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Services under Expanded Medicare

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Estimated Numbers of Eligible Persons for Blindness and Low Vision
Services under Expanded Medicare

It is well-documented by researchers studying blindness and low vision, including epidemiologists, demographers, and other social scientists, that the incidence rate of blindness and visual impairment increases as people age (e.g., Congdon et al., 2004; Crews, 1994; Lighthouse International, 2001; Rubin, 2000) and that these physical declines can adversely affect the individual's ability to perform activities that facilitate living independently (Alliance for Aging, 1999; Crews & Campbell, 2001; Crews & Campbell, 2004; Higgins & Bailey, 2000; Tielsch, 2000).

In 2000, nearly 35 million Americans were aged 65 years or older, representing more than 12% of the population (U.S. Census Bureau, 2001). The population of older Americans is projected to double to over 70 million by 2030, including nearly 9 million persons over age 85 (Administration on Aging, 2001). Given the greater incidence of vision impairment with age, this enormous increase in the size of the elderly population, coupled with longer life expectancies, may result in unprecedented numbers of Americans who become blind or visually impaired as they progress into old age.

Undoubtedly, many of these individuals could benefit from blindness and low vision rehabilitation services that would enable them to remain functionally independent, active members of their communities. The benefits of services that include instruction in orientation and mobility (O & M), instrumental activities of daily living (IADL), and activities of daily living (ADL) have been documented in

evaluations of rehabilitation programs (e.g., Cavanaugh & Steinman, 2004) funded under Title VII, Chapter 2 of the Rehabilitation Act of 1973, as amended (P.L. 105-220). (Title VII, Chapter 2 program funding is provided to state-federal vocational rehabilitation agencies to support independent living services to persons aged 55 or older with severe visual impairment for whom employment goals are not feasible.)

Advocates in Congress have recognized the practical benefits of blindness and low vision rehabilitation services and the inadequacy of funding given the current and projected demographic of older persons experiencing blindness and low vision. For example, the Consolidated Appropriations Act of 2004 (HR 2673) included funding for a five-year demonstration project for the provision of Medicare-covered blindness and low vision services in patients' homes by vision rehabilitation professionals (National Vision Rehabilitation Cooperative, 2004). Although originally scheduled to begin in July 2004, Centers for Medicare and Medicaid Services (CMS) staff now project that the demonstration project will be launched in selected communities throughout the U.S. before the end of 2005 (J. Coan, personal communication, March 8, 2005). Vision rehabilitation professionals will team with eye-care medical specialists in the development and implementation of written individualized vision rehabilitation plans for Medicare beneficiaries with non-correctible vision loss. According to Coan, medical doctors would claim Medicare reimbursement for such services.

The Rehabilitation Research and Training Center on Blindness and Low Vision at Mississippi State University recently conducted research on the

estimated costs of providing national Medicare coverage for blindness and low vision rehabilitation services. Medicare is a health insurance program for people 65 years of age and older, some disabled people under 65 years of age, and people with End-Stage Renal Disease. When beneficiaries with disabilities become 65 years of age they are included in the “aged” group. Medicare Part A covers inpatient hospital, skilled nursing facility, and some home health care. There is no monthly Part A premium for most beneficiaries. (A monthly premium is charged if the beneficiary or spouse does not have 40 or more quarters of Medicare-covered employment.) Medicare Part B is an optional program that requires a separate monthly premium. Part B covers physician services, outpatient hospital services, certain home health services, and durable medical equipment (CMS, 2004). Services provided by vision rehabilitation professionals would be covered under Medicare Part B. Approximately 93% of the total Medicare population are covered by both Part A and Part B (CMS, n.d.). The purpose of this research brief is to report the estimated number of blind or visually impaired Medicare beneficiaries who have Part B coverage and to report among those the number who might likely benefit from blindness and low vision rehabilitation services.

Method

Data from the 1999 Medicare Current Beneficiary Survey (MCBS) were analyzed to estimate the number of Medicare Part B beneficiaries and the number who report difficulty performing ADLs and IADLs. The MCBS is a continuous, multipurpose survey of a representative sample of the Medicare

population, including both aged (beneficiaries who are 65 and older) and disabled persons (beneficiaries who are under 65 years of age). A random sample of beneficiaries was drawn from geographic primary sampling units (PSUs), consisting of counties or groups of counties, to represent the nation, including the District of Columbia and Puerto Rico. Within the PSUs the sample was restricted to addresses within selected zip codes, or sub-PSU areas. Beneficiaries residing in these areas were then selected for the sample by systematic random sampling within age strata (i.e., 0-44, 45-64, 65-69, 70-74, 75-79, 80-84, and 85 or over).

Two public use datasets are produced from the MCBS on a calendar year basis: *Access to Care* and the *Cost and Use*. Both modules are available for health-related research, evaluation, and epidemiologic projects following submission of a written request, including detailed information of the research protocol, and at an approximate cost of \$500 for each module. The Cost and Use dataset provides more comprehensive information on all health expenditures and services and represents all persons enrolled in the program during the year. The Cost and Use dataset for calendar year (CY) 1999 was chosen for analysis because at the time of purchase, it was the latest available that included needed expenditure data on health care services. (The 2002 Cost and Use dataset is now available to researchers.) Data files were provided through CMS on tape cartridges in EBCDIC format (an alternative character code) which required conversion to ASCII format before analyses. Detailed information on the datasets can be found at <http://www.cms.hhs.gov/mcbs/default.asp>.

CY 1999 Cost and Use data included information from interviews of 13,106 Medicare beneficiaries. Full sample weights were used to estimate national population totals. Beneficiaries were interviewed in the community and in long-term care facilities. Long-term care facilities included nursing homes, retirement homes, personal care facilities, long-term units in a hospital complex, mental health facilities, assisted care homes, and institutions for persons who are mentally retarded and developmentally disabled. Approximately 12% of community interviews were conducted with a proxy. In community interviews, attempts were made to interview the sampled person unless he or she was unable to answer the questions. In these instances, the sampled person was asked to designate a proxy respondent, usually a family members or close acquaintance who was familiar with the person's health care. All facility interviews were conducted by proxy; generally nurses answered health-related questions and administrative staff answered questions about medical charges and payments. Survey items from the community and facility interviews included questions related to vision, functional skills, and general health status. Responses on these items were used to identify those beneficiaries who were blind or visually impaired and their functional status.

Medicare Part B beneficiaries were selected from the dataset and divided into two groups: (a) those surveyed in the community and (b) those surveyed in facilities. Questions regarding vision loss differed for these two groups. Beneficiaries in the community were asked if they wore glasses or contact lenses (yes or no) or if they were "blind." They were further asked if they had "no trouble

seeing,” “a little trouble seeing,” or “a lot of trouble seeing” even when wearing glasses or contact lenses. Beneficiaries living in the community were identified as blind or visually impaired if they reported themselves as blind or described themselves as having “a lot of trouble seeing” even with correction. For beneficiaries living in facilities, vision—with adequate light and with visual aids, if used—was described by proxies as either “adequate” (can see regular print), “impaired” (can see large print), “moderately impaired” (not able to see headlines but can see objects), “highly impaired” (can follow objects with eyes), or “severely impaired” (can see light, colors, shapes or has no vision). Beneficiaries living in facilities were identified as blind or visually impaired if their vision loss was described as moderately, highly, or severely impaired. For both groups, we determined that blind and visually impaired beneficiaries could potentially benefit from services if they reported difficulty with at least one ADL (e.g., bathing, dressing, eating) and at least one IADL (e.g., preparing meals, shopping, managing money). Although we did not use general health status (i.e., excellent, very good, good, fair, poor) to exclude beneficiaries, we did exclude beneficiaries who were comatose.

Results

Beneficiaries Identified as Blind or Visually Impaired

The number of Part B Medicare beneficiaries was estimated to be 36.9 million, of whom approximately 9% or 3.2 million were blind or visually impaired (see Table 1). Although not reported in Table 1, almost 90% (2.9 million) of blind

and visually impaired beneficiaries were 55 and older, and 10% (0.3 million) were below the age of 55.

<insert Table 1 about here>

Beneficiaries who Could Benefit from Services

As a measure of who could potentially benefit from blindness and low vision services, we included Part B beneficiaries identified as blind or visually who reported difficulty performing at least one ADL and at least one IADL. As indicated by Table 2, more than 17% (1.5 million) of the 8.5 million beneficiaries with difficulty performing ADLs and IADLs were blind or visually impaired. Approximately 1.3 of the 1.5 million were age 55 and over.

Almost half (46%) of all Part B Medicare beneficiaries who were identified as blind or visually impaired had difficulty with ADLs and IADLs-- 1.5 million of the 3.2 million beneficiaries. In comparison, approximately one-fifth (21%) of Part B Medicare beneficiaries without visual impairments had difficulty with both ADLs and IADLs--7.0 million of the 33.5 million.

<insert Table 2 about here>

Discussion and Implications

Analysis of the CY 1999 MCBS shows that there are approximately 3.2 million Part B Medicare beneficiaries (all ages) who are blind or visually impaired. A review of the prevalence literature provides several estimates of the number of persons 65 and over who are blind or visually impaired—for example, 7.3 million (Lighthouse International, 2001), and 5.4 million (American Foundation for the

Blind, 2001). Given CMS statistics that 96% of persons 65 and over receive Medicare, estimates using MCBS data are somewhat lower than these sources.

In contrast, DaVanzo, Dobson, and Sen (2002), using the 1999 5% Standard Analytical Part B Physician File, estimated that there are 100,860 Medicare beneficiaries who are diagnosed as visually impaired, of whom 2,680 received vision rehabilitation services covered by Medicare. Differences in prevalence estimates can be largely attributed to methods used to identify the presence of visual impairment. For example, we used self-report data, whereas DaVanzo, Dobson, and Sen used a clinical measure to identify beneficiaries with vision loss. Differences are not surprising given that prevalence rate of visual impairment and blindness are generally higher using self-reporting instruments (Massof, 2002). Further, using a physician file could result in underreporting, especially if the patient's presenting complaint is not related to blindness or visual impairment, and the physician is unaware of a visual impairment.

Even if national Medicare coverage were available for in-home blindness and low vision rehabilitation services, it is difficult to estimate the number of eligible beneficiaries who would likely receive services. Factors such as the availability of certified rehabilitation professionals (e.g., certified rehabilitation teachers, O & M instructors, low vision therapists) to provide services, perceived benefits by eligible beneficiaries, and criteria for eligibility (e.g., level of visual impairment) will affect receipt of services. We estimate that 1.5 million blind or visually impaired beneficiaries living in communities and facilities and who have difficulty performing ADLs and IADLs could potentially benefit from services.

Further, our follow-up analysis indicated that reduced functioning was related to higher Medicare costs. For example, the mean annual amount paid by Medicare for health care was almost 80% higher for the 1.5 million blind or visually impaired beneficiaries with functional difficulties relative to the amount paid by Medicare for blind or visually impaired beneficiaries without functional difficulties (\$9,266 and \$5,165, respectively). Further research is needed to determine if rehabilitation services provided by blindness and low vision professionals result in improvements in the functional health status, and thus the quality of life, of blind or visually impaired beneficiaries and if substantial reductions in Medicare costs are realized when blind or visually impaired beneficiaries receiving rehabilitation services have improved levels of ADL and IADL functioning.

References

- Administration on Aging (2001). *A Profile of Older Americans: 2001*. Retrieved August 16, 2002 from <http://www.aoa.gov/aoa/stats/profile/2001/default.htm>
- Alliance for Aging Research (1999). *Independence for Older Americans: An Investment for Our Nation's Future*. Retrieved July 24, 2004, from <http://www.agingresearch.org/brochures/independence/welcome.html>
- American Foundation for the Blind (2001). Statistics and sources for professionals Retrieved August 16, 2002 from http://www.afb.org/info_document_view.asp?documentid=1367#prev
- Cavanaugh, B. S., & Steinman, B. A. (2004). LIFE: Living Independence for Elders, State of Arkansas Title VII- Chapter 2 Evaluation Report 2003. Mississippi State University: Rehabilitation Research and Training Center for Blindness and Low Vision.
- Centers for Medicare and Medicaid Services (2004, September 20). *Medicare premiums and coinsurance rates for 2005*. Retrieved March 8, 2005, from <http://questions.medicare.gov>
- Centers for Medicare and Medicaid Services (n.d.). *2003 Data Compendium*. Retrieved March 8, 2005, from <http://www.cms.gov/researchers/pubs/datacompendium/>
- Congdon, N., O'Colmain, B., Klaver, C. C. W., Klein, R., Munoz, B., Friedman, D. S., et al. (2004). Causes and prevalence of visual impairment among adults in the United States. *Archives of Ophthalmology*, 122, 477 – 485.

- Crews, J. E. (1994). Aging and disability: The issues for the 1990s. In S. E. Boone, D. Watson, & M. Bagley (Eds.), *The Challenge to Independence: Vision and Hearing Loss Among Older Adults*, (pp. 47 - 60). University of Arkansas: Rehabilitation Research and Training Center for Persons who are Deaf or Hard of Hearing.
- Crews, J. E. & Campbell, V. A. (2001). Health conditions, activity limitations, and participation restrictions among older people with visual impairments. *Journal of Visual Impairment and Blindness*, 95, 453 – 467.
- Crews, J. E. & Campbell, V. A. (2004). Vision impairment and hearing loss among community-dwelling older Americans: Implications for health and functioning. *American Journal of Public Health*, 94, 823 – 829.
- DaVanzo, J., Dobson, A., & Sen, N. (2002). Cost estimates for the standardization of a Medicare benefit: Vision rehabilitation services. The Lewin Group, Inc.
- Higgins, K. E. & Bailey, I. L. (2000). Visual disorders and performance of specific tasks requiring vision. In B. Silverstone, M. A. Lang, B. P. Rosenthal & E. E. Faye (Eds.), *The Lighthouse Handbook on Vision Impairment and Vision Rehabilitation*, (pp. 287– 315). New York: Oxford University Press.
- Lighthouse International (2001). *Statistics on Vision Impairment*. Retrieved August 16, 2002 from http://www.lighthouse.org/vision_impairment_prevalence_older.htm

- Massof, R. W. (2002). A model of the prevalence and incidence of low vision and blindness among adults in the U.S. *Optometry and Vision Science*, 79 (1), 3 - 24.
- National Vision Rehabilitation Cooperative (2004). Omnibus bill presents major achievement. Retrieved July 24, 2004 from <http://www.medicarenow.org>
- Rehabilitation Act of 1973, as amended (P.L. 105 - 220), 20 USC 107, et seq.
- Rubin, G. S. (2000). Perceptual correlates of optical disorders of middle and later life. In B. Silverstone, M. A. Lang, B. P. Rosenthal & E. E. Faye (Eds.), *The Lighthouse Handbook on Vision Impairment and Vision Rehabilitation*, (pp. 249 – 259). New York: Oxford University Press.
- Tielsch, J. M. (2000). The epidemiology of vision impairment. In B. Silverstone, M. A. Lang, B. P. Rosenthal & E. E. Faye (Eds.), *The Lighthouse Handbook on Vision Impairment and Vision Rehabilitation*, (pp. 5 – 17). New York: Oxford University Press.
- U.S. Census Bureau (2001). Census Data for the United States. Retrieved July 24, 2004 from <http://www.census.gov/census2000/states/us.htm>

Table 1: Part B Medicare Beneficiaries by Vision and Residential Setting

	Frequency	%
Estimated Number of Blind or VI Beneficiaries		
Community	2,930,843	7.9
Facility	296,057	.8
<i>Total Blind or VI</i>		
	3,226,900	8.7
Estimated Number of Other Beneficiaries (not Blind or VI)		
Community	31,849,313	86.4
Facility	1,603,460	4.3
<i>Total Other</i>		
	33,452,773	90.7
Missing Data	197,242 ^a	.5
<i>Total All Beneficiaries</i>		
	36,876,915	99.9

^a Beneficiaries with missing data on variables used to classify beneficiaries as blind or visually impaired or by residential setting (i.e., community, facility).

Note: Due to rounding, percentages do not add up to exactly 100%.

Table 2: Part B Medicare Beneficiaries Who Have Difficulty Performing at Least One Activity of Daily Living (ADL) and at Least One Instrumental Activity of Daily Living (IADL) by Residential Setting and Age

	Age 55 and Over		Under Age 55		Total	
	<i>Freq.</i>	<i>% of total</i>	<i>Freq.</i>	<i>% of Total</i>	<i>Freq.</i>	<i>% of Total</i>
Estimated Number of Blind or VI Beneficiaries						
Community	1,252,640	14.7	169,588	2.0	1,422,228	16.7
Facility	46,408	0.5	5,381	0.1	51,789	0.6
<i>Total Blind or VI</i>	1,299,048	15.2	174,969	2.1	1,474,017	17.3
Estimated Number of Other Beneficiaries (Not Blind or VI)						
Community	5,634,482	66.2	800,906	9.4	6,435,388	75.6
Facility	545,603	6.4	62,143	0.7	607,746	7.1
<i>Total Other</i>	6,180,085	72.6	863,049	10.1	7,043,134	82.7
<i>Total All Beneficiaries</i>	7,479,133	87.8	1,038,018	12.2	8,517,151	100.0

Source: Data from Centers for Medicare and Medicaid Services, Calendar Year 1999 Cost and Use Dataset. Calculations and interpretations by the RRTC on Blindness and Low Vision, Mississippi State University.