

North American Collaborating Center

Synopses of Recent Contributions to the ICF Literature

May, 2008

The number of articles involving the ICF in contemporary journals and books is robust and increasing. NACC is committed to enabling its constituents to stay abreast of ICF developments in the public health literature. This document presents synopses of 37 recent ICF-related articles published in disability, social science, public health or epidemiology journals during 2006, 2007 and 2008. This roster represents a selective literature review; we intend it to be current, not exhaustive. Authors and institutions from many nations are represented, but NACC's selection strategy incorporated special emphasis on contributions involving North American authors. Click on a heading or article title below to read the synopsis and citation presented below in this document.

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Activities and Participation

- 1) "Development of Criteria for the Qualifiers of Activity and Participation in the International Classification of Functioning, Disability and Health Based on the Accumulated Data of Population Surveys"

The authors of this paper are rehabilitation specialists from Japan. They reported on both a survey about functional status among more than 17,600 older Japanese persons in five communities, and the resulting analysis that yielded a set of provisional criteria for finalizing the interpretation of ICF qualifiers for both Activity and Participation. They have proposed adopting these criteria at least in Japan, if not also internationally. Understanding and utilizing ICF qualifiers in all the domains remains challenging, due in part to the lack of objective criteria outlining their appropriate application in individual cases and in populations. The authors have relied on the important contention within ICF that the Classification is "about all people," rather than just people with disabilities. They wrote "To classify and evaluate the state of 'all people,' it is absolutely necessary that ICF is sensitive enough to detect milder problems, . . . because 'all people' consist of quite a wide spectrum of people, ranging from people without any health conditions (diseases, traumas, etc.) or disabilities to those with health conditions but without disabilities, and then to those with disabilities. . . . For ICF to be really 'about all people,' it should not overlook the problems in functioning that may occur in a larger part of the population who are in a better state of functioning compared with the people with disabilities" (pg. 98).

Regarding qualifiers for Activity, the authors distinguished between "Universal independence" and "Limited independence." Regarding Participation, they distinguished between "Full participation" and "Partial participation," associating each of these terms with existing ICF qualifier digits, although none of these particular terms is utilized in the ICF *per se*. The authors asserted that

their proposed divisions among these qualifiers represent "a very sensitive tool in the detection of milder problems [in] activity and participation" (pg. 97).

Citation: Okawa Y, Ueda S, Shuto K, Mizoguchi T. Development of criteria for the qualifiers of activity and participation in the International Classification of Functioning, Disability and Health based on the accumulated data of population surveys. *International Journal of Rehabilitation Research* 2008 (March); 31(1):97-103.

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2) "Enhancing the Conceptual Clarity of the Activity and Participation Components of the International Classification of Functioning, Disability and Health"

This important, timely article contributed by a Canadian author serves as a milestone in the post-publication effort to clarify the coding guidelines within ICF. The author is a longtime contributor to the ICIDH and ICF literature. The context of the article is the ongoing need among current and potential ICF users to discriminate consistently between Activities and Participation. Technically, this article did not break new ground. Instead, as suggested in its title, it represented an *enhancement* of existing definitions and the fit of existing conceptual components within the overall ICF model, while addressing some well-documented deficiencies within the model. The article "provides a starting point for further work on a more precise specification of a conceptual model which is more explicit about the contribution of contextual factors and the definition of the relationships between the components" (pg. x10).

The enhancement here, though, is substantial. The author condensed disability concepts related to the ICF's terms Activity and Participation from the ICF, the ICIDH, the Nagi model, and the Québec Disability Creation Process model into "10 suggested distinguishing characteristics," which she then organized into three major groups: the *construct of the components*, *individual effects*, and *contextual effects*. The body of the article is devoted to explicating these groups and characteristics. One important theme is that contextual effects generate a "scene-setting role," such that "if the health condition were suddenly gone, these would be the aspects that would still influence the nature of our activity and participation" (pg. xx3).

Another important theme is that, in lieu of ICF-defined terms Activity and Participation, a three-way orientation toward *Acts, Tasks, and Societal involvement* might be more appropriate and certainly would align more completely with the inherently “interactive” model in ICF. Acts are “similar to the ‘functional limitation’ category of Nagi, and ‘disability’ in the Disability Creation Process classification. . . . Acts serve as a link between body functions and structures and tasks as they concern the impact of impairments on the functioning of the body, which in turn affects how tasks might be carried out.” Tasks include ADLs, IADLs and specific tasks, and “usually comprise coordinated, sequenced and often synchronized acts (or other tasks).” And, “the main distinguishing feature of societal involvement is that it is defined by social role. . . . So for example, the emphasis is on employment as a role, and not the nature of the job,. . . nor the associated tasks such as using a hammer or a pen.” (All excerpts from pg. xx5).

Citation: Badley EM. Enhancing the conceptual clarity of the activity and participation components of the International Classification of Functioning, Disability and Health. Article in Press, Corrected Proof, available online March 7, 2008, accessed April 11, 2008, *Social Science and Medicine* 2008, [doi:10.1016/j.socscimed.2008.01.026](https://doi.org/10.1016/j.socscimed.2008.01.026) .

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3) "Health and Well Being of Adults with Cerebral Palsy"

In this expansive review article covering research results from many international studies, this American author provided an outstanding overview of the activities and participation challenges affecting adults with cerebral palsy (CP). He provided an explicit orientation to the ICF in interpreting these challenges. For example, many international studies focused on the diminished participation that persons with CP experience, with specific attention to the premise that most health services for persons with CP are delivered during childhood, not adulthood. Citing a Dutch study, he wrote, "20 [to] 30 percent of the adults with CP had restricted social participation including taking responsibility, community living, leisure activities and employment" (pg. 138). The author reviewed factors associated with participation, focusing on individual – and population-level variation. Citing an American study, he wrote, "In a national sample from the USA, only half of all respondents reported that they had

received needed rehabilitative services. Forty percent of this sample indicated an unmet need for rehabilitative services in the prior 3 months" (pg. 139).

In terms of interventions, the author wrote, "Rather than trying to normalize the adult with CP, such as to walk and talk, goals should be broadly defined, such as independent mobility and effective communication. . . . (P)aying attention to dental health, vision and gastrointestinal function is just as important to the health of the person as addressing muscle tone and joint contractures. The period of transition from youth to adulthood also represents an optimal, even necessary time for intervention. "Transition planning should begin when the adolescent is no older than 14 years of age, and includes assessment of the individual, family, and community" (pg. 140). One special feature of this article is that the author has provided additional commentary about a few selected articles referenced in the bibliography, as an assist to busy clinician readers.

Citation: Liptak GS. Health and well being of adults with cerebral palsy. *Current Opinions in Neurology* 2008 (April); 21(2):136-142.

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4) "Measuring Participation of Children with Disabilities: Issues and Challenges"

In this important Clinical Commentary, the American authors have broadly summarized the problems associated with the paucity of definitions within ICF --- and now ICF-CY --- for the terms Activity and Participation, and have proposed methods for addressing these problems. Their Commentary "does not propose to offer definitive answers to these questions, but rather to encourage more dialogue about the issues" (pg. 640). Their long-term advocacy is for the development of measurement instruments that utilize consistent definitions for participation, so that research in the future utilizing those instruments could be more meaningfully compared across studies, age groups, and relevant participation categories. They argued that the umbrella term "quality of life" insufficiently addresses functional status in relation to emotional well-being.

The authors' argument rests on the inconsistency observed in the handling and interpretation of ICF codes within the Activities and Participation domain. They addressed distinguishing "tasks" from "life situations," and the complexity of life situations as manifested in various spatial and temporal characteristics that can influence a child's participation. They also investigated relevant dimensions

of participation, for example whether for young children's participation within the family unit might represent the most meaningful information. The authors wrote about selecting measurement scales and respondents, and the difficulty in obtaining a child's perspective on participation before he or she has reached the age of about 8 years. They were particularly straightforward about ensuring "psychometric soundness" in any new measures of participation to be developed in the near term. In fact, they proposed applying Item Response Theory approaches to instrument development, specifically Computerized Adaptive Testing, in order to "provide clearer evidence on whether the items on a given scale appear to be measuring a common underlying dimension . . . and whether the items can be ordered to represent different degrees of challenge or accomplishment of engagement or participation" (pg. 647).

The authors developed a working definition of participation. "It is proposed that life situations are characterized by sets of organized sequences of activities directed toward a personally or socially meaningful goal. These goals are setting-specific and include sustenance and physical health, development of skills and capacities and enjoyment and emotional well-being. . . . (A)ctivities are the units from which such sequences may be constructed. They include both simple functional actions . . . and short sequences of functional actions with a common goal. . . . Participation reflects the extent of engagement in the full range of activities that accomplish a larger goal (caring for one's hygiene; clothing oneself; dining with family)" (pg. 643).

Citation: Coster W, Khetani MA. Measuring participation of children with disabilities: Issues and challenges. *Disability and Rehabilitation* 2008; 30(8):639-648.

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5) "Promoting the Participation of Children with Disabilities in Sports, Recreation, and Physical Activities"

This short article contributed by American authors, the members of the Executive Committee of the Council on Children with Disabilities of the American Academy of Pediatrics, referred broadly to the ICF in its conceptual framework, emphasizing Activities and Participation. The article is a Clinical Report that also serves as clinical guidance for physicians rendering pediatric care. Specifically,

the Report addressed "the importance of physical activity, recreation, and sports participation for children with disabilities, and offers practical suggestions to pediatric health care professionals for the promotion of participation" (pg. 1057).

The authors described the benefits of sports participation for children with disabilities, as much in terms of social participation as in somatic or aerobic benefits accrued from exercise. They described "Preparticipation Considerations" for clinicians, expressing that "Rather than exclusion from sports participation, the goal is inclusion for all children with disabilities in appropriate activities. It is important that children are empowered with an 'I can do' attitude rather than discouraged by the message 'you can't do that'" (pg. 1058). The authors also described barriers to participation, most frequently cited by parents of disabled children as, simply, high costs and lack of nearby facilities or programs; the high cost of specialized equipment can be another type of barrier. They described "the right to participate," referring essentially to the American Individuals with Disabilities Education Act as the legal basis for ensuring that full participation is allowed in sports activities. As such, pediatricians can become patient advocates, too, in their role not just as clinicians for individual disabled children but also as leaders in society advocating for changes among all children.

Citation: Murphy NA, Carbone PS, and the Council on Children with Disabilities of the American Academy of Pediatrics. Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics* 2008 (May); 121(5):1057-1061.

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Assessment Instruments

- 6) "Content Comparison of Health-Related Quality of Life Instruments for Obstructive Sleep Apnea"

Swiss, German, Turkish and Finnish authors contributed to this article, which represents the second of 2 consecutive articles published in the journal *Sleep Medicine* related to sleep disorders and the ICF. (The first* of the 2 articles had been described in the January, 2008 edition of this ICF Publication Supplement, although only its "online early release" version had been available;

both articles are now published in the print edition.) Together, the 2 articles constitute a set of formal recommendations from WHO and the World Association of Sleep Medicine. In this case, the authors reviewed 4 popular questionnaires for investigating the importance of sleep disorders and sleep-connected health-related quality of life (HRQOL), and linked each to the ICF, following linking rules previously published by Cieza and others.

For this analysis, the investigators restricted their inquiry to only one diagnosable sleep disorder, Obstructive Sleep Apnea (OSA). They reviewed 4 OSA-specific instruments: the Calgary Sleep Apnea Quality of Life Index, the Functional Outcomes of Sleep Questionnaire, the Obstructive Sleep Apnea Patient-Oriented Severity Index, and the Québec Sleep Questionnaire. They linked these 4 instruments to the ICF through the deliberations of 6 health professionals according to the standardized guidelines by Cieza, *et al.* This review netted a total of 308 sleep-related concepts, which could be linked to 78 discrete ICF categories with the majority being in the Body Functions and Activities & Participation domains. Four Tables in the article explicitly itemize each of the concepts and associated ICF codes. Only 5 ICF categories had been addressed by all 4 OSA instruments. The authors described the various decisions about selecting an OSA HRQOL instrument according to these ICF-oriented criteria. They also encouraged readers to "examine the overlap" between symptom-specific instruments and generic HRQOL instruments. They also acknowledged that "the ICF does not differentiate sufficiently in some categories related to OSA" (pg. 205).

Citation: Stucki A, Cieza A, Schuurmans MM, Üstün B, Stucki G, Gradinger F, Partinen M. Content comparison of health-related quality of life instruments for obstructive sleep apnea. World Health Organization and World Association of Sleep Medicine Recommendations, Part 2. *Sleep Medicine* 2008 (January); 9(2):199-206.

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* Stucki A, Cieza A, Michel A, Stucki G, *et al.* Developing ICF core sets for persons with sleep disorders based on the International Classification of Functioning, Disability and Health. World Health Organization and World Association of Sleep Medicine Recommendations, Part 1. *Sleep Medicine* 2008 (January); 9(2):191-198.

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7) "Functional Ability in a Population: Normative Survey Data and Reliability for the ICF-Based Norwegian Function Assessment Scale"

This useful paper from Norwegian authors reported on the development of a population-based normative data set that measured population functional levels. Pertinently, the data were generated by a national survey, the Norwegian Function Assessment Scale (NFAS), which is explicitly rendered according to the Activities and Participation domain in the ICF. They utilized principal components analysis to distinguish seven domains for relevant reporting of functional status in a middle-sized Norwegian city, Ullensaker. Rigorously, they also conducted a measurement of two-week test-retest reliability among a subset of the respondents, which proved statistically acceptable; this effort underscores the broader usefulness of the NFAS. The quantitative results were not surprising: females, older persons, and persons with lower levels of education reported more functional problems than their male, younger, and better educated counterparts. The domains in which respondents reported the most problems were "walking/standing," "lifting/carrying," and "managing" (a diverse category related to concentrating, working in groups, and managing emotions). The importance of this research is imbedded in the explicit orientation to the ICF in the data source, the NFAS, which can now be determined to be useful in depicting functional status in a representative small population.

Citation: Østerås N, Brage S, Garratt A, *et al.* Functional ability in a population: Normative survey data and reliability for the ICF based Norwegian Function Assessment Scale. *BMC Public Health* 2007 (October 3); 7:278. Available on an open access basis at the following web link: <http://www.biomedcentral.com/content/pdf/1471-2458-7-278.pdf>

Contact the Corresponding Author for Reprints: Nina Østerås, Section of Occupational Health and Social Insurance Medicine, Institute of General Practice and Community Health, Faculty of Medicine, University of Oslo, Norway; E-Mail address: nina.osteras@medisin.uio.no . Through BioMed Central, the article may be freely downloaded and reprinted, at the website link above.

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8) "The International Classification of Functioning, Disability and Health-orientated Occupational Therapy Assessment: A Rasch Analysis of Its Domains"

In this moderately statistically complex article contributed by German authors, the investigators tested both the properties of a new ICF-based assessment instrument, the Occupational Therapy Assessment (OTA), and the degree to which those properties achieved the important criterion of the

"unidimensionality" of alignment between constructs and questions within the instrument. In this case, the authors utilized Rasch analysis. The Rasch model can be used to identify "unidimensional item pools" within each of the five domains of the OTA. The Rasch model generates a criterion (threshold) for the manner in which the structure of responses on a given set of questions should be satisfied, rather than a mere statistical description of the responses. The five domains in the OTA included "activities for self-care," "activities for independent living," "consequences of sensory-motor functions in everyday life," "consequences of neuropsychological functions in everyday life," and "consequences of psychosocial functions in everyday life" (pg. 31).

The investigators found that "for each of the five domains of the OTA, items groups could be identified, which proved to be Rasch homogenous" (pg. 30; i.e., the domains exhibited a low degree of variability in the way single items indicated activity limitations within each domain). With elimination of selected highly-variable items within two domains, and the addition of pertinent subgroups that themselves also exhibited Rasch homogeneity, the authors concluded that "the resulting seven Rasch scales possessed acceptable-to-good psychometric properties" (pg. 30). They also observed that "the OTA provides a promising basis for diagnostic and evaluative purposes in clinical practice" (pg. 31).

Citation: Wirtz MA, Voigt-Radloff S. The International Classification of Functioning, Disability and Health-orientated Occupational Therapy Assessment: A Rasch analysis of its domains. *International Journal of Rehabilitation Research* 2008 (March); 31(1):23-32.

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9) "The Multiple Sclerosis Impact Profile (MSIP): Development and Testing Psychometric Properties of an ICF-Based Health Measure"

This article contributed by a team of Dutch authors presented their results from the development and testing of a new ICF-based assessment instrument, the Multiple Sclerosis Impact Profile (MSIP). They also sought to evaluate the reliability and validity of the MSIP within a large group of multiple sclerosis (MS) patients. They used factor analysis on data drawn from a postal survey among 377 MS patients to determine the number and scope of domains or categories of greatest proportional influence on a patient's self-reported degree of disability.

The article exhibits substantial detail on the response options for each ICF component along with their relevant qualifiers (Table 1, pg. 263).

After item reduction (through factor analysis) and scale construction, the MSIP could be comprised of 32 items representing 5 factors that in turn cover the 4 ICF domains. Two factors within the Body Functions domain explained more than three-fifths (61.3 percent) of the total variance among 10 items reflecting this domain; they comprised 2 factors called "muscle and movement functions" and "excretions and reproductive functions." One factor in the Activities component of the A&P domain accounted for nearly two-thirds (65.7 percent) of the variance among 13 items, split into 2 factors called "basic movement activities" and "activities of daily living." One factor in the Participation component explained more than half (54.3 percent) of the variance and included 5 items, labeled "participation in life situations." And one factor in the Environmental Factors component accounted for two-fifths (40.2 percent) of the variance among 4 items, called "environmental factors."

The authors asserted "This study showed some unexpected results. We were somewhat surprised by the moderate correlation for the MSIP 'mental functioning' scale with similar psychological functioning scales [e.g., WHOQOL-BREF] indicating weak convergence. . . . Also unforeseen were the moderate correlations between the MSIP 'participation in life situations' scale and the 'physical functioning' scales, where lower correlations were expected. This is acceptable when bearing in mind two explanations: moderate correlations indicate related but distinct domains; and, it is reasonable to expect person who are limited in physical functioning . . . will encounter problems in participation in social activities" (pg. 270).

Citation: Wynia K, Middell B, van Dijk JP, *et al.* The Multiple Sclerosis Impact Profile (MSIP): Development and testing psychometric properties of an ICF-based health measure. *Disability and Rehabilitation* 2008; 30(4):261-274.

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Community Reintegration

- 10) "Using International Classification of Functioning, Disability and Health to Understand Challenges in Community Reintegration of Injured Veterans"

In this seminal article, these American authors have contributed one of the first published applications of the ICF in the classification of disabilities arising among injured military service personnel returning from the war in Iraq. Specifically, they conducted this pilot study in a Veterans Administration hospital setting to determine if ICF categorization provided a more useful conceptual framework for approaching the unique kinds of functional impairments associated with traumatic injuries sustained during this war. Pertinently, the authors included family members and caregivers of the returning soldiers as study participants, too, on the premise that many of the functional deficiencies affecting the uniformed personnel inevitably also affect their family members.

Their primary method had been the "directed approach to content analysis," which is similar to the more familiar Content Analysis which provides a systematic, *post hoc* identification of the most frequently-used keywords in a structured interview. The investigators "kept detailed typed memorandums [*sic*] of the conversations and recorded brief quotations verbatim" (pg. 992). In the interviews, "Participants were asked to discuss challenges in daily life, mobility, activities at home, the neighborhood and community, family and social life, and work life. Clinicians discussed common challenges in community reintegration that they had observed" (pg. 992).

Their results were culled from the interviews among 15 cases; 6 of the 15 cases involved the soldier having sustained polytrauma in the conflict. Post-traumatic stress disorder (PTSD) and traumatic brain injuries (TBI) were observed in multiple cases. The authors wrote, "A few appeared to be reintegrating well; however, most were struggling with one or more areas of community reintegration" (pg. 994). Table 2 in the article (pg. 995) is an extensive representation of the full complement of identified reintegration problems and functional impairments reported during the interviews, each exhibited with their corresponding ICF codes. The article provided a sample of verbatim statements from injured soldiers and their family members, in the authors' effort to describe difficulties in learning and applying knowledge, mobility, communication, and interpersonal interactions. The authors concluded that, "Given the findings from our study and the combined prevalence of TBI and PTSD in [these] veterans, we believe that a substantial number of veterans are at risk of poor community reintegration. . . . Thus, identifying community reintegration challenges [among] veterans early and promoting greater function in the community are important public health mandates" (pg. 1004).

Citation: Resnik LJ, Allen SM. Using International Classification of Functioning, Disability and Health to understand challenges in community reintegration of injured veterans. *Journal of Rehabilitation Research and Development* 2007; 44(7):991-1006.

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Core Sets

- 11) "Developing Core Sets for Persons with Bipolar Disorder Based on the International Classification of Functioning, Disability and Health"

Authors from Spain, Germany, Switzerland, and the United States contributed to this article and the ongoing clinical discernment process that it represents. They have described the current and forthcoming processes that would yield new Brief and Comprehensive Core Sets for Bipolar Disorders (BD), mainly through consensus development procedures. They wrote, "It would, therefore, be valuable for clinical practice and research to have a practical tool covering the spectrum of symptoms and limitations in functioning of patients with BD, taking into account the environments in which they live. To achieve this goal, we need a comprehensive framework and classification, which is able to serve as a universal language understood by health professionals, researchers, policy makers, patients and patient organizations" (pg. 17).

Citation: Vieta E, Cieza A, Stuck G, Chatterji S, *et al.* Developing core sets for persons with bipolar disorder based on the International Classification of Functioning, Disability and Health. *Bipolar Disorders* 2007; 9:16-24.

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- 12) "Developing ICF Core Sets for Persons with Sleep Disorders Based on the International Classification of Functioning, Disability and Health"

Five continents are represented by the authors and institutions associated with this article, for our purposes including North America: the noted sleep

specialist and epidemiologist Professor Antonio Culebras, a neurologist from the Upstate Medical University in Syracuse, New York, participated as one co-author. They reported on a workshop conducted among experts in Bangkok in February, 2007, laying the foundation for a sleep disorders Core Set. Quality of life parameters are surely part of the ICF-oriented profile of functioning among sleep-disordered persons, which must be captured in this Core Set. Soon, their efforts will require Patient Focus Groups to orient the clinicians' own perspectives on "what matters most" during and as outcomes of sleep therapy. The authors' collective timeline called for a consensus conference on the final draft of the Core Set by the end of this decade.

This fully international complement of authors and the breadth of specialties represented among them gave testimony to the influence of sleep disorders on the health of individuals and populations around the world. Moreover, their collective challenge in preparing an ICF Core Set for sleep disorders represented a tall order simply from the clinical vantage point that many different types of clinicians would observe the manifestations of sleep disorders and their effects on other forms of functioning among their patients, from nurses to pediatricians to general practitioners to psychiatrists and neurologists, among others. Many sleep disorders are masked, with uncertain effects on a person's full functioning, presenting both diagnostic and classification challenges.

Citation: Stucki A, Cieza A, Michel A, Stucki G, Bentley A, Culebras A, Tufik S, Kotchabhakdi N, Tachibana N, Üstün B, Partinen M. Developing ICF core sets for persons with sleep disorders based on the International Classification of Functioning, Disability and Health. World Health Organization and World Association of Sleep Medicine Recommendations, Part 1. *Sleep Medicine* 2008 (January); 9(2):191-198.

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13) "Developing the ICF Core Sets for Multiple Sclerosis to Specify Functioning"

This Short Report prepared by Swiss, German, and British authors presaged their efforts to pursue a consensus development initiative toward the compilation of an ICF Core Set for Multiple Sclerosis. The article is forward-looking. The authors reported on the preparatory phase of this initiative that occurred during 2007, which included systematic reviews, qualitative studies

from patients' perspectives, and an expert survey, the development of the first draft of the Core Set during 2008 following a Consensus Conference; and the testing period during 2009 and beyond. The authors invited participation by scientists and clinicians already involved in diagnosing and treating MS.

Citation: Kesselring J, Coenen M, Cieza A, Thompson A, Kostanjsek N, Stucki G. Developing the ICF Core Sets for multiple sclerosis to specify functioning. *Multiple Sclerosis* 2008; 15:252-254.

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Environmental Factors

14) "Access for Persons with Neurogenic Communication Disorders: Influences of Personal and Environmental Factors of the ICF"

In this insightful and well-referenced article, the American author addressed the under-examined concept of "access" among persons with communication disorders to those physical or social environments in which their own Personal Factors might have an influence on eventual therapeutic outcomes. The author cited a dictionary definition of "access" to illustrate that "'communicating with' is as much within the meaning of the word 'access' as the physical ability to enter a room" (pg. 67). Even with access to optimal treatment for aphasia, for example, an affected person might still face attitudinal or physical barriers that diminish or even preclude their ability to incur benefits from such Personal Factors as "optimism" or strong coping skills, such as in their workplaces when returning to work following an injury or illness. The author also referred to the important contribution of the social model of disability to our understanding of Personal Factors, with additional reference to the premise that advocacy for disability rights is tantamount to a form of political expression.

The author also addressed the conceptual and practical issues surrounding whether clinicians themselves constitute a facilitator or barrier to their clients' full participation and social integration. He wrote, "It is crucial that speech-language pathologists be self-reflective and think about whether our clients view us as facilitators to greater access in their lives, or . . . just another person who diminishes their feelings of self-worth" (pg. 73). The author also examined the distinction and interactions between ICF-oriented "demographic

Personal Factors," such as gender and race, and "personality traits," which contribute to the important characteristic known as self-advocacy. In so doing, the author expressed the idea that "the responsibility is on the speech-language pathologists to assist in the client's ability to self-advocate" (pg. 75).

Citation: Threats T. Access for persons with neurogenic communication disorders: Influences of personal and environmental factors of the ICF. *Aphasiology* 2007; 21(7):67-80.

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Health-Related Quality of Life

- 15) "Health-Related Quality of Life (HRQoL) Domains Most Valued by Urban isiXhosa-Speaking People."

This innovative article from South African authors presents the results of a descriptive study using a cross-sectional survey, and a subsequent ICF-mapping endeavor, related to measuring both the general and health-related quality of life factors that are most important to members of an "under-resourced" population, in this case urban South Africans. Xhosa is the second most commonly spoken language in South Africa; historically, Xhosa-speaking persons had been particularly burdened by policies upholding apartheid. The authors conducted informal group interviews among representatives of local organizations to discern a roster of idealized components of quality of life. Then they developed a 57-item questionnaire, and associated 10-point Visual Analogue Scales with each item, to cull from respondents their preferences about each component. The authors categorized the results according to ICF domains. Eight of the 10 most preferred components could be categorized in the Environmental Factors domain, e.g. "ability to raise your children by yourself." The authors concluded that the general quality of life and "service delivery" aspects among the lives of persons in under-resourced areas might be "as integral to their perceived state of health" as routinely-acknowledged components of health-related quality of life.

Citation: Jelsma J, Mkoka S, Amosun SL. Health-related quality of life (HRQoL) domains most valued by urban isiXhosa-speaking people. *Quality of Life Research* 2008 (February); 17:137-145.

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Town, South Africa; E-Mail address: Jennifer.Jelsma@uct.ac.za .

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16) "Health-Related Quality of Life of Stroke Survivors Attending the Volunteer Stroke Scheme"

This article from Irish authors presents a simple description of the types of secondary or psychological disability experienced among participants within the Irish Volunteer Stroke Scheme (VSS), a nationwide consortium of providers of community-based therapeutic activities involved in after-care for stroke patients. Among the members of a convenience sample of 41 VSS patients (mean age of 67.2 years), the investigators administered a battery of conventional assessment instruments "to provide the first profile of VSS attendees in terms of their functioning across the range of recommended ICF outcomes" (pg. xx2). These included the Mini-Mental State Examination to determine the severity of cognitive impairments among members of the sample; the Hospital Anxiety and Depression Scale; the Barthel Index and the Frenchay Activity Index to determine the degree of independence in performing ADLs and IADLs; and the Medical Outcomes Study Short Form 36 to determine the degree of health-related quality of life among these patients in relation to Irish population norms based on the SF-36.

The authors developed a demographic and functional status profile among members of the sample. They determined more than one-third of the patients exhibited cognitive impairment, and more than one-third also exhibited clinical depression. Related to functional status, "a large proportion of participants needed help with basic ADLs," and "the greatest level of disability was in relation to feeding: over half of stroke survivors needed help with feeding" (pg. xx3). Regarding HRQOL, "The sample reported a low level of HRQOL with sample means significantly lower than age appropriate Irish SF-36 norms for all scales except bodily pain and general health self-rating" (pg. xx3). More than a quarter reported financial difficulties. They concluded "Stroke survivors reported a wide range of impairments across the range of ICF categories," but that "such disabilities are potentially preventable through the provision of appropriately resourced community resources to support the VSS" (pg. xx4).

Citation: Tobin C, Hevey D, Horgan NF, Coen RF, Cunningham CJ. Health-related quality of life of stroke survivors attending the Volunteer Stroke Scheme. Article in Press, Corrected Proof, available online February 2, 2008, accessed

April 11, 2008, *Irish Journal of Medical Science* 2008; [doi:10.1007/s11845-008-0120-8](https://doi.org/10.1007/s11845-008-0120-8) .

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Mobility

- 17) "Cognitive Representations of Disability Behaviours in People with Mobility Limitations: Consistency with Theoretical Constructs"

This complex article by authors from Scotland and England attempted to find common ground between two prominent psychological theories, Ajzen's "Theory of Planned Behavior," and Bandura's "Social Cognitive Theory," and what the current authors have called their "medical model of disability," which they cast as being represented by the ICF. These authors elicited sets of "personal constructs" among 13 study participants, who each experienced mobility limitation attributable to osteoarthritis. A "personal construct" is a combination of text words selected from a stock list and expressed by a study participant during an elicitation interview, as a textual (cognitive) representation of each participant's perception of a particular aspect or "element" of mobility impairment. For example, three personal constructs expressed by one participant included "Hurts," "Requires a lot of joint movement," and "Makes me stiff." The authors compiled many sets of personal constructs. Then they compared the number of personal constructs expressed by participants in response to prompts associated with the Aizen and Bandura psychological theories, to the corresponding number of personal constructs expressed by participants to prompts associated with the "medical model," namely, the ICF.

The participants' personal constructs provided a profile of their abilities and willingness to overcome perceptions of deficiency associated with their disability. Many personal constructs represented the participants' need for support, the amount of effort required to perform an activity, the important influence of the fear of falling among persons with mobility limitations, and their degree of breathlessness in performing an activity.

Health psychologists serving as judges determined the degree of consistency among the participants' cognitive representations with the two psychological theories, and the ICF, respectively. They judged all three to be

legitimate models for relaying the depth and breadth of self-perceived disablement. But they also judged that the ICF itself is poorly aligned with these two psychological theories. They wrote, "[T]he results show that individuals with activity limitations conceptualize activities in a manner that is compatible with both psychological and medical models. At a practical level, this ensures adequate communication in contexts where the medical model is relevant, e.g., clinical contexts . . . At a theoretical level, the results suggest that some accommodation between medical and psychological models of disability may be possible and testing combined models would be of value" (pg. 132).

Citation: Dixon D, Johnston M. Cognitive representations of disability behaviours in people with mobility limitations: Consistency with theoretical constructs. *Disability and Rehabilitation* 2008; 30(2):126-133.

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- 18) "Factors Associated with Restricted Mobility Outside the Home in Community-Dwelling Adults Ages Fifty Years and Older with Knee Pain: An Example of Use of the International Classification of Functioning to Investigate Participation Restriction"

This moderately complex analysis of cross-sectional survey results mainly referenced the conceptual framework of the ICF, to acknowledge that environmental factors might be as epidemiologically forceful as individual or clinical factors among persons with knee pain in contributing to their overall mobility limitation. In this case, mobility limitation mainly referred to mobility outside the home. The British authors utilized results from a survey conducted as part of the North Staffordshire Osteoarthritis Project. In their secondary analysis, results from 2,252 respondents over age 50 years were stratified according to their corollary responses to the investigators' own instrument known as the Keele Assessment of Participation, whose items are phrased to capture performance ("I have") and the nature and timeliness of participation ("as and when I have wanted"). Other independent variables were selected from the Medical Outcomes Study Short Form 36 instrument. They concluded that, much as the ICF's interactive model might suggest, the nature and importance of environmental factors like poor access to public transportation or access to an automobile had been nearly as statistically relevant to overall mobility impairment as knee pain severity, age, and use of assistive devices.

Citation: Wilkie R, Peat G, Thomas E, Croft P. Factors associated with restricted mobility outside the home in community-dwelling adults ages fifty years and older with knee pain: An example of use of the International Classification of Functioning to investigate participation restriction. *Arthritis and Rheumatism* 2007 (December 15): 57(8):1381-1389.

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Occupational Therapy

- 19) "Actual vs. Best Practices for Young Children with Cerebral Palsy: A Survey of Paediatric Occupational Therapists and Physical Therapists in Québec, Canada"

This article from Canadian clinicians represented a study conducted as part of a multi-center, province-wide, cross-sectional survey investigating OT and PT practices for children with cerebral palsy (CP) in Québec. The goal had been to identify barriers to and enablers of adopting evidence-based practices among clinicians in these two fields. This telephone survey involved a structured interview eliciting clinical opinions from nearly 150 OTs and PTs who observed vignettes of two children with CP at two different ages, 18 months and 4 years.

The authors organized their survey response sets according to the ICF domains. Outcomes reflected differences among the clinicians in problem identification strategies, assessment, use of selected standardized assessment instruments, decision-making for the use of interventions, duration and frequency of interventions selected, referral patterns, expression of treatment goals, and degree of treatment intensity. They concluded that "OT and PT practices for young children with CP were found to be focused more on ICF domains of 'impairments' and 'functional activities' with less attention to 'participation'" (pg. 19, quotation marks in original).

Citation: Saleh MN, Korner-Bitensky N, Snider L, *et al.* Actual vs. best practices for young children with cerebral palsy: A survey of paediatric occupational therapists and physical therapists in Quebec, Canada. Article in Press, Corrected Proof, available online July 1, 2007, accessed April 11, 2008, *Developmental Neurorehabilitation* 2007 (October 16); [doi: 10.1080/17518420701544230](https://doi.org/10.1080/17518420701544230)

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- 20) "Exploration of the Link Between Conceptual Occupational Therapy Models and the International Classification of Functioning, Disability and Health"

This important article from Austrian and German authors presented the results of a rigorous systematic literature search, the comparison of the ICF with multiple models from occupational therapy, and a mapping exercise according to generally accepted linking rules. They identified three conceptual occupational therapy models for their comparison with the ICF: the Model of Human Occupation, the Canadian Model of Occupational Performance, and the Occupational Performance Model (Australia; OPM(A)). Their efforts in linking the concepts from those three models to the ICF adhered to the linking rules published by Cieza and Stucki.*

“For example, ‘rest’ in the [OPM(A)] is defined as ‘purposeful pursuit of non-activity’ and includes ‘sleep’ as well as activities ‘undertaken in order to relax’ . . . and was therefore linked to two ICF categories: *b1349 Sleep functions, unspecified* and *d9202 Recreation and leisure, unspecified*” (pg. 12). Consensus agreement among health professionals decided those proposed linkages that did not exhibit straightforward matches. The authors linked 41 concepts from the three models in each of the ICF domains. Tables 1 and 2 in the article are both extensive representations of the discrete matches among the models. They concluded “the majority of the concepts from [these] three conceptual occupational therapy models . . . could be linked to the ICF” (pg. 17).

Citation: Stamm TA, Cieza A, Machold K, Smolen JS, Stucki G. Exploration of the link between conceptual occupational therapy models and the International Classification of Functioning, Disability and Health. *Australian Occupational Therapy Journal* 2006; 53:9-17.

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* Cieza A, Brockow T, Ewert T, Amman E, Kollerits B, Chatterji S, *et al.* Linking health-status measurements to the International Classification of Functioning, Disability and Health. *Journal of Rehabilitation Medicine* 2002; 34:205-210.

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Outcomes

- 21) "Beginning with the End: Outcome-Driven Assessment and Intervention with Life Participation in Mind"

These authors from Canada and the U.S. described the genesis of this article, stemming from a question from the floor during one of their professional presentations related to assessment and treatment of individuals with aphasia. Their questioner had asked:

"Would the choice of assessment method and intervention change if speech-language pathologists [SLPs] knew that their jobs depended on achieving outcomes in parameters that are considered important by the Life Participation Approach to Aphasia [cited] and the World Health Organization's International Classification of Functioning, Disability and Health?" (cited; pg. 309).

These authors also introduced their organizing rubric known as "Living with Aphasia: Framework for Outcome Measurement" ("A-FROM"). Graphically, the A-FROM is represented by 4 overlapping circles standing for "participation in life situations," "personal, identity, attitudes, and feelings," "severity of aphasia," and the "communication and language environment." They wrote, "A-FROM intentionally adapts and expands the World Health Organization's [ICF] for the field of aphasia" (pg. 311). In their answer to the initiating question, they wrote, "In this article, we have argued that by 'beginning at the end' [with participation, rather than impairments] and focusing on meaningful end goals within a structure such as A-FROM, the answer could be 'yes'" (pg. 316).

Citation: Kagan A, Simmons-Mackie N. Beginning with the end: Outcome-driven assessment and intervention with life participation in mind. *Topics in Language Disorders* 2007 (October/December); 27(4):309-317.

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22) "Comparison of Pediatric Outcomes Data Collection Instrument Scores and Range of Motion Before and After Shoulder Tendon Transfers for Children with Brachial Plexus Birth Palsy"

This article contributed by American authors pertains to children born with a condition known as "brachial plexus birth palsy," who subsequently undergo orthopedic surgery known as "shoulder external rotation tendon transfers" for the strengthening of their shoulder abduction functions. The authors sought to determine whether post-operative improvements in a conventional orthopedic outcome measure, range of motion (ROM), could be correlated with ICF-oriented improvements in Activities & Participation, and also with improvements in health-related quality of life, as measured by a separate instrument, the Pediatric Outcomes Data Collection Instrument (PODCI). The PODCI had not been developed according to the ICF, but in its 5 domains it does render scores on subscales in Pain/Comfort and Happiness. The 23 children in the study exhibited a mean age of 6.3 years.

The authors reported that, one year following surgery all children demonstrated improvements in active shoulder abduction and active external rotation in their upper extremities. The children's PODCI scores generally improved, too, but improvement in ROM did not correlate with improvement in PODCI scores. The authors speculated that there might be ceiling effects operating in this measurement environment, such that even robust improvements in ROM might not be feasibly associated with similar improvements in PODCI subscale scores considered components of Activities & Participation. In general, this article referred to the ICF conceptual framework as the lens through which PODCI scores should be viewed, although the PODCI is not specifically an ICF-oriented instrument.

Citation: Dedini RD, Bagley AM, Molitor F, James MA. Comparison of pediatric outcomes data collection instrument scores and range of motion before and after shoulder tendon transfers for children with brachial plexus birth palsy. *Journal of Pediatric Orthopedics* 2008 (March); 28(2):259-264.

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23) "Counting What Counts: A Framework for Capturing Real-Life Outcomes of Aphasia Intervention"

A team of Canadian and American speech-language pathologists and specialists in the treatment of aphasia prepared this article. They had developed a framework for diagnosing and treating aphasia in a manner that takes stock of the patient's quality of life. "A-FROM" is their acronym for the "Living with Aphasia: Framework for Outcome Measurement. The A-FROM is also the subject of another synopsis article in this document, in the 2007 paper by Kagan and Simmons-Mackie, who also contributed to this 2008 article; the more recent article describes the genesis and construction of the A-FROM. This framework provides "a broad, non-prescriptive conceptual approach to outcome measurement that takes account of the impact of aphasia on life areas deemed important by people with aphasia and their families" (pg. 259). The authors explained the theoretical bases for A-FROM, including its descent from an earlier "values-based" model called the "Life Participation Approach to Aphasia," which encouraged therapists to attend to topics like participation and the influence of a person's environment when treating aphasia and its consequences.

The authors also took stock of the ICF while they were developing the A-FROM. Although they considered ICF "too broad" (pg. 261) and too invested in the "linear, box-like" model ensconced in the familiar ICF schematic diagram rather than a truly interactive model, indeed the authors adopted many conceptual components of the ICF for their newer model. They also addressed the Canadian Disability Creation Process model. But the authors emphasized going beyond existing frameworks. They convened many focus groups among persons with aphasia and their families to discern the most salient components of the existing frameworks to transpose over to their A-FROM. In so doing, they asserted that "A-FROM simplifies ICF concepts by narrowing the focus to elements of practical interest in aphasia. Thus, the ICF domain of body structure and function is narrowed to *aphasia severity*, encompassing categories such as reading, writing, speaking, and understanding" (pg. 267, italics in original).

The authors concluded that although A-FROM is compatible with ICF, they promoted the newer framework for three main reasons: (1) the schematic graphics are simpler and easier to understand among both clinicians and affected persons; (2) A-FROM captures "the dynamic interaction of life domains that are related to 'real-life' outcomes" (pg. 277); and (3) A-FROM focuses on "quality of life and living with a disability as a central element created by the multiple interacting domains of life" (pg. 278).

Citation: Kagan A, Simmons-Mackie N, Rowland A, Huijbregts M, Shumway E, McEwen S, Threats T, Sharp S. Counting what counts: A framework for capturing real-life outcomes of aphasia intervention. *Aphasiology* 2008; 22(3):258-280.

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- 24) “Measures of Physical Functioning Predict Self-Reported Performance in Self-Care, Mobility, and Domestic Life in Ambulatory Persons with Multiple Sclerosis”

This study utilized a cross-sectional survey and logistic regression to identify the factors that lead to decreased performance on ADLs and increased mobility impairment among patients with MS. Those factors had been identified explicitly according to the ICF conceptual framework. These Finnish authors have contributed a statistically taut set of useful results that pointed to a set of performance-based measures (e.g., Box and Block Test; Berg Balance Scale, postural stability tests, 10-meter walk test, distance covered in a 6-minute walk test), though useful in themselves, as being poor predictors of other ADL outcomes. Such reasoning might be considered contrary to current clinical practice. Instead, the authors concluded that the comparatively high degree of interaction among the domains within ICF is particularly active among patients with MS. In that regard, such other factors as fatigue, time from previous relapse of symptoms, and scores on the instrument known as “Expanded Disability Status Scale,” all served as more epidemiologically forceful predictors of poorer overall ADL performance. Depression also demonstrated itself to be an important covariate that strengthened the negative effects of the factors above.

Figure 1 in the article (pg. 1651) impressively exhibited a schematic diagram of the overall study design and the orientation of the ICF-based outcome variables. It explicitly utilized ICF codes, and the schematic mimics the familiar diagram of the ICF interactive model.

Citation: Paltamaa J, Sarasoja T, Leskinen E, *et al.* Measures of physical functioning predict self-reported performance in self-care, mobility, and domestic life in ambulatory persons with multiple sclerosis. *Archives of Physical Medicine and Rehabilitation* 2007 (December); 88:1649-1657.

Contact the Corresponding Author for Reprints: Jaana Paltamaa, MSc, PT, Department of Health Sciences, University of Jyväskylä, Jyväskylä, Finland; E-Mail address: jaana.paltamaa@sport.jyu.fi .

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25) "Measuring Deterioration in International Classification of Functioning Domains of People with Multiple Sclerosis Who Are Ambulatory"

This relatively statistically complex article was contributed by Finnish authors. They utilized a population-based registry to identify 120 patients with MS, who then also participated in a set of examinations and tests of their functional status over nearly two year's time, to determine not only if their functioning had deteriorated but also which factors might have successfully predicted such deterioration. Their instruments included the Functional Status Questionnaire (FSQ), the Medical Outcomes Study Short Form 36, and the Expanded Disability Status Scale; outcomes included a wide array of physical and emotional function test results. Essentially, this was a responsiveness study conducted without longitudinal data, but rather innovatively, shorter-term data that contributed to modeling of what longer-term outcomes might resemble. They were actually testing the responsiveness of certain physical functioning measures among patients with MS who were ambulatory, and essentially found that ICF-oriented measures were among the strongest predictors. Clinically, it is important (in fact, even ideal) to have a clear understanding of the so-called "minimal detectable change" among particular functional status characteristics in individual patients, to know when and whether to begin alternate courses of therapy to avoid or forestall additional deterioration. This study attempted to identify such minimal detectable changes, drawing on a functional status model explicitly referencing the ICF conceptual framework.

Their results pointed to the strongest predictor variables for subsequent perceived and observed deterioration. They wrote "It is important to identify early decline, using responsive measures, in order to plan delay in progression. The measures most responsive to deterioration were the FSQ self-care, mobility, and domestic life items; walking distance and change in [heart rate] during the 6MWT [6-minute walking test]; the 10-m gait test velocities; stride length and cadence; repetitive squatting; and the BBT [Box and Block Test] of the dominant hand. . . . The results from the present study can be applied as indicators of an approximate threshold in the utility of physical functioning measures as outcome measures" (pg. 189).

Citation: Paltamaa J, Sarasoja T, Leskinen E, *et al.* Measuring deterioration in International Classification of Functioning domains of people with multiple sclerosis who are ambulatory. *Physical Therapy* 2008 (February); 88(2):176-190.

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- 26) "Promotion of Physical Fitness and Prevention of Secondary Conditions for Children with Cerebral Palsy: Section on Pediatrics Research Summit Proceedings"

This clinical Perspective piece had been contributed by American authors, representing departments of orthopedic surgery, rehabilitation sciences, physical therapy, neurology, pediatrics, and others at major American medical schools. The authors represented the Research Committee of Section on Pediatrics Research within the American Physical Therapy Association (APTA). Earlier this decade, APTA's Section on Pediatrics determined that there had been "a critical need to identify and promote effective physical fitness interventions for children with cerebral palsy (CP)" (pg.1496). To that end, the Section conducted a Research Summit in 2004 "to assimilate current and emerging knowledge on the physical fitness of children with CP and secondary complications associated with inactivity" (pg. 1496). This article presents the product of the Research Summit.

During the Summit, participants focused on two broad categories of deficiencies in physical functioning that either characterize children with CP or influence the set of factors that concurrently determine whether such children are able to achieve a state of physical fitness. The two categories had been Muscle Strength and Cardiorespiratory Fitness. The Summit participants reviewed the relevant literature and made recommendations about the degree of evidence surrounding these two categories. In keeping with their orientation toward the ICF, the Summit participants also addressed the relevant literature surrounding "Growth, Nutrition, and Secondary Conditions" among children with CP. They also reviewed evidence concerning "Barriers to Sport and Physical Fitness Participation." For example, they reviewed the statutory requirements of the Individuals with Disabilities Education Act to provide "a free public education in the least restrictive environment for children with disabilities appropriate to their needs." Nevertheless, they also reviewed evidence submitted as "consumer testimonials" revealing that "children with CP often report being sent to the library or cafeteria during times that are scheduled for recess or physical education for their classmates" (pg. 1504). Therefore, addressing "perceptions and attitudes of people who are not disabled, and policies and procedures" (pg. 1504) might take on nearly as much importance as addressing Muscle Strength and Cardiorespiratory Fitness. In calling for future research, they asserted that "Studies that address all levels of the ICF framework are needed throughout the life space and across the spectrum of functional levels" (pg. 1506).

Citation: Fowler EG, Kolobe THA, Damiano DL, *et al.* Promotion of physical fitness and prevention of secondary conditions for children with cerebral palsy:

Section on Pediatric Research summit proceedings. *Physical Therapy* 2007 (November); 87(11):1495-1510.

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Physical Therapy

- 27) "Intervention Categories for Physiotherapists Treating Patients with Internal Medicine Conditions on the Basis of the International Classification of Functioning, Disability and Health"

In this important validation study, authors from Switzerland and Germany sought to address the content validity of the items in three existing lists of ICF-oriented intervention categories specific to internal medicine. Those lists had been developed as part of previous research; they "are simply lists of ICF categories that represent the areas of functioning of patients with internal medicine conditions that are treated commonly by physiotherapists in the acute, rehabilitation, and long-term contexts" (pg. 44). In the present study, the authors aimed to revise those "ICF intervention categories for physiotherapists" through additional data collection, selection of additional items by agreement among two reviewing health professionals, and the results of a consensus conference. Their overall goal had been "to propose three different lists of ICF categories to be used for the documentation of the intervention goals of physiotherapists when treating patients with internal medicine problems in acute, rehabilitation, and long-term contexts" (pg. 45).

The authors corresponded with administrators of acute and rehabilitation facilities in Switzerland, in an effort to obtain de-identified clinical records of patients treated in the three types of treatment settings, who had both experienced internal medicine conditions and received physiotherapy treatment for such conditions. The documentation within these records that had been entered by physiotherapists was considered to represent the variety of intervention strategies and treatment goals inherent in that mode of physiotherapeutic practice. At the end, the authors determined this documentation essentially could serve as the compendium of the core competencies within the practice of physiotherapy. As a corollary goal, the investigators sought to obtain this set of clinical records from persons who roughly proportionally represented the distribution of Swiss citizens according to

their language region. Hence, about 71 percent of the records had been derived from German-speaking patients, about 25 percent from French-speaking patients, and about 4 percent from Italian-speaking patients; their records, recorded in either German, French, or Italian, were condensed by the study leader. "A total of 97 clinical records from the acute, 97 from the rehabilitation, and 86 from the community health care situations were obtained" (pg. 46).

Among patients whose records had been obtained from acute settings, "99 treatment goals, 103 interventions and 123 techniques were documented. They were linked to 28, 53, and 37 different second-level ICF categories, respectively" (pg. 46). Similar identification and linkage procedures transpired in the rehabilitation and long-term care settings. Some of these goals, interventions, and techniques had been determined by participants at the consensus conference, but others had been identified during this retrospective review. Tables 1 and 2 in the article describe the ICF-oriented categories among these goals, interventions and techniques in great detail. "Especially interesting is the fact that 'b280 Sensation of pain' was mentioned by more than 50 percent of the participants at the consensus conference in all health care situations, but only named in around 25 percent of the documentation records analyzed in this study" (pg. 48). "The study enabled the definition of 36 ICF intervention categories representing patients' problems treated by physiotherapists in the acute, 41 in the rehabilitation and 38 in the long-term contexts in the field of internal medicine. These intervention categories are available for intervention documentation in a standardized common language, the ICF, and offer the possibility to respond to the health-political demand of transparency regarding services offered by health care providers" (pg. 49).

Citation: Bürge E, Cieza A, Allet L, Finger ME, Stucki G, Huber EO. Intervention categories for physiotherapists with internal medicine conditions on the basis of the International Classification of Functioning, Disability and Health. *International Journal of Rehabilitation Research* 2008 (March); 31(1):43-50.

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- 28) "Reliability and Applicability of the ICF in Coding Problems, Resources and Goals of Persons with Multiple Injuries"

The Norwegian scientists contributing this article utilized data from a separate longitudinal study* they had been simultaneously conducting of

outcomes among persons with multiple injuries. Specifically, physiotherapists' clinical notes and observations in the individual records of patients in this cohort comprised the data set in this study. Their aims had been "to examine the inter-rater and intra-rater reliability in assigning ICF codes to physiotherapists' descriptions of problems, resources and goals in rehabilitation of severely injured persons, and to explore the feasibility of the ICF for capturing the described functional status" (pg. 98).

Six physiotherapists from the rehabilitation unit of a university hospital served as ICF coders and raters. They exhibited a range of number of years of clinical experience, from one to more than 20 years. Four of the 6 raters had very little experience with the ICF; two of the authors served as raters, and they had substantial experience with ICF coding as a corollary to their simultaneous longitudinal study. They utilized the kappa statistic, a measure of the strength of agreement between ratings or the comparison of categories. As part of their review of the physiotherapists' observations and notes, the raters also developed rosters of the most relevant ICF-coded concepts represented by the direct observations. The raters generated 373 ICF-coded concepts, which described 192 problems, 38 resources, and 143 treatment goals; the largest proportion of ICF-coded concepts (18.5 percent of the total) fell into the "joint functions and joint and skeletal structures" category (pg. 100). Table 2 (pg. 102) presented the 15 most frequently applied ICF codes, which had been distributed among 7 body functions, 1 body structure, 6 functions of activities and participation, and 1 environmental factor. "Codes that were related to movement functions and mobility totaled 1,131 of the 1,307 number of times (87 percent) an ICF code [had been] applied" (pg. 101). The results showed moderate-to-good inter-rater, and excellent intra-rater, reliability. The raters previously familiar with the ICF exhibited higher levels of agreement than less-experienced raters.

The authors also observed that, "So far, there are no brief or comprehensive (ICF) core sets available that could guide the assessment of patients with multiple injuries" (pg. 104). They asserted that the rosters of relevant ICF-coded categories of physiotherapists' services, resources and goals essentially represented an emerging ICF Core Set for rehabilitation among persons with multiple injuries. They acknowledged "A more comprehensive picture of the problems experienced by persons with multiple injuries could be achieved by development of multidisciplinary core sets including active contributions from the patients" (pg. 104).

Citation: Soberg HL, Sandvik L, Ostensjo S. Reliability and applicability of the ICF in coding problems, resources and goals of persons with multiple injuries. *Disability and Rehabilitation* 2008; 30(2):98-106.

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- * Soberg HL, Bautz-Holter E, Roise O, *et al.* Long term multi-dimensional functional consequences of severe multiple injuries 2 years after the accident: A prospective longitudinal cohort study. *Journal of Trauma* 2007 (February); 62(2):461-470.

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Policy Development

- 29) "Implementation of the International Classification of Functioning, Disability and Health in National Legislation and Policy in Japan"

Both Japanese authors are longtime contributors to the ICF- and ICF-oriented rehabilitation literature. In this review article, they sought to add to an important small set of journal articles about the challenges and successes of adding ICF-based measurement tools or policy statements to national rehabilitation and statistical activities. Specifically, the Japanese authors pointed to German* and Australian* journal articles and documents outlining the broad implementation of ICF within their national health and social service agencies, and contributed this additional article about such implementation in Japan.

Overall, they reported a robust "infusion" of ICF-oriented policies that incorporated either basic concepts from the ICF or explicitly named the Classification as the rubric for a particular measurement task. The list is extensive. On a regional basis, the Japanese government contributed substantially to an Asian Pacific "Millennium Framework" for a barrier-free society. Within definitions governing particular Japanese long-term care policies, the ICF orientation is explicit. For example, the definition of "activity training" for long-term insurance purposes calls for "independence of activities in practical daily life, and consists of training of practical gait and other activities that are performed not in gym, shop, or training room, but at ward and in outdoors" (pg. 75). Generally, the Ministry of Labour, Health and Welfare has incorporated ICF concepts within minor and major policy statements, and its overall objectives.

Citation: Okawa Y, Ueda S. Implementation of the International Classification of Functioning, Disability and Health in national legislation in Japan. *International Journal of Rehabilitation Research* 2008 (March); 31(1):73-77.

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Mail address: sat.ueda@nifty.com .

- * Schuntermann MF. The implementation of the International Classification of Functioning, Disability and Health in Germany: Experiences and problems. *International Journal of Rehabilitation Research* 2005; 28:93-102.
- * Madden R, Choi C, Sykes C. The ICF as a framework for national data: The introduction of ICF into Australian data dictionaries. *Disability and Rehabilitation* 2003; 25:676-682.

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30) "Turning the Disability Tide: The Importance of Definitions"

Two American members of the Institute of Medicine's (IOM) Committee on the Future of Disability in America contributed this Commentary. That Committee worked between 2005 and 2007 to generate the book entitled The Future of Disability in America, which featured 18 seminal recommendations about the American federal government's role in disability research; three of those recommendations had explicitly mentioned the ICF. In this Commentary, the authors focused on the changing conceptual basis for defining "disability," both in the U.S. and internationally; they specifically pointed to the revision process that updated the ICIDH into today's ICF as a watershed event in the evolution of that definition. They wrote, "(W)e argue that devising strategies to confront disability must first start by defining disability. Definitions implicitly connote goals, which in turn suggest potential solutions and targets for action. When it comes to preventing or deterring disability, this definition matters" (pg. 332).

In describing the ICF for a general readership, the authors observed, "Equally noteworthy, the ICF introduced participation in daily and community life as an explicit component of health. This concept shifted the emphasis from strict prevention to maximizing functioning and well-being --- perspectives consonant with public health goals in an aging society" (pg. 333). Referring to the IOM's 2007 recommendations for broader adoption of the ICF, they wrote, "While recognizing that further work must refine and strengthen the ICF, the IOM recommends adopting its conceptual framework in all U.S. efforts to monitor and measure population disability. Doing so would explicitly capture social and environmental contributors to disability, according them the same recognition as medical model factors" (pg. 333). They also acknowledged, though, that "No single definition of disability will likely ever suffice to meet multiple societal needs. Nonetheless, for setting policies that will affect U.S. population health over

coming decades, we advocate a definition like that of the ICF, incorporating both medical and social perspectives" (pg. 334).

Citation: Iezzoni LI, Freedman VA. Turning the disability tide: The importance of definitions. *Journal of the American Medical Association* 2008 (January 23); 299(3):332-334.

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Service Delivery

- 31) "Employing the International Classification of Functioning, Disability and Health to Enhance Services for Children and Youth with Chronic Physical Health Conditions and Disabilities"

The Canadian authors of this article have provided an overview of the applicability of the ICF "for enhancing the quality of services for children with chronic conditions and their families" (pg. 173). They presented information from their clinical site in London, Ontario about how the ICF has influenced clinical thinking and practice, research applications, and in client assessments. The ICF has coalesced with their own "Life Needs Model" of pediatric service delivery. Their researchers have "used the ICF in research, thus far, as a tool to justify the focus on multiple components of disability, and on environmental factors in studies of child health; to define study constructs; and to identify desirable outcomes of services in program evaluation " (pg. 175). They concluded that "the initial and greatest impact of the ICF . . . has been at the conceptual and services and programs level, influencing the centre's service delivery model, the focus of services and programs and research directions" (pg. 177).

Citation: McDougall J, Horgan K, Baldwin P, Tucker MA, Frid P. Employing the International Classification of Functioning, Disability and Health to enhance services for children and youth with chronic physical health conditions and disabilities. *Paediatrics and Child Health* 2008 (March); 13(3):173-178.

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Training and Dissemination

- 32) "Disseminating the WHO International Classification of Functioning, Disability and Health in the Veneto Region of Italy"

This easily readable Clinical Commentary was prepared by a team of rehabilitation physicians and professionals serving the regional Public Health and Social Service ministries in northern Italy, in the region surrounding Venice. It reports on the development and implementation of a large-scale instructional program to "inform and form" health professionals from various rehabilitation and Social Service settings about the ICF on a regional basis, toward encouraging both greater awareness and actual utilization. More than 800 professionals attended a 3-step modular training activity, first in a one-day ICF basic course, followed by a 3-day ICF advanced course, and then succeeded by three months of distance learning and a final day in which results and course evaluations had been discussed. The course was generated by a public-private partnership having been formed out of a shared perception that, in the Veneto region, few data had been "available on real numbers of people with disability, and no data are available on the type and severity of impairments" (pg. 72).

Regarding the "who, when, and how" questions about the ICF, "More than half of the groups (52%) could not indicate a preferred or fixed way in which the ICF should be used, favouring a flexible approach informed by the organizational structure of the Service using it, and by the scope of its use. . . . The second most frequent answer (24%) was the indication for a modular use, that is each professional would fill the domains most related to his profession. . . . Nobody suggested that only one person should perform the coding" (pg. 74). The authors also observed that "The major changes advocated by the bio-psycho-social model require a significant departure from very consolidated [professionals'] habits, and cannot be achieved without a preliminary extensive process of information/formation" (pg. 77).

Citation: Martinuzzi A, Frare M, Pradal M, *et al.* Disseminating the WHO International Classification of Functioning, Disability and Health (ICF) in the Veneto region of Italy. *Disability and Rehabilitation* 2008; 30(1):71-80.

Contact the Corresponding Author for Reprints: Andrea Martinuzzi, M.D., Ph.D., E. Medea Scientific Institute, Conegliano Research Centre, Conegliano, Italy; E-Mail address: andrea.martinuzzi@cn.lnf.it .

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33) "Educating Clinicians for Meaningful, Relevant, and Purposeful Aphasia Group Therapy"

This article by American authors provided an overview of not only a successful graduate program for the teaching and clinical training of rising speech-language pathologists, but also the rationale for amending such graduate educational programs in a manner that takes full stock of the ICF conceptual framework. The authors reported on trends within their graduate program that had been spawned by the development and promotion of the "Life Participation Approach to Aphasia" model. They advocated for graduate SLP curricula that incorporate the ICF not only in instruction but also in practicum content. Such curricula would integrate theory, research, and practice across several medical and psychosocial models of rehabilitation. The tasks involved in training the next generation of speech pathologists start with orienting the student toward a holistic interpretation of aphasia, engaging in collaborative goal-setting, and gaining experience in conducting group therapy among persons with aphasia. Supporting caregivers and nurturing a patient-advocate role are also important components of their new curricular approach.

Citation: Glista SO, Pollens RD. Educating clinicians for meaningful, relevant, and purposeful aphasia group therapy. *Topics in Language Disorders* 2007 (October/December); 27(4):351-371.

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34) "The Impact of Introducing an ICF-Based Rehabilitation Tool on Staff Satisfaction with Multidisciplinary Team Care in Rheumatology: An Exploratory Study"

An "under-studied" area of ICF implementation pertains to the degree to which clinical team members interact more successfully when using an ICF-based assessment instrument or reporting form, in order to accentuate the "common language" features inherent in ICF. This study from Dutch authors addressed a component of that area, and yielded interesting findings.

The investigators sought to measure whether the introduction and relatively mandatory use of an ICF-based assessment instrument in a busy rheumatology rehabilitation clinic would lead to differential effects according to training levels, administrative workload, and satisfaction with team conferences. Overall, their study is about team functioning, in this case the functioning of the team when influenced by a standardized reporting mechanism constructed according to the ICF conceptual framework. One powerful feature of the test-retest study design they used is its duration: Times 1 and 2 were separated by more than a year. The instrument was the Rehabilitation Activities Profile (RAP), which has conceptual roots in the ICIDH. The five main RAP domains are divided into 21 items, which incorporate 71 sub-items, mainly related to the ICF Activities and Participation domain.

They concluded that “the implementation of an ICF-based rehabilitation tool improved the perception of cohesion [among clinical staff members] in the day patient setting, whereas in the inpatient setting, the perceptions of cohesion and of order and organization decreased. Health professionals’ satisfaction with team conferences increased in a day patient setting, whereas in the inpatient setting the effect was absent. Overall, the time spent on administrative tasks increased in both settings” (pg. 29). They also advocated “the impact of introducing rehabilitation tools should be studied at the level of individual teams rather than considering teams homogenous” (pg. 34).

Citation: Verhoef J, Toussaint PJ, Putter H, Zwetsloot-Schonk JHM, Vliet Lieland TPM. The impact of introducing an ICF-based rehabilitation tool on staff satisfaction with multidisciplinary team care in rheumatology: An exploratory study. *Clinical Rehabilitation* 2008; 22:23-37.

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35) “The International Classification of Functioning, Disability and Health in Practice in Rheumatological Care and Research”

This review article is intended for free distribution on a “WedMD” partner website for physicians, Medscape, which publishes a wide variety of on-line journals in their “Current Opinions” series. The Austrian authors reviewed studies in the recent ICF literature that utilized qualitative methods, to accentuate the premise that including a patient perspective and a biopsychosocial approach in rheumatologic care can enhance the course of treatment. Then, they reviewed

ICF-oriented studies that utilized quantitative methods in the rheumatologic fields. Pertinently, they introduced the ICF Core Set for osteoarthritis, to which these authors had previously contributed, as a useful tool in either qualitative or quantitative studies. They concluded "The ICF can serve as an independent comprehensive frame of reference for determining the typical problems of patients, which can then be measured by specific instruments. While ICF categories determine health problems of patients in a certain area, researchers and clinicians could select an appropriate instrument based on the linkage of the instruments to the ICF, [which] may thus be considered similar to translating concepts in a standard language which all people may understand" (pg. 188).

Citation: Stamm T, Machold K. The International Classification of Functioning, Disability and Health in practice in rheumatological care and research. *Current Opinions in Rheumatology* 2007 (March); 19(2):184-189.

Contact the Corresponding Author for Reprints: Tanja Stamm, Ph.D., Division of Rheumatology, Department of Internal Medicine III, Vienna Medical University, Vienna, Austria; E-Mail address: tanja.stamm@meduniwien.ac.at . The full text of the article is also freely available on Medscape, at this website link: http://www.medscape.com/viewarticle/551886_print .

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36) "Publishing in Physical and Rehabilitation Medicine"

The editors-in-chief or associate editors of 5 of the most prominent international rehabilitation journals contributed this timely Editorial. It represented the product of a panel discussion on publishing in rehabilitation journals conducted during the Fourth World Congress of the International Society of Physical and Rehabilitation Medicine, in Seoul in June, 2007. They emphasized "issues relevant to the publication of research in the field, the peer review process, and the role of the specialty journals" (pg. 215). The 5 journals represented by these editors included the *American Journal of Physical Medicine and Rehabilitation* (Professor Frontera), the *Journal of Rehabilitation Medicine* (Professor Grumby), the *Archives of Physical Medicine and Rehabilitation* (Professor Basford), *Disability and Rehabilitation* (Dr. Müller), and the *International Journal of Rehabilitation Research* (Professor Ring). Interestingly, this article was published simultaneously within the *AJPM&R*, *Disability and Rehabilitation*, and the *JRM*.

In describing the future of not only rehabilitation medicine but also the scientific reporting of research results in its journals, these editors explicitly mentioned the ICF. In the future, "We would also expect to have . . . an audience

with a broader range of scientific and clinical interests. There will hopefully be an expansion of evidence-based medicine as the prevailing clinical strategy. The International Classification of Functioning, Disability and Health may also be used more frequently as a framework for reporting scientific findings stressing participation, at different levels and types of activities, as a result of successful rehabilitation and environment modulation" (pg. 220).

Moreover, on the question of whether more rehabilitation journals are needed, the editors answered, "the amount of research conducted in the field is increasing, and the number of articles submitted for review is growing at a faster rate than the number of pages available for publishing. We must be careful, however, about equating volume with quality. More high-quality journals are needed because there is an upper limit to the size of individual journals. But this depends on the quality of rehabilitation science generated around the world. . . . Another consideration is that more journals may be needed in other regions of the world outside Europe and the United States" (pg. 220).

Citation: Frontera WR, Grimby G, Basford J, Muller D, Ring H. Publishing in physical and rehabilitation medicine. *American Journal of Physical Medicine and Rehabilitation* 2008 (March); 87:215-220.

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Please note the same article with the same authors had been simultaneously published in two of the other journals represented by their editors, as follows:

Disability and Rehabilitation 2008, 30(7):487-492, and
Journal of Rehabilitation Medicine 2008 (March); 40(3):161-165.

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- 37) "The World Health Organization's International Classification of Functioning, Disability and Health: Implications for Clinical and Research Practice in the Field of Augmentative and Alternative Communication"

Australian, South African, and Swedish authors contributed to this review article, which had been designed for reading by clinicians in the various fields under the umbrella of Augmentative and Alternative Communication (AAC). Their purposes had been to review the historical advances associated with the revision of ICIDH into the ICF, and to present suggestions for using both the ICF and ICF-CY in AAC clinical research and practice. The authors carefully

delineated a set of answers to the main question, "Why is the ICF important for the AAC field?" For example, those answers include the premise that the ICF provides a focus on the individual and his or her environment, expands the concept of participation, and utilizes universal terminology that can facilitate intra-professional communication.

The authors observed that "In the ICF-CY, the communication domain at the activity and participation levels has been given special attention" (pg. 357). To the extent that interventions in AAC involve a cycle of steps from problem description and ranking to evaluation and outcome, they observed that "The ICF provides levels of constructs and a framework for problem solving that can be effective in planning clinical interventions. If the problem is described as a participation restriction, then the goal must be framed in terms of increased participation" (pg. 357). They had not been completely laudatory of the ICF, though, and their description of the problems associated with using the ICF is generally helpful to clinicians trying to understand the ICF initially. For example, they wrote, "(M)any practitioners may find it difficult to distinguish between activity and participation. Developing and empirically testing whether it is possible to separately code activity and participation will add to the potential for the ICF to be a useful tool" (pg. 359).

Citation: Raghavendra P, Bornman J, Granlun M, Björk-Åkesson E. The World Health Organization's International Classification of Functioning, Disability and Health: Implications for clinical and research practice in the field of augmentative and alternative communication. *Augmentative and Alternative Communication* 2007 (December); 23(4):349-361.

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