

## Quantifying Function: The Rest of the Measurement Story

### MeSH TERMS

- activities of daily living
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- recovery of function

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In this era of health care reform, funding caps, and restricted access to services, occupational therapy practitioners are challenged to validate their services and justify their place in the health care arena. The strength of our profession lies in our unique ability to thoroughly and comprehensively measure *function*—a person's ability to perform a specific daily life activity such as transferring from a wheelchair to a toilet or maintaining a monthly budget that supports shared apartment living. The *International Classification of Functioning, Disability and Health* (World Health Organization, 2001) defines *function* in terms of body impairments, activity limitations, and participation restrictions. Although occupational therapy practitioners have always agreed that evaluating and treating function is the essential core of the profession, we have not consistently agreed on the definition of function or the best methods to measure it.

### Divided Definitions of Function

In the past several decades, as the profession has gained greater sophistication in the knowledge of instrument development and testing, two poles have emerged. One pole has promoted the idea that function should be defined and measured by a client's performance of life roles and the meaningful activities that are part of those roles (e.g., being able to resume the role of artist after stroke). Assessment is focused on a client's participation restriction, occupational balance, and life-role configuration. This pole has frequently been referred to as a *top-down approach* (Meriano & Latella, 2008, p. 132).

A second pole has argued that function should be defined and measured by the specific, discrete body impairments that affect larger daily life activities (e.g., being able to regain fine motor movements and sensory awareness in the right hand after stroke to manipulate paintbrushes). Assessment is focused on body impairment-level pathology. This pole is frequently referred to as a *bottom-up approach* (Meriano & Latella, 2008, p. 132).

Compounding this divide is the clinical setting's preference for home-grown assessments, which are neither reliable nor valid, over standardized instruments (Radomski & Trombly Latham, 2008). From the clinical perspective, many standardized instruments seem time and cost inefficient and can be divorced from the relevance of problems encountered by clients and their caregivers.

At this critical juncture in the profession's history, when our foremost priority is to demonstrate the effectiveness of our services to remain approved providers, several matters have become evident:

- We have wasted time and resources arguing over personal agendas that have split the profession.
- Function must be defined and measured by discrete body impairments, activity limitations, and participation restrictions in accordance with the needs of the client and clinical setting and with the client's stage of rehabilitation and readiness to address specific types of problems. Although the segregation of evaluation into top-down and bottom-up approaches has provided insight on the variety of occupational therapy clinical reasoning styles, it has not served

the profession to promote one over the other when both are necessary.

- To reimburse services, insurers want evidence that intervention facilitates progress in the performance of functional daily life activities that are meaningful to society. Occupational therapy assessments that focus on occupation-based terminology that is not readily understood by insurers and the larger society may not adequately demonstrate the profession's value.
- Client progress must be demonstrated through objective, measurable outcomes assessed by reliable and valid instruments. The continued reliance on unstandardized instruments to measure client outcomes does two things: (1) It reduces the credence and legitimacy of our practice in the eyes of insurers and colleagues, and (2) it fails to contribute to a database of client outcomes that can be used to support the effectiveness and cost- and time-efficiency of occupational therapy services.

## Aligning Measurement With Reimbursable Practice Codes

Not all occupational therapy constructs are easily measured, but measurement is nevertheless critical for the survival of the profession. It is important that we make the effort to define occupational therapy outcomes with specificity and objectivity and in a quantifiable way. It does not serve the profession to rely on the idea that occupational therapy practice is, in part, an art that is mysterious and indefinable. Insurers require that occupational therapy practitioners generate objective data that can precisely describe functional limitations, articulate the specific functional consequences of a disabling condition, and document objective and measurable progress in functional activities using reliable and valid instruments. Occupational therapists are licensed and valued by society for the administration of skilled measurement using standardized evaluations normed on the populations we serve.

Because insurers ultimately decide which services are reimbursable, occupational therapy services—including measurement—must be aligned with current reimbursable

practice parameters. The Centers for Medicare and Medicaid Services (CMS; 2010a) provided updated guidelines for home health therapy services in Publication 100–02, Chapter 7, which went into effect January 1, 2011. CMS (2010b) compiled a fact sheet outlining the CMS changes regarding assessment, measurement, and documentation of therapy effectiveness, stating that “the therapist must assess the patient using a method which allows for objective measurement of function and successive comparison of measurements” (p. 1).

Although payment cannot be the sole consideration when planning occupational therapy evaluation and intervention, our services must fall within the scope of reimbursable services for our clients—otherwise, clients needing occupational therapy services will not be able to obtain them. Providing services that can be afforded only by those wealthy enough to pay out of pocket is discriminatory and will compromise the survival of the profession.

Reimbursement is determined by the ability to demonstrate measurable client progress. Objective measures that can be used at various times over the course of intervention provide a clear picture of baseline function, intervention progress, and discharge functional level. In 2008, during her Eleanor Clarke Slagle lecture, Wendy Coster (2008) urged us to “examine and challenge some of the assumptions underlying the current use of measures and the conclusions being drawn from this use” (p. 744). Single measures cannot extract the whole story or describe every aspect of the client, but they begin to provide an objective framework from which to start. Using multiple measurements that can capture both performance skill deficits and meaningful life role resumption can provide a richer understanding of the client's current functional level and desired level at discharge.

## Measurement Options

As practitioners, we have access to measurement tools from our own and various other disciplines that enable objective, quantifiable measurement of specific clinical areas. The use of multiple assessments can provide information about body impair-

ment, activity limitation, and participation restriction that is essential for client-centered intervention and discharge planning. For example, a practitioner may wish to use a combination of the following instruments for a patient with stroke:

- The Fugl–Meyer Motor Assessment (Fugl–Meyer, Jääskö, Leyman, Olsson, & Steglind, 1975), a commonly used research instrument, can be used for clients with stroke to delineate movement patterns that are present or identify pathological reflex activity in the upper and lower extremities. Occupational therapists can use the upper-extremity subsection to quantify body impairment present and repeat the measure throughout the course of treatment to objectively measure progress.
- The Functional Test for the Hemiplegic Upper Extremity (Wilson, Baker, & Craddock, 1984) and the Wolf Motor Function Test (Wolf et al., 2001) are two task-based measures that can provide quantifiable data on the ability of a person with stroke to perform simple daily tasks. These tools articulate specific activity limitations by having the client perform tasks such as inserting a pillow into a pillowcase, pouring water out of a pot, folding a towel, or holding a handled bag. These tools require approximately 30 min to administer and can provide essential, measurable data.
- The Assessment of Motor and Process Skills (AMPS; Fisher & Bray Jones, 2010) is another task-based tool that provides objective scoring of the performance of everyday, familiar tasks. More than 100 tasks have been standardized for the AMPS, and the client performs two tasks of his or her choice. A certified rater scores motor components of the performance, such as the movement quality of the client, and process components, such as the ability to follow directions or recall the steps of the task. The AMPS has undergone extensive reliability and validity testing with a variety of populations and uses Rasch analysis to provide a total score that closely represents the client's true performance on activities of daily living. The AMPS uses meaningful, occupation-based tasks and can be immensely

effective in demonstrating whether our interventions translate to function.

- The Canadian Occupational Performance Measure (COPM; Law et al., 1990) is specific to the discipline of occupational therapy and has a heavy focus on performance of daily life roles and activities. This measure not only assesses aspects of a person's participation in daily activities but also, more important, can define the five most important tasks the client wishes to resume. A unique aspect of the COPM lies in its ability to identify the value that the client places on reengaging in those activities. With such data, we can begin to quantify participation.

These examples of instruments measuring body impairment, activity limitation, and participation restriction are only a few of those readily available to practitioners and researchers. The examples provided address adult physical rehabilitation, but many objective, quantifiable assessments are also available in pediatrics and mental health.

## Needed Strategies

To ensure the survival of the profession amid changing health care policies, competition with fellow health care colleagues, and limited resources, we must be able to quantifiably measure and report the outcome of the services we provide. We can no longer afford to keep using homegrown assessments lacking reliability and validity, assessments borrowed from other disciplines that do not measure occupational therapy outcomes, or occupational therapy assessments that do not measure reimbursable services.

Occupational therapy practitioners must adopt the use of cost- and time-efficient standardized assessments for their clinical settings and discard homegrown evaluations. Clinical settings should support the cost of necessary staff training and certification. Large databases of occupational therapy outcomes can then be gen-

erated for use by researchers examining the effects of services. Similarly, the use of assessments borrowed from other disciplines that do not measure function in daily life activities must be limited. Although such instruments may offer information about cognitive, visual-perceptual, sensorimotor, and mental status, they often cannot offer information about these skills in the context of functional activity. Skill levels change in the context of familiar and unfamiliar activities. Assessing skill level in isolation from activity is akin to screening blood pressure without consideration of whether the client is resting or exercising.

Occupational therapy researchers must design objective, quantifiable instruments that measure function at the body impairment, activity limitation, and participation restriction levels. It is equally necessary to reduce limited resources spent on designing instruments that measure occupational therapy constructs that are neither understood by the larger society nor reimbursable by insurers. Development of knowledge is commendable. But we are a health care service that has an obligation to provide society with effective solutions to real human health problems. The more divorced we become from societal needs, the greater the risk to the survival of the profession.

As occupational therapists, we must come to terms with both our medical and our occupational science roots. In the past four decades, the pendulum has swung from a medical model emphasis to an occupation-based one. But the pendulum must be in balance. We need to recognize that both information banks are essential to our professional identity and ability to administer skilled services for which we are licensed. ▲

## References

Centers for Medicare and Medicaid Services. (2010a). *Medicare benefit policy manual*. Retrieved from [\[Only-Manuals-IOMs-Items/CMS012673.html\]\(http://www.cms.gov/Regulations-and-Guidance/Manuals/Internet-Manuals-IOMs-Items/CMS012673.html\)](http://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Internet-</a></p></div><div data-bbox=)

Centers for Medicare and Medicaid Services. (2010b). *Therapy requirements fact sheet*. Retrieved from [www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HomeHealthPPS/downloads/Therapy\\_Requirements\\_Fact\\_Sheet.pdf](http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HomeHealthPPS/downloads/Therapy_Requirements_Fact_Sheet.pdf)

Coster, W. J. (2008). Embracing ambiguity: Facing the challenge of measurement (Eleanor Clarke Slagle Lecture). *American Journal of Occupational Therapy*, 62, 743–752. <http://dx.doi.org/10.5014/ajot.62.6.743>

Fisher, A. G., & Bray Jones, K. (2010). *The Assessment of Motor and Process Skills: Vol. I. Development, standardization and administration manual* (7th ed.). Fort Collins, CO: Three Star Press.

Fugl-Meyer, A. R., Jääskö, L., Leyman, I., Olsson, S., & Steglind, S. (1975). The post-stroke hemiplegic patient: 1. A method for evaluation of physical performance. *Scandinavian Journal of Rehabilitation Medicine*, 7, 13–31.

Law, M., Baptiste, S., McColl, M. A., Opzommer, A., Polatajko, H., & Pollock, N. (1990). The Canadian Occupational Performance Measure: An outcome measure for occupational therapy. *Canadian Journal of Occupational Therapy*, 57, 82–87.

Meriano, C., & Latella, D. (2008). *Occupational therapy interventions: Function and occupations*, Thorofare, NJ: Slack.

Radomski, M. V., & Trombly Latham, K. (2008). (Eds.). *Occupational therapy for physical dysfunction* (6th ed.). Philadelphia: Lippincott Williams & Wilkins.

Wilson, D. J., Baker, L. L., & Craddock, J. A. (1984). Functional test for the hemiparetic upper extremity. *American Journal of Occupational Therapy*, 38, 159–164. <http://dx.doi.org/10.5014/ajot.38.3.159>

Wolf, S. L., Catlin, P. A., Ellis, M., Archer, A. L., Morgan, B., & Piacentino, A. (2001). Assessing Wolf Motor Function Test as outcome measure for research in patients after stroke. *Stroke*, 32, 1635–1639. <http://dx.doi.org/10.1161/01.STR.32.7.1635>

World Health Organization. (2001). *International classification of functioning, disability and health*, Geneva: Author.