internationally, through conceptual frameworks such as the ICF that describe health and human function. This will help to systematically and effectively guide clinical practice, research, and the development of social policy that promote better health for all.

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