Scaling ADLs Within the MDS

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ACTIVITIES of daily living (ADLs) are among the most basic building blocks of life and are central to our ability to comprehend the experience of residents in nursing homes (1,2). Although ADL dependency is rare in the community, it is pervasive in the nursing home; and once in a nursing home, the specter of continued decline sets the tone that drives much of nursing and rehabilitative care. In U.S. nursing homes, the measurement of ADLs is based on the items in the mandated Minimum Data Set (MDS) assessment instrument—an integrated information battery with many dimensions and associated summary measures (1,3-12).

The individual ADL items in the MDS have been shown to cross-walk with elements in the Functional Independence Measure (FIM) rehabilitation tracking system (13), to be powerful predictors of resource utilization in the Resource Utilization Groups (RUG-III) system recently adopted as part of the federal Medicare Prospective Payment System (14), and to have high interassessor reliability values (6,9). For those who desire to track a single ADL area, e.g., locomotion or eating, the current scoring of the individual MDS ADL items is quite satisfactory. There are five progressive levels of dependency, and given the demonstrated reliabilities for these items, even a single category change in status can have real meaning.

At the same time, for the vast majority of applications, there is a need to go beyond the resident’s status in a single ADL area. Clinical and programmatic initiatives are almost always focused on a broader conceptualization of the self-performance status of the resident. What is needed is a system for summarizing the individual ADLs. Is the resident improving or declining in some holistic sense? Is a program effective or ineffective in improving resident status or slowing down decline? These are crucial questions, and in this article we demonstrate how the MDS ADL items can be combined to create ADL summary measures, how these measures distribute in the nursing home setting, how they change over time, and how they relate to two external criteria.

Under the MDS system, trained clinical professionals assess resident performance over a 7-day period. Each ADL has an explicit performance-based definition, and cues are provided in the User’s Manual to help staff determine who should be questioned, what to observe, and what records to keep (15).

The MDS ADL performance areas are broad in scope. Included are items that assess the last remnants of the individual’s continued involvement in personal activities—eating and body movement while in bed—the “late-loss” ADLs. Also included are items that look at higher levels of functioning, representing tasks that begin to decline prior to entering a nursing home—e.g., dressing and personal hygiene—the “early-loss” ADLs (16).

ADL classification schema were initially popularized by Katz (17,18); over time, many have commented on the aspects of personal care that should be included in an ADL battery and how these items should be scaled (16). Among the widely known scales, in addition to the Katz ADL, are the Barthel and FIM (13,19,20); and investigators have commented continually on how best to summarize these items (21-23). In this article information is presented on how the MDS ADL items can be combined to form the two types of summary ADL measures that are typically found in the literature: (i) a single, functionally meaningful, hierarchical ADL self-performance rating scale (the MDS ADL Self-Performance Hierarchy); and (ii) two versions of additive ADL scales based on the same item
pool (the MDS ADL—Short Form and the MDS ADL—Long Form). One can identify advocates for each type of measurement strategy. Hierarchical systems permit precise specification of discrete impairment levels, whereas additive systems tend to be sensitive to minute shifts in resident status; and both types of systems can be used to detect shifts in status at a programmatic level.

METHODS

Samples

Data from four samples are reported in this article. The first sample consists of 187 residents from 21 facilities for whom there are dual, independent, reliability assessments of each ADL item (6). The second consists of 175,920 MDS assessments from all nursing homes in a seven-state area. This sample of residents in 1994 was used to identify the MDS ADL items that fall into early, middle, and late-loss categories, and to model how these items can be brought together within summary ADL scales.

The two final samples include specialized data that help us understand how well the new ADL summary scales could replace the ADL measures used in the earlier studies (14,24). In one sample, we evaluate how well the MDS ADL summary scales measure ADL change in a rehabilitation intervention trial (24). This sample includes 389 residents from six nursing facilities that participated in a trial of exercise and nursing-based rehabilitation intervention. For this sample, four facilities were randomly designated as experimental sites; two were controls.

Using the last of the four samples, we evaluate how well the ADL measures predict the staff-time resources—case mix—in nursing homes. We contrast the new measures with each other and an additive ADL index (14) that is used in the Resource Utilization Groups (RUG-III) system recently adopted as part of the federal Medicare Prospective Payment system. This sample includes 2204 residents from seven states.

ADL Self-Performance Items in the MDS

Figure 1 lists the ADL items used in this study. It is important to note the scope of the item definitions, as there can be dramatic differences across instruments (16). For example, note that the dressing item requires that the person be in street clothes, and staff were required to ask questions pertaining to a frequency of task occurrence, and the mix of self-performance code representing “total dependence.” This coding scheme identifies whether the activity was or was not performed over the measurement period, the types of assistance provided, the frequency of task occurrence, and the mix of self-performance and physical support. This scoring scheme also recognizes that ADL patterns are not necessarily fully consistent over time, and the MDS coding schema attempts to record a balanced view of this diversity. For example, codes 0, 1, 2, and 3 (independent, supervision, limited assistance, and extensive assistance) are defined to permit one or two exceptions for the provision of heavier care. Permitting such exceptions has been shown to increase the average interassessor weighted kappa reliabilities by some 10 to 15% (25,26).

Analytic Strategy

The analytic activities have four objectives: (i) to identify the ADL subcomponents present in the MDS; (ii) to demonstrate how to aggregate these items in hierarchical and additive scales; (iii) to describe the scale distributions at baseline and over time; and (iv) to evaluate how these scales relate to two external criteria. Four steps were involved. In step 1, two factor analyses with oblique rotations were reviewed to provide an initial, preliminary indication of how the ADL items may be arranged—with each factor representing the coalescing of items with high shared correlational and covariance structures. One solution was based on a cross-sectional, operational form for each of the ADL items; the second was based on a change score over 90 days for these same items. In step 2, we studied further how these items could coalesce into distinct ADL components.

<table>
<thead>
<tr>
<th>Figure 1. ADL self-performance items.</th>
</tr>
</thead>
</table>

DRESSING: How resident puts on, fastens, and takes off all items of street clothing, including donning/removing prosthesis.

PERSONAL HYGIENE: How resident maintains personal hygiene, including combing hair, brushing teeth, shaving, applying makeup, washing/drying face, hands, and perineum (EXCLUDE baths and showers).

TOILET USE: How resident uses the toilet room (or commode, bedpan, urinal); transfer on/off toilet, cleanses, changes pad, manages ostomy, or catheter, adjusts clothing.

LOCOMOTION ON UNIT: How resident moves between locations in his/her room and adjacent corridor on same floor. If in wheelchair, self-sufficiency once in chair.

TRANSFER: How resident moves between surfaces—to/from: bed, chair, wheelchair, standing position (EXCLUDE to/from bath/toilet).

BED MOBILITY: How resident moves to and from lying position, turns side to side, and positions body while in bed.

EATING: How resident eats and drinks (regardless of skill). Includes intake of nourishment by other means (e.g., tube feeding, total parenteral nutrition).
Using cross-sectional data, we determined which ADLs residents first moved from the independent to a nonindependent status, and which ADLs residents were last able to retain an independent status.

The factor solutions were expected to separate items based on a hierarchy of loss, with early loss ADL items coming together as distinct from middle and late loss ADLs. We also believed that the solutions using cross-sectional and change-score operational terms might vary slightly—that the same dynamic might not be seen (16). The factor solutions gave one view of the progression from early to late loss, and the analysis in step 2 provided a slightly different view. Together, these two sets of analyses helped us finalize the assignment of ADLs into early, middle, and late loss components.

In step 3, we described the hierarchical and additive ADL summary scales. For the additive scales, KR 20 alpha reliabilities provided an indication of the consistency of the item relationships. In addition to describing these scales, we examined how these scales performed when compared to the results of previously reported ADL scales used in explaining resource utilization in nursing homes and in identifying changes in functional performance in an experimental exercise and rehabilitation intervention.

Finally, in step 4, we presented information on how these ADL measures changed over 3- and 12-month periods.

RESULTS

Reliability and Distributional Properties of ADL Items

Table 1 presents information on the interrater reliability and population distributions for the ADL items. The weighted kappas are all above the .75 threshold, considered to be evidence of excellent reliability (27). Across the ADL items, three different distributional patterns are seen: (i) for dressing, personal hygiene, and toilet use, 20% or less of the residents are in each of the three least dependent categories; about 20 to 25% receive extensive assistance, and about 40% are totally dependent; (ii) for locomotion and transfer, the distribution is bimodal in character; 20 to 33% are independent, and 33 to 41% are totally dependent; and (iii) for bed mobility and eating, the distribution is also bimodal, but there are more independent residents (36% and 44%, respectively) than dependent residents (about 20%).

Factor Analysis of ADL Items

The seven ADL items were factored and subjected to an Oblimin rotation. For the cross-sectional measures, and restricting attention only to items with a factor loading of at least .40, three factors emerged:

- Early Loss: dressing (−.86), personal hygiene (−.94), and toilet use (−.74)

Table 1. MDS ADL Item Reliabilities and Distributions*

<table>
<thead>
<tr>
<th>MDS ADL Items</th>
<th>Weighted Kappa</th>
<th>% Independent (0)</th>
<th>% Supervision (1)</th>
<th>% Limited Assistance (2)</th>
<th>% Extensive Assistance (3)</th>
<th>% Total Dependence (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dressing</td>
<td>.90</td>
<td>11.8</td>
<td>7.5</td>
<td>17.6</td>
<td>24.2</td>
<td>38.8</td>
</tr>
<tr>
<td>Personal hygiene</td>
<td>.87</td>
<td>11.9</td>
<td>8.4</td>
<td>15.5</td>
<td>22.3</td>
<td>41.9</td>
</tr>
<tr>
<td>Toilet use</td>
<td>.93</td>
<td>20.0</td>
<td>6.4</td>
<td>13.0</td>
<td>19.6</td>
<td>41.0</td>
</tr>
<tr>
<td>Locomotion on unit</td>
<td>.92</td>
<td>32.0</td>
<td>10.6</td>
<td>13.0</td>
<td>11.3</td>
<td>33.0</td>
</tr>
<tr>
<td>Transfer</td>
<td>.91</td>
<td>24.7</td>
<td>7.4</td>
<td>16.6</td>
<td>20.3</td>
<td>31.1</td>
</tr>
<tr>
<td>Bed mobility</td>
<td>.91</td>
<td>44.4</td>
<td>6.4</td>
<td>13.4</td>
<td>14.4</td>
<td>21.3</td>
</tr>
<tr>
<td>Eating</td>
<td>.94</td>
<td>36.8</td>
<td>24.2</td>
<td>10.4</td>
<td>8.4</td>
<td>20.1</td>
</tr>
</tbody>
</table>

*Responses of "activity did not occur" (code 8) were recoded to "total dependence" (4).
Toilet use 0.5 3.3 15.2 48.1 94.3 96.6
Clinically relevant categories: (i) toileting use and (ii) mobility as the number of total areas of independence decreases.

Transfer 0.5 8.8 48.2 85.4 95.5 98.0
Eating 56.2 78.7 62.3 75.1 93.6 92.4
Bed mobility 34.7 72.1 94.7 97.8 99.6 99.9
Hygiene 0.0% 2.1% 4.8% 7.2% 11.4% 51.2%
Locomotion 8.0 34.7 73.3 82.6 94.2 91.6

Note: Bold data reflect where there is an indication that independence is lost as the number of total areas of independence decreases.

Hierarchical Profile of ADL Loss
To understand further the nature of the item configuration that would best represent early, middle, and late loss ADLs, we examined which ADLs remained independent longest as residents became less and less likely to maintain any residual areas of functional independence. In Table 2, the column headings represent the count of the number from 1 to 6 of the seven ADL areas in which the residents maintained independence. The rows represent each of the individual ADL items. The values in the cells represent the percentage of persons who remained independent for the ADL under the condition that there were only the indicated number of total areas in which the resident was still independent. Finally, the bolded items in the table represent each ADL for which there was a consistent indication that independence was lost as the number of total areas of independent functioning decreased.

In Table 2, the early loss ADLs appear to be dressing and personal hygiene, the middle loss ADLs include three progressively deteriorating functions (toilet use, transfer, and locomotion), and the late loss ADLs are bed mobility and eating.

From these analyses of ADL loss, we conclude that there are two early loss ADLs, three middle loss ADLs, and two late loss ADLs.

Early Loss: dressing and personal hygiene
Middle Loss: toilet use, transfer, and locomotion
Late Loss: bed mobility and eating

The middle loss ADLs can be further disaggregated into two clinically relevant categories: (i) toileting use and (ii) movement (transfer and locomotion).

<table>
<thead>
<tr>
<th>ADL Area</th>
<th>1 ADL</th>
<th>2 ADLs</th>
<th>3 ADLs</th>
<th>4 ADLs</th>
<th>5 ADLs</th>
<th>6 ADLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hygiene</td>
<td>0.0%</td>
<td>2.1%</td>
<td>4.8%</td>
<td>7.2%</td>
<td>11.4%</td>
<td>51.2%</td>
</tr>
<tr>
<td>Dressing</td>
<td>0.1</td>
<td>0.3</td>
<td>1.4</td>
<td>3.3</td>
<td>11.4</td>
<td>70.4</td>
</tr>
<tr>
<td>Toilet use</td>
<td>0.5</td>
<td>3.3</td>
<td>15.2</td>
<td>48.1</td>
<td>94.3</td>
<td>96.6</td>
</tr>
<tr>
<td>Transfer</td>
<td>0.5</td>
<td>8.8</td>
<td>48.2</td>
<td>85.4</td>
<td>95.5</td>
<td>98.0</td>
</tr>
<tr>
<td>Locomotion</td>
<td>8.0</td>
<td>34.7</td>
<td>73.3</td>
<td>82.6</td>
<td>94.2</td>
<td>91.6</td>
</tr>
<tr>
<td>Bed mobility</td>
<td>34.7</td>
<td>72.1</td>
<td>94.7</td>
<td>97.8</td>
<td>99.6</td>
<td>99.9</td>
</tr>
<tr>
<td>Eating</td>
<td>56.2</td>
<td>78.7</td>
<td>62.3</td>
<td>75.1</td>
<td>93.6</td>
<td>92.4</td>
</tr>
</tbody>
</table>

Note: Bold data reflect where there is an indication that independence is lost as the number of total areas of independence decreases.
Scoring rules—Note the four items used to score this scale are the same as the four items used to score the MDS ADL—Short Form Scale: personal hygiene, toileting, locomotion, eating

<table>
<thead>
<tr>
<th>Category</th>
<th>Score Value</th>
<th>Category Label</th>
<th>Percent of Residents in the Cross-State MDS Sample in Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>All 4 ADLs</td>
<td>0</td>
<td>Independent</td>
<td>8.6</td>
</tr>
<tr>
<td>MDS ADL—Short Form range &gt; 0 AND All four ADLs &lt; 2</td>
<td>1</td>
<td>Supervision</td>
<td>7.4</td>
</tr>
<tr>
<td>All four ADLs &lt; 3 AND One or more of the four ADLs = 2</td>
<td>2</td>
<td>Limited</td>
<td>13.2</td>
</tr>
<tr>
<td>Both eating and locomotion &lt; 3 AND Either or both of personal hygiene and toileting &gt; 2</td>
<td>3</td>
<td>Extensive 1</td>
<td>24.9</td>
</tr>
<tr>
<td>Either eating or locomotion = 3 AND Neither of these 2 ADLs = 4</td>
<td>4</td>
<td>Extensive 2</td>
<td>12.1</td>
</tr>
<tr>
<td>One or both of eating and locomotion = 4</td>
<td>5</td>
<td>Dependent</td>
<td>17.7</td>
</tr>
<tr>
<td>All four ADLs = 4</td>
<td>6</td>
<td>Total dependence</td>
<td>16.1</td>
</tr>
</tbody>
</table>

Figure 3. Scoring rules for the MDS ADL Self-Performance Hierarchy.

Table 3. Relationship of ADL Summary Scales to External Measures

<table>
<thead>
<tr>
<th>External Measure Being Compared</th>
<th>MDS ADL—Long Form</th>
<th>MDS ADL—Short Form</th>
<th>MDS ADL Hierarchy</th>
<th>RUG ADL</th>
<th>ADL Sum of 10 Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance explanation of nursing time*</td>
<td>25.4%</td>
<td>23.2%</td>
<td>20.9%</td>
<td>24.8%</td>
<td>—</td>
</tr>
<tr>
<td>Standardized differences for experimental groups†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controls</td>
<td>.20</td>
<td>.22</td>
<td>.20</td>
<td>—</td>
<td>.24</td>
</tr>
<tr>
<td>Exercise</td>
<td>-.01</td>
<td>.01</td>
<td>.04</td>
<td>—</td>
<td>-.03</td>
</tr>
<tr>
<td>Nursing rehabilitation</td>
<td>-.17</td>
<td>-.20</td>
<td>-.18</td>
<td>—</td>
<td>-.17</td>
</tr>
</tbody>
</table>

*Percentage of variance explained by ADL measures for average daily minutes of care resident received from nursing assistants.
†Standard deviation difference between mean ADL change rate for the entire sample and the rates for the three experimental groups.

information on longitudinal change rates over 3- and 12-month periods. Over 3 months there is an average decline of about 4% of one standard deviation unit; over 12 months the rate is about 13% of one standard deviation unit.

As there is a large difference in the number of possible scale points across the three summary measures of ADL performance, it is not unexpected that there would be large interscale differences in the proportion of residents who either decline or improve over time. For example, using either the Short or Long Form scales, the proportions of persons who decline or improve are almost double the rates found for the ADL Hierarchy scale. Thus, although overall mean change is about the same, the Short and Long Form scales are more likely to detect single-point shifts in ADLs over time.

Across all three scales, the rates for decline are higher than those for improvement, and the disparity increases over time. At the same time there are residents who improve, and their proportions also increase over time.

It is also important to recognize that change in ADLs, even over 12 months, is seldom movement to either a status of total dependency or to a status of total independence. For example, for the ADL—Long Form, of those who declined over a 12-month period, the average change was 4.7 points, and 25.7% of those who declined changed by only 1 point. Of those who im-
proved, the average improvement was 3.3 points, and 35.2% of those who improved changed by only 1 point.

The 12-month rates of change were relatively constant across all baseline scale scores for all three ADL summary scales—after first excluding persons who had topped out and could therefore not further improve, or bottomed out and therefore could not further decline. Using the ADL—Long Form as an example, about 40–45% of persons with a baseline score of 0–3 declined over 12 months, about 50% of persons with a baseline score of 4–19 declined, and about 40–45% of persons with a baseline score of 20–27 declined. A similar pattern exists for improvement. Finally, for the ADL Hierarchy, when change was assessed over a 3-month period (which is the mandated time interval between MDS assessments), of the 17% of residents who either improved or declined, most changed by only a single point. Five percent had a 1-point improvement and 7% had a 1-point decline.

DISCUSSION

Using ADL functional performance items from the MDS, three new ADL scales are described—two additive, the other hierarchical. The items in these scales and the scales themselves are highly reliable, and these scales are capable of displaying resident self-performance levels along a continuum of self-involvement in personal activities of daily living. When tested in predictive and evaluative applications, these new measures have been shown to be capable of replacing other established measures. Thus, we conclude that these new scales have many applications and should prove useful to clinicians and researchers using the MDS.

In clinical applications, the ADL—Long Form will be more successful than the ADL Hierarchy in identifying residents who may undergo more minor, incremental changes. For example, if we were to use the hierarchical measure to detect change over a 3-month follow-up, our data suggest that 10.5% would decline and 6.8% would improve. On the other hand, the expected proportion of residents who would be assessed as changing based on the ADL—Long Form would be more than twice as high—23.2% would decline and 15.1% would improve. Thus, if the goal is to maximally identify residents whose ADL status is beginning to change, the ADL—Long Form is the measure of choice.

However, there is a counter position. Both measures seem to be approximately equally sensitive to issues of system change, detecting whether there are differential rates of change in ADL status across large cohorts of residents. This counter-intuitive finding arises because of the relationship between the mean change level and standard deviation value for each measure. It is the two of these factors in tandem that sets the power of the effect estimate in an experiment, and in this case there is really little reason to choose between the two types of measures. The expected mean difference over time for the ADL—Long Form may be higher than the difference for the ADL Hierarchy, but this comes with a price. The standard deviation will also be much higher for the ADL—Long Form, and the significance based on the two resulting effect estimates will be quite similar.

In addition, even from a clinical perspective, there may be situations in which one would prefer the ADL Hierarchy measure. With a hierarchical system, all shifts have immediate, substantive meaning—each of the code levels represents a distinct performance pattern. Such is not the case for a summary ADL measure, and there will be many applications in which clinicians are seeking less ambiguous guidance on what is happening to the resident. It is the ADL Hierarchy that can best respond to this need. Thus, although additive summary scores may be useful for describing overall function, they can obscure as much information as they reveal. Sometimes a change in only one key variable may be crucial in terms of understanding or tracking patient status, other times it may not; and it is the hierarchical measure that will best differentiate between these alternatives.

The component parts of these scales conform to a general ADL hierarchy and we have identified the ADL items that are associated with early loss, middle loss, and late loss. Although there is some interindividual variation, the first ADL areas for which help is required are dressing and personal hygiene; conversely, the last areas of loss, where the resident is most likely to remain at least somewhat engaged in personal activities of daily living, are moving in bed and eating.

The findings on change in the ADL scales over time point both to the challenge of preventing decline and the need to recognize that not everyone will decline and not all decline will be into a state of total dependency. Although many nursing home residents experience shifts in ADL status over a 3- to 12-month period, not all change involves decline. Over 3 months, 15% had improved, and by 12 months, 20% had improved. For nursing home residents, some decline results from transitory causes, and it is crucial for staff and families to understand that recovery can occur once the underlying acute problem is addressed (15). The challenge to minimize decline and

Table 4. Expected ADL Change Over 3 and 12 Months

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean Mean Change</th>
<th>Follow-up Mean</th>
<th>Percent Change in Standard Deviation Units</th>
<th>Time 1 to Time 2 Correlation</th>
<th>Percent Improved</th>
<th>Percent Declined</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3 Month change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADL—Long Form</td>
<td>15.12</td>
<td>0.41</td>
<td>4.4</td>
<td>.95</td>
<td>15.1</td>
<td>23.2</td>
</tr>
<tr>
<td>ADL—Short Form</td>
<td>8.66</td>
<td>0.23</td>
<td>4.3</td>
<td>.95</td>
<td>12.3</td>
<td>18.8</td>
</tr>
<tr>
<td>ADL Hierarchy</td>
<td>3.39</td>
<td>0.07</td>
<td>3.9</td>
<td>.93</td>
<td>6.8</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>12 Month change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADL—Long Form</td>
<td>14.73</td>
<td>1.28</td>
<td>13.8</td>
<td>.88</td>
<td>20.1</td>
<td>41.6</td>
</tr>
<tr>
<td>ADL—Short Form</td>
<td>8.44</td>
<td>0.72</td>
<td>13.4</td>
<td>.88</td>
<td>17.5</td>
<td>35.7</td>
</tr>
<tr>
<td>ADL Hierarchy</td>
<td>3.32</td>
<td>0.23</td>
<td>12.6</td>
<td>.88</td>
<td>10.6</td>
<td>23.2</td>
</tr>
</tbody>
</table>
maximize improvement is clear. With an appropriate model, staff can affect the rates of change experienced by nursing home residents (24).

For residents in nursing homes, a general maturational decline seems to be at work; rates of change are relatively constant along the entire ADL continuum. Short of a precipitating event, there is a process at work much like that which we have previously reported for elders in the community (28). Irrespective of where one starts at baseline on ADLs, rates of decline and improvement are relatively constant.

The MDS system and the new ADL scales described in this paper are germane to researchers and clinicians, not only in the United States, but in a wide diversity of other countries as well. The MDS is used in a large number of European countries, Canada, Japan, Korea, and Taiwan. The same scoring system is in use in nursing homes, home care, and acute in-patient mental health settings. As such, it is appropriate to ask how MDS-based scales such as the ADL measures relate to the World Health Organization (WHO) classification schema—International Classification of Impairment, Disability, and Handicaps [ICIDH (29,30)].

The World Health classification schema of impairment, disability, and handicap has existed for almost two decades. The WHO is now testing ICIDH-2, which moves towards an impairment activities and participation schema from the perspective of the MDS, and particularly the ADL measures described in this article. They emphasize both more complex causal pathways and a concern for performance-based activities. The MDS-based measures fit nicely into the WHO conceptual model. To use the ICIDH terminology within the activity area, the MDS measures are based on a description of resident performance over specified periods of time. The basic tasks of everyday life that are relevant to the end of life are succinctly captured in these ADL measures. We assess actual performance, not the potential of performance; and we qualify our measures based on the level of resident involvement, the difficulty entailed, and the need for assistance. Also within the ICIDH-2 model, we do not necessarily imply that the functional performance of the resident is due to a single disease or disorder. Such causes do exist and are often predominant, but there are also contextual or environmental factors that can impact on the activities the resident performs and the level of supports provided by others.

Finally, these internationally relevant ADL measures go a long way toward providing a consistent international language that describes function and will help us to understand the disease and motivational and environmental factors that impact on persons in nursing homes and other health care settings. The definitions of the items and the response alternatives for each item are systematic and functionally based. With these measures, we are able to establish a common language across countries. It is our hope that this will improve communication, facilitate comparisons from one country to another, and stimulate evaluations to determine how to best provide care to persons in nursing homes and other health care environments.

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Received June 23, 1998
Accepted March 5, 1999

The Oklahoma University Health Sciences Center

DONALD W. REYNOLDS DEPARTMENT OF GERIATRIC MEDICINE

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