

Research Paper

# Transitions in mobility, ADLs, and IADLs among working-age Medicare beneficiaries

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## Abstract

**Background:** Disability is a dynamic process where functional status may change over time. Examination of the Medicare population suggests that, for those over age 65, disability status will fluctuate in 30% of beneficiaries each year. Less is known about those under age 65. The dynamic nature of disability is of relevance since it has important implications for social policies related to disability.

**Objectives:** To: 1) describe the characteristics of Medicare beneficiaries eligible due to disability; and 2) estimate the proportion of individuals with transitions in functional status over a one-year period stratified by baseline characteristics and diagnostic subgroups.

**Methods:** We used the Medicare Current Beneficiary Survey from 1995 to 2005 to examine transitions in mobility and daily activities among individuals who were eligible for Medicare coverage due to disability.

**Results:** From the standpoint of function in mobility and daily activities, the working-age Medicare population with disability is fairly stable. While 75%–90% of our sample reported no disability or stable disability from one year to the next, depending on the condition and disability metric, as many as 13–14% of individuals showed improvement or decline in their functional status.

**Conclusions:** In the working-age population with disability, a small percentage of individuals will improve or worsen from one year to the next. Since these transitions are associated with a variety of individual characteristics including health conditions, further research applied to larger samples is required to refine policy relevant models that might inform decisions related to ongoing eligibility for disability programs. © 2014 Elsevier Inc. All rights reserved.

**Keywords:** Disabled persons; Limitation of activity; Mobility limitations; Government programs

Over the past several decades, rehabilitation researchers have made significant advances in understanding the causes and consequences of disability. We know that individuals with disabilities have higher health care costs, even after accounting for their health conditions.<sup>1</sup> They have less access to care and are less likely to be satisfied with the care they receive.<sup>2–4</sup> Contemporary concepts of disability suggest that it is not a static or dichotomous phenomenon, although it is often described as such in order to simplify analyses or advance policy discussions.

Disability is currently depicted as an interactive, dynamic process where people may improve or worsen over time.<sup>5</sup> Prior work done in the Medicare population suggests that, for those over age 65, disability status will fluctuate

for 30% of beneficiaries each year.<sup>6</sup> Less is known about those under age 65. The dynamic nature of disability has a profound impact not only on health care costs but also on social policy. As of January 2013, the Social Security Administration (SSA) was providing disability benefits to over 14 million children and adults, representing over 4% of the U.S. population, at an estimated federal and state cost of \$200 billion dollars.<sup>7,8</sup> These payments are made to individuals who, for health reasons, cannot work (in addition to low income adults and children who are blind, have a disability, or are over the age of 64). Current SSA rules mandate that individuals enrolled in these programs receive periodic medical continuing disability reviews (CDRs) to determine whether they still meet the medical requirements for program eligibility.

As a practical matter, these redeterminations have been difficult to obtain given the enormous backlog of initial applications already facing the SSA disability program. Over the last decade, disability applications have risen dramatically, at a rate of 31% since FY 2007, totaling 3.2 million

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claims in 2012.<sup>9,10</sup> In their March 2010 report on CDRs, SSA estimated a backlog of over 1.5 million individuals who needed to be reassessed at the end of FY 2010.<sup>9</sup> As a result, SSA estimated that from 2005 through 2010, \$1.3–2.6 million dollars were spent in benefit payments that could have been avoided had the medical CDRs in the backlog been conducted when they were due.

In an effort to understand more about disability transitions in general, and among the U.S. working-age population in particular, we examined data from the Medicare Current Beneficiary Survey (MCBS), a nationally representative, longitudinal survey of Medicare beneficiaries. We focused our efforts on those under age 65, who qualified for Medicare benefits based on disability status. Our objectives were to: describe the characteristics of Medicare beneficiaries eligible due to disability; and estimate the proportion of individuals who make transitions in functional status level over a one-year period stratified by baseline characteristics and diagnostic subgroups.

## Methods

### *Data source and analytic sample*

Our analytic sample was composed of individuals who participated in the MCBS from 1995 to 2005 and were eligible for Medicare coverage for reasons other than age or end-stage renal disease (ESRD). The MCBS is an ongoing national survey that selects a representative sample from all Medicare beneficiaries enrolled during a calendar year by using a multi-stage sampling procedure. The United States is divided into 107 geographic primary sampling units (PSUs), each composed of a group of counties, which are then subdivided into ZIP code areas. Systematic random samples stratified by age are collected within those areas. Participants are enrolled in the MCBS for up to four years and are interviewed once a year (autumn quarter) on various aspects of their health status. This interview is followed by two more interviews on health care utilization, collected four months apart. Demographic and health status variables refer to the person's status in the autumn quarter, while survival and health-related costs refer to the entire year of the interview. We used the *Cost and Use* database which links to payment data. Survey design and methods for the MCBS have been described.<sup>11</sup>

Participants less than 65 years old at the time of their first interview, who were eligible for Medicare by reasons other than ESRD, and who had at least two consecutive interviews were included in the sample. The number of consecutive interviews varied due to the design of the MCBS where participants rotate in and out; death during the survey year; and respondent refusal to continue participation in the survey.

### *Analytic variables*

During the yearly interview (autumn quarter), the status of mobility limitation, activities of daily living (ADL), and

instrumental activities of daily living (IADL) were obtained for each participant. Mobility limitation was defined according to the algorithm developed by Shumway-Cook et al.<sup>12</sup> based on four walking-related questions (“Do you have any difficulty walking?” “Do you have any difficulty walking ¼ of a mile,” “Do you need help from a person to walk?” and “Do you use equipment to walk?”). Five categories of mobility limitation were defined based on responses to these questions: none (no difficulty with walking any distance), mild (difficulty walking 2 to 3 blocks or difficulty walking but without need of help or equipment), moderate (difficulty walking with need of equipment but without need personal help), severe (difficulty walking and need of personal help to walk), and does not walk (individual reported “not walking”). ADL and IADL questions asked respondents about difficulties with certain activities. Respondents could answer “yes,” “no,” or “don’t do it.” In the latter case, there was a follow-up question asking if the respondent did not do the activity due to health problems. Respondents were classified as having difficulty with an activity if they answered “yes” to the first question or “don’t do it” followed by “yes” to the second question. ADL questions asked about difficulty bathing, dressing, eating, walking, toileting, and transferring from a bed to a chair. IADL questions asked about difficulty using the telephone, doing light housework, doing heavy housework, preparing meals, shopping, and managing money. For each respondent, we counted the number of ADL and IADL activities for which they reported difficulty.

Demographic and clinical data at baseline (1st interview) included: age, sex, race/ethnicity, education level (less than high school [HS] vs. HS graduate or higher education), income level (less than \$25,000 vs. \$25,000 or more per year), marital status (married vs. not married), self-reported health status (fair, poor, good, very good, or excellent health), smoking status (smoking now vs. not smoking), living status (living alone vs. not living alone), living setting (living in the community for the entire year, living in a facility for the entire year, or living part of the year in the community and part in a facility [both]), body mass index (BMI), number of co-morbidities (0, 1, 2, 3, or 4 or more among 18 self-reported medical conditions such as high blood pressure and arthritis), and primary reason for Medicare eligibility.

### *Transition states and types of transitions*

The five mobility limitation categories plus the category “death” constituted the set of all possible mobility states. Similarly, “death” was one of the states for total number of ADL and IADL difficulties. A transition was defined as a set of two states representing the person's state at the first and subsequent interview (one year later). Each person could contribute one or two sets of transitions, depending on the number of interviews in which they participated

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