

THE INTERSECTION OF AGE AND ELIGIBILITY:
VARIATION IN HEALTH SERVICES USE
FOR MEDICARE BENEFICIARIES

By

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Abstract

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Objective:

The purpose of this thesis is to assess variation in health services use and factors contributing to that use for Medicare beneficiaries divided both by original eligibility and age.

Background:

Originally established in 1965 to address the problem of hospital coverage for uninsured seniors, Medicare expanded its eligibility and increased covered services significantly over the following decades (Marmor, 2000). Currently, individuals can qualify for Medicare through their Social Security retirement benefits (SSA), Social Security Disability Insurance (SSDI) benefits, or a diagnosis of end-stage renal disease (ESRD). SSA benefits are only available to those 65 and older, while ESRD and SSDI benefits are for those under age 65. Existing younger/older comparisons neglect the fact that younger beneficiaries become older beneficiaries and remain within the program. Additionally, ESRD-eligible beneficiaries are generally removed from these comparisons. When subsumed into the category of older beneficiaries,

the unique characteristics of these former SSDI and ESRD beneficiaries may obscure the true degree of difference between retirees and younger beneficiaries.

Methods:

This was a secondary analysis of the Medicare Current Beneficiary Survey 2007 Access to Care database. Beneficiaries were sorted into one of five groups by entitlement and age: ESRD under age 65, former ESRD age 65 and older, SSDI under age 65, former SSDI age 65 and older, and retirees. Group classification served as the independent variable for the statistical analyses. Control and dependent variables were derived from the MCBS Access to Care Codebook and grouped into the four major areas of predisposing characteristics, enabling resources, evaluated/perceived need, and perceived access/actual use in accordance with the behavioral model of health services use (Andersen, 1995).

Results:

Analyses revealed significant levels of variation between the five groups for variables in each of the domains contributing to health services use. Significant variation was also seen among the five groups on measures of perceived access and actual use.

Conclusion:

The findings of this thesis support the assertion that dividing the Medicare beneficiary population both by original eligibility and age is necessary to meaningfully assess the health services use of Medicare beneficiaries and the factors influencing that use.

TABLE OF CONTENTS

Chapter One..... 1

 Introduction 1

 Evolution of Coverage..... 1

 Evolution of Eligibility 2

 Literature Review: Subpopulations within Medicare 5

 Theoretical Framework..... 6

Chapter Two..... 11

 Data Source..... 11

 Study Population..... 12

 Study Variables 12

 Statistical Analysis..... 13

Chapter Three 14

 Predisposing Characteristics 14

 Enabling Resources 15

 Evaluated and Perceived Need Characteristics 16

 Perceived Access..... 18

 Actual Use 18

Chapter Four 21

 Study Limitations 21

 Research Implications 22

 Clinical Implications 23

 Policy Implications 24

Conclusion..... 25

References 26

LIST OF TABLES

1. Predisposing characteristics by age and eligibility	14
2. Enabling resources by age and eligibility	15
3. Evaluated and perceived need characteristics by age and eligibility.....	17
4. Beneficiary perceptions of access by age and eligibility	18
5. Annual reimbursed health services use by age and eligibility	20

LIST OF FIGURES

1. The Andersen Behavioral Model of Health Services Use	7
2. Self-rated health percentages by age and eligibility.	17
3. Average annual health services use by age and eligibility	19

CHAPTER ONE

Introduction

Medicare is a government-managed health insurance program for retired and disabled American workers. Originally established in 1965 to address the problem of hospital coverage for uninsured seniors, the program has expanded its eligibility and increased covered services significantly over the following decades (Marmor, 2000). The Medicare population consists of retired seniors eligible through Social Security retirement benefits, disabled working-age adults eligible through Social Security Disability Insurance (SSDI) benefits, and beneficiaries of all ages eligible through their diagnosis of end-stage renal disease (ESRD). Medicare constitutes around 12% of the federal budget and 20% of national health expenditures, and is administered by the Centers for Medicare and Medicaid Services (CMS) (Kaiser Family Foundation, 2009). It is a politically successful and popular program, as well as a major payer for American health systems. Recent healthcare reform efforts have highlighted Medicare's importance as the primary government payer for healthcare services.

Evolution of Coverage

Medicare became law in 1965 and began providing coverage in 1967 (Satiani, 2009). The original version of Medicare included two primary components: a hospital insurance program (Part A) and a voluntary physician coverage benefit (Part B) (Marmor, 2000). Medicare Part C (originally known as Medicare+Choice in 1997 and renamed Medicare Advantage in 2003) introduced a managed care component wherein Medicare pays a capitated amount to private insurers in exchange for provision of HMO coverage to beneficiaries (Kaiser Family Foundation, 2009). The most recent coverage expansion to Medicare was Part D, the prescription drug coverage program authorized by the Medicare Modernization Act of 2003 (Centers for Medicare and Medicaid Services, 2004; Kaiser Family Foundation, 2009). CMS establishes a minimum standard drug benefit and private insurers provide

prescription drug coverage plans actuarially equivalent or superior to that minimum (Kaiser Family Foundation, 2009).

Evolution of Eligibility

Medicare covers retirees age 65 and older enrolled in the Social Security Old Age and Survivors Insurance program, disabled workers aged 18-64 receiving Social Security Disability Insurance, and individuals aged 18-64 diagnosed with end-stage renal disease.

When Title XVIII originally passed in 1965, Medicare eligibility applied to every citizen age 65 and older; this was restricted to Old Age and Survivors Insurance Social Security beneficiaries 65 and older in 1968 (Marmor, 2000). With the Social Security retirement benefit, the nation had an existing framework for providing government benefits to a population that was widely considered to be poor, sick, and underinsured (Marmor, 2000). The United States is the only developed country to commit to covering older citizens as the starting point for its government health insurance program (Marmor, 2000). The age of full retirement is higher for individuals born in later years; while those born in 1937 or earlier can claim full retirement on their 65th birthday, those born in subsequent years must wait additional months beyond that birthday before enrolling to claim full Social Security benefits (Social Security Administration, 2010). Retired workers remain the majority population within the program to this day, and are the only group whose eligibility does not rely on any health factors (Department of Health and Human Services, 2009).

In 1972, seven years after the program's inception, Medicare benefits were extended to disabled workers receiving financial support from the Social Security Disability Insurance (SSDI) program (Kollman, 1996). SSDI recipients become eligible for coverage after a certain period of paying into the program; the necessary period for eligibility varies depending on the duration of the beneficiary's work

life (Social Security Administration, 2009). Once qualified, SSDI-covered workers are eligible for financial support if they sustain a long-lasting (at least one year) and severe disability that interferes with their ability to work (Social Security Administration, 2008b). This financial support begins six months after the beginning of the disability, and Medicare coverage begins 24 months after the first payment (Social Security Administration, 2008b; Riley, 2004). Those who qualify for Medicare through their Social Security Disability Insurance have a wide variety of qualifying conditions and associated costs. The most common sources of SSDI eligibility are mental disorders, musculoskeletal diseases, and mental retardation (Riley, Lubitz, & Zhang, 2003).

Beneficiaries receiving disability insurance represent a faster-increasing proportion of total Social Security beneficiaries than retirees (Briesacher, Stuart, Doshi, Kamal-Bahl, & Shea, 2002). This is the result of SSDI eligibility criteria becoming less restrictive over time, along with a growing proportion of covered workers and an expanding definition of what qualifies as a work-limiting disability (Kollman, 1996; Autor & Duggan, 2006). When the program began in 1957, only those between ages 50 and 64 could receive disability benefits, and disabled workers represented only 6.31% of all new beneficiaries (Social Security Administration, 2008a; Martin & Weaver, 2005). In 1958, dependents of disabled workers were added to the beneficiary lists, and in 1960 the age restriction was removed (Kollman, 1996). Following disability insurance reform in the mid-eighties, enrollment in SSDI doubled, due in large part to ongoing expansions of the eligibility requirements, including the admission of mental illness as a disability (Autor & Duggan, 2006). By 2006, SSDI beneficiaries (including dependents) represented 17.5% of all Social Security beneficiaries and 15.3% of all Social Security expenditures (Social Security Administration, 2008a).

SSDI recipients do not immediately receive Medicare benefits after being deemed eligible, but must wait until their 25th month of financial support (Social Security Administration, 2008b). This waiting

period is intended to ensure that benefits are distributed to individuals with serious, ongoing conditions and to avoid overlapping with existing employer-sponsored coverage (Dale & Verdier, 2003). An estimated 24%-33% of those in the waiting period have no health insurance during these two years, and are often operating on very limited funds (Dale & Verdier, 2003; Riley, 2004a). However, advocacy efforts to eliminate or reduce the waiting period have not been successful except in the case of people with amyotrophic lateral sclerosis, who are now enrolled without the waiting period (Centers for Medicare and Medicaid Services, 2009d).

In the same year as SSDI recipients were added to Medicare, the program committed to cover medical services for all Americans with end-stage renal disease (ESRD) (Plough, 1986). End-stage renal disease is the terminal complication of chronic kidney disease, an affliction affecting 1 in 9 adults in the U.S. (St. Peter, 2007b). Each ESRD-eligible beneficiary is covered by Medicare after a three-month waiting period (St. Peter, 2007a). This legislative inclusion of ESRD patients was the result of their political visibility, the development of life-extending technology for ESRD patients in the forms of dialysis and transplant, and public concern about the limited access that ESRD patients had to this technology (Plough, 1986). Coverage based on ESRD terminates 12 months after dialysis concludes or 36 months after receiving a transplanted kidney (Centers for Medicare and Medicaid Services, 2009b).

Medicare eligibility has not been significantly revised since 1974. Several decades have now passed during which beneficiaries joined Medicare through these various eligibility routes. Because of the inherent differences between populations recruited due to disease status, disability status, and work status, this has created several distinct subpopulations within the Medicare program.

Literature Review: Subpopulations within Medicare

Individuals with a diagnosis of end-stage renal disease, disabled workers eligible through receipt of Social Security Disability Insurance, and retired workers are the primary beneficiaries of Medicare coverage. Spouses and children of SSDI beneficiaries and retirees are also eligible for coverage in some cases (Social Security Administration, 2008a).

Retired workers represent 83% of the Medicare population as of 2009 (Kaiser Family Foundation, 2010). Of this population, the majority are female (57.4%), white (>85%) and married (56.2%) (Briesacher et al., 2002; Kennedy, Engle, & Blodgett, 2009). Around 11.5% are dually eligible for Medicaid (Kennedy et al., 2009); these over-65 dual eligibles are more likely to be non-white, female, older (McMillan, Pine, Gornick, & Prihoda, 1983), and tend to use more medical care (Pezzin & Kasper, 2002) as compared to non-dually eligible retirees. Retirees are the most politically powerful group in Medicare, due both to their size and the influence of the AARP (the American Association for Retired Persons), which has had an active role in shaping Medicare policy for several decades (Marmor, 2000).

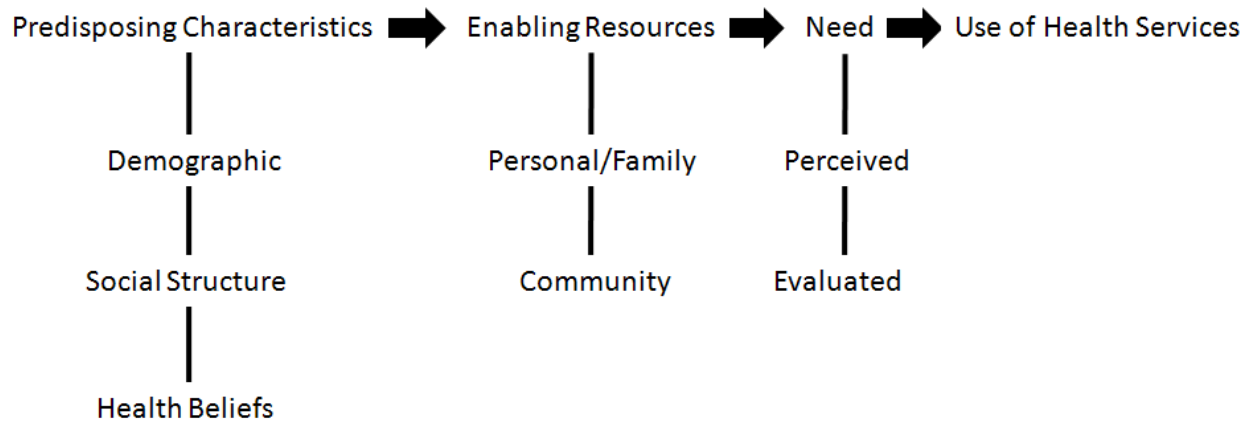
As of 2008, 7.7 million (17%) of the 45.3 million Medicare enrollees were younger beneficiaries enrolled due to SSDI or ESRD eligibility (Centers for Medicare and Medicaid Services, 2009e). However, younger beneficiaries in Medicare have not received proportionate policy and research attention when contrasted with retirees. Most recently, in the debate preceding the implementation of Medicare Part D, the overall program and specific policies within it were almost totally focused on the drug coverage needs of the elderly (Briesacher et al., 2002). This was despite the fact that disabled beneficiaries filled more prescriptions, had lower incomes, and were more likely to spend 5% or more of their income on drugs (Briesacher et al., 2002).

The state of the literature on disabled beneficiaries remains limited, although it has advanced significantly in the past two decades from the “major deficit” described by DeJong and colleagues in 1989 (DeJong, Batavia, & Griss, 1989). These advances were significantly facilitated by the introduction of the Medicare Current Beneficiary Survey (MCBS), a longitudinal panel survey conducted by the Healthcare Financing Authority. The MCBS samples beneficiaries from each eligibility group and began collecting data in 1991 (Adler, 1994). The variables included in the MCBS permit researchers to compare beneficiaries on a multitude of dimensions, including demographics, insurance coverage, rates of healthcare use, and satisfaction with care.

Theoretical Framework

As an insurance program, Medicare’s major administrative focus is reimbursement for health services provided to its beneficiaries. The Andersen Behavioral Model emerged in the late 1960s as a way to predict and explain use of health services (Andersen, 1995). Although it has been expanded and revised over the following decades to incorporate criticism and updated technology, the basic structure of the model has remained consistent. Andersen proposes that use of health services is determined by the interaction of predisposing characteristics, enabling resources, and need (Figure 1). Equitable access occurs when the predominant factor determining use is need.

Figure 1: The Andersen Behavioral Model of Health Services Use



A body of literature exists that examines the differences between younger beneficiaries in Medicare and retirees. This literature is reviewed below under the framework of the Andersen model.

The predisposing characteristics that help determine health services use vary significantly between younger and older beneficiaries. SSDI beneficiaries in Medicare have lower incomes than their retired counterparts (Kennedy & Tuleu, 2007). They are more likely to have incomes under the federal poverty line, to be male, and to be unmarried (Briesacher et al., 2002). Younger beneficiaries are also less likely to have a college degree than retirees (Kennedy et al., 2009). No studies have been conducted on differences in health beliefs between these groups.

Dual eligibility for Medicaid is the most notable enabling resource for younger Medicare beneficiaries. Medicaid is a state-run health coverage program for low-income pregnant, blind, disabled, or aged citizens (Centers for Medicare and Medicaid Services, 2009a). Around 41-43% of disabled Medicare beneficiaries are dually eligible for Medicaid, as opposed to only 11.5% of older Medicare beneficiaries (Kennedy, 2009; Riley et al., 2003). 3% of dual eligibles are ESRD patients, a disproportionate share (Collins, Chen, Gilbertson, & Foley, 2009). People eligible for both Medicare and

Medicaid tend to be poor, receive minimal education, and have very high healthcare costs (Nemore, 2005). While average Medicare costs for younger and older beneficiaries are similar, overall healthcare costs (including those paid by Medicaid and other sources) are much higher for younger beneficiaries (Riley et al., 2003). In an analysis before Medicare Part D, Medicare paid only 41% of younger beneficiaries' total healthcare costs, as opposed to 54.2% for older beneficiaries (Riley et al., 2003). Younger beneficiaries are less likely than retirees to have supplemental insurance coverage from private insurance (Rosenbach, 1995).

On multiple measures, younger beneficiaries have notably different health needs than retirees. They have higher rates of limitation in activities of daily living, and are more likely to report being in fair or poor health (Briesacher et al., 2002; Rosenbach, 1995). While they have similar rates of being diagnosed with at least one chronic condition, they are much more likely to have a psychiatric disorder than retirees (Kennedy et al., 2009). Prevalence of mental retardation and mental illness is high in this population (Foote & Hogan, 2001).

Younger and older beneficiaries also vary in their health services use. Younger beneficiaries visit the ER more frequently but visit their primary care doctor less frequently than retirees (Davis & O'Brien, 1996). Younger beneficiaries are more likely to lack a usual source of care (Beatty & Dhont, 2001), to delay care for cost reasons (Beatty & Dhont, 2001; Kennedy et al., 2009), and to fail to fill prescriptions due to cost (Briesacher et al., 2002; Kennedy & Erb, 2002; Kennedy, Tuleu, & Mackay, 2008; Madden et al., 2008). They report higher levels of unmet need and lower levels of satisfaction with their care (Adler, 1995; Davis & O'Brien, 1996). Cost-related nonadherence is associated with poorer health and higher hospitalization rates for Medicare beneficiaries (Mojtabai & Olfson, 2003). Beneficiaries with more severe disabilities and poorer self-rated health are generally more dissatisfied with the program regardless of age (Beatty & Dhont, 2001). Studies of specific healthcare conditions have highlighted

later diagnosis and lower treatment and survival rates for younger Medicare beneficiaries as compared to privately insured, non-disabled patients in the case of breast cancer and lung cancer (Iezzoni et al., 2008; McCarthy et al., 2006; Roetzheim & Chirikos, 2002). Total annual Medicare reimbursement is comparable for the two groups, but younger beneficiaries spend more of their income on out-of-pocket healthcare costs (Kennedy et al., 2009; Maxwell, Moon, & Segal, 2001).

The existing literature on younger Medicare beneficiaries describes a population that has greater healthcare need and more barriers to access than retirees. These high levels of health problems and low levels of social and financial support make younger beneficiaries more reliant on Medicare than their older counterparts. As a result, policy changes may have a greater impact on younger beneficiaries.

Despite the increasing research attention given to younger beneficiaries, a crucial element of their interaction with Medicare remains unstudied. In differentiating Medicare beneficiaries by age, researchers and policymakers traditionally contrast “younger” with “older,” “working-age” or “disabled” with “retired,” and eliminate ESRD-eligible beneficiaries from the comparisons (Briesacher et al., 2002; Foote & Hogan, 2001; Kennedy et al., 2009; Maxwell, et al., 2001; Rosenbach, 1995). A smaller number of comparisons include ESRD-eligible beneficiaries in the under-65 disabled population (Cubanski et al., 2005; Madden et al., 2008). These comparisons highlight the differences between younger and older beneficiaries, but neglect the fact that younger beneficiaries become older beneficiaries and remain within the program. These originally younger, now older beneficiaries could well have different population attributes due to their different path to entitlement. As well, the poorer health shown by these beneficiaries when younger could plausibly carry into their older life, resulting in higher healthcare cost and use. When subsumed into the category of “older” beneficiaries, the unique characteristics of these sicker, poorer beneficiaries may actually obscure the true degree of difference between retirees and younger beneficiaries. Alternately, it is also possible that these differences disappear or are reduced

when younger beneficiaries age into Medicare's majority population, which has received more targeted policy development and service integration.

The widespread removal of ESRD patients from population studies limits the generalizability of these studies' conclusions for the Medicare program. Although ESRD-eligible beneficiaries are a very small percentage of the Medicare population, their presence in Medicare is well-established and costly. To exclude them from population comparisons is to ignore their real and significant impact on overall program expenditures, and to disregard any specific policy or research needs that they may have.

This thesis asserts that Medicare research and policy based solely on age is incomplete, and that dividing Medicare beneficiary populations both by original eligibility and age is necessary to characterize these populations fully. This characterization will identify program gaps and suggest future research and policy directions for Medicare. The purpose of this thesis is to assess variation in health services use and factors contributing to that use divided both by original eligibility (SSDI, SSA, and ESRD) and age (under 65, 65 and older) in Medicare.

CHAPTER TWO

Data Source

The Medicare Current Beneficiary Survey is a longitudinal panel survey that collects the demographic information, health status, and healthcare cost and use of a nationally representative sample of Medicare beneficiaries (Centers for Medicare and Medicaid Services, 2009c). This survey was introduced in 1991 with the intent of tracking Medicare beneficiary health and costs over time, thereby identifying population trends and the impact of policy changes (Adler, 1994). Each beneficiary is interviewed three times yearly for up to four years. The MCBS has two major components, the Access to Care file and the Cost and Use file, which are released separately.

The MCBS consists of an in-person interview conducted three times per year. The survey itself is a computer-assisted tool that includes or removes specific questions based on earlier responses. Interviews are conducted with the beneficiary whenever possible, but proxy respondents are used if illness or language barriers are present. The interview-based information includes demographic information, health status and functioning information, and access to care and coverage information. Summaries of annual claims for inpatient, outpatient, skilled nursing facility, hospice, home health visits, office visits, and durable medical equipment for each beneficiary are also included in the Access to Care file.

The 2007 Access to Care file contains a sample of 15,806 Medicare beneficiaries. The MCBS uses a stratified multistage sampling strategy. The youngest (64 and under) and oldest (85 and older) beneficiary age groups are oversampled. The majority of beneficiaries (14,804 in 2007) are interviewed in the community, and the remaining beneficiaries are interviewed at their facility of residence (1,002).

Study Population

This study considers full-year Medicare beneficiaries in the 2007 Medicare Current Beneficiary Survey. Beneficiaries who died or enrolled during the 2007 study year are not included in this data. Both facility and community residents were used when possible; some interview components are available only for community residents.

Study Variables

Beneficiaries were sorted into one of five groups by entitlement and age: ESRD under age 65, former ESRD age 65 and older, SSDI under age 65, former SSDI age 65 and older, and SSA. Group classification served as the independent variable for the statistical analyses.

Variables were derived from the MCBS Access to Care Codebook and grouped into four major areas in accordance with the Andersen Behavioral Model of Health Services Use.

The areas included control variables as follows:

1. Predisposing characteristics
 - a. Demographic: gender.
 - b. Social structure: education level and race/ethnicity.
2. Enabling resources
 - a. Personal and family resources: insurance coverage, income, marital status.
 - b. Community resources: urban vs. rural residence, community vs. facility residence.
3. Need
 - a. Evaluated need: number of limitations on activities of daily living, number of chronic conditions.
 - b. Perceived need: self-rated health.

The analysis also included dependent variables based on health services use:

4. Use of health services:
 - a. Perceived access: Reports of delaying care due to cost, trouble getting needed care, and having a medical home.
 - b. Realized access: Annual reimbursed claims by unit (i.e. days, line items) and dollar amount.

Statistical Analysis

Statistical analysis for this study used chi-square tests and ANOVA. Statistical analysis was conducted in SAS, with SUDAAN (Survey Data Analysis 10.0) used to correct for the MCBS's non-random sampling procedure and create accurate confidence intervals for weighted population estimates.

CHAPTER THREE

Predisposing Characteristics

These comparisons included both beneficiaries residing in the community and those residing in long-term care facilities at the time of the interview. The five subpopulations had significant variation on dimensions of gender, race, ethnicity, and educational level attained (Table 1). ESRD beneficiaries under age 65 had the largest proportion of members from a minority racial group (54.6%), followed by former ESRD beneficiaries over age 65 (41.7%). Former ESRD beneficiaries also had the highest rate of reporting Hispanic or Latino origin (13.7%), with retirees having the lowest (7.0%). Retirees were the most educated group, with 72.8% having at least a high school diploma, as compared to only 55% of former SSDI beneficiaries over age 65.

Table 1: Predisposing characteristics by age and eligibility.

	ESRD < 65	SSDI < 65	ESRD ≥ 65	SSDI ≥ 65	SSA	χ ²	p
Estimated population (in thousands)	137	6,472	150	2,891	31,165		
% Male	73 (53.5%)	3,421 (52.9%)	82 (55.0%)	1,476 (51.1%)	13,053 (41.9%)	18.3	<.001
Race/Ethnicity						9.3	<.001
White/Caucasian	62 (45.4%)	4,777 (74.0%)	87 (58.3%)	2,249 (78.2%)	26,899 (86.6%)		
Black/African-American	52 (38.0%) †	1,150 (17.8%)	39 (25.9%)	429 (14.9%)	2,206 (7.1%)		
Asian	11 (7.7%) †	88 (1.4%)	2 (1.7%) †	28 (1.0%) †	662 (2.1%)		
Native American/Alaska Native	3 (2.4%) †	119 (1.8%) †	0	35 (1.2%) †	265 (0.9%)		
Native Hawaiian /Pacific Islander	0	26 (0.4%) †	3 (2.0%) †	7 (0.2%) †	107 (0.3%)		
Other race	4 (2.7%) †	128 (2.0%)	13 (8.7%) †	43 (1.5%) †	359 (1.2%)		
More than one race	5 (3.9%) †	166 (2.6%)	5 (3.4%) †	85 (3.0%)	549 (1.8%)		
Hispanic or Latino Origin	15 (10.8%) †	701 (10.8%)	21 (13.7%) †	258 (8.9%)	2,187 (7.0%)	5.6	<.001
Education						32.7	<.001
Not HS graduate	33 (26.5%) †	1,920 (33.5%)	52 (36.4%)	1,157 (45.0%)	7,489 (27.2%)		
HS graduate	42 (33.8%)	2,150 (37.6%)	43 (30.3%)	849 (33.1%)	9,425 (34.3%)		
Some college	32 (25.6%) †	1,150 (20.1%)	18 (13.0%) †	323 (12.6%)	4,637 (16.9%)		
College graduate and above	18 (14.2%) †	506 (8.8%)	29 (20.3%) †	239 (9.3%)	5,966 (21.7%)		

† Relative standard error (weighted estimate/standard error of the estimate) >30%, indicating an unstable population estimate.

Enabling Resources

These comparisons included both beneficiaries residing in the community and those residing in long-term care facilities at the time of the interview. Significant variation was seen on each of the measures of enabling resources (Table 2). ESRD beneficiaries under 65 and former SSDI beneficiaries 65 and over had the highest rates of facility residence (8.4% and 7.3% respectively). ESRD-eligible beneficiaries had the highest rates of residing in a metro area, whether under 65 (86.2%) or over 65 (81.0%), while SSDI beneficiaries were the most likely to live in a non-metro area, both those under 65 (27.4%) and over 65 (25%). Retirees had the highest rates of being married at the time of the interview (54.1%) and younger ESRD beneficiaries had the lowest (33.1%).

Table 2: Enabling resources by age and eligibility

Estimated population (in thousands)	ESRD < 65 137	SSDI < 65 6,472	ESRD ≥ 65 150	SSDI ≥ 65 2,891	SSA 31,165	χ ²	p
Residing in community	126 (91.6%)	6,162 (95.2%)	144 (96.2%)	2,679 (92.7%)	29,939 (96.1%)	5.14	<.001
Residing in metro area	118 (86.2%)	4,701 (72.6%)	121 (81.0%)	2,168 (75.0%)	23,995 (77.0%)	3.5	<.05
Marital Status						72.6	<.001
Married	45 (33.1%) †	2,479 (38.4%)	70 (46.8%)	1,373 (47.6%)	16,849 (54.1%)		
Never married	36 (26.5%)	1,847 (28.6%)	0	200 (6.9%)	923 (3.0%)		
Divorced/separated/ widowed	55 (40.4%) †	2,134 (33.0%)	80 (53.2%)	1,312 (45.5%)	13,354 (42.9%)		
Income Range						41.2	<.001
\$10,000 or less	53 (42.2%) †	2,026 (34.6%)	23 (17.7%) †	619 (23.8%)	3,387 (12.1%)		
\$10,001 - \$30,000	53 (42.3%) †	2,530 (43.2%)	68 (51.5%)	1,316 (50.6%)	11,798 (42.0%)		
\$30,001 - \$50,000	13 (10.7%) †	926 (15.8%)	27 (20.4%) †	498 (19.2%)	9,196 (32.7%)		
\$50,001 or more	6 (4.8%) †	377 (6.4%)	14 (10.4%) †	167 (6.4%)	3,718 (13.2%)		
Health Insurance							
Medicaid	58 (42.2%)	2,993 (46.3%)	34 (22.7%)	878 (30.4%)	3,769 (12.1%)	165	<.001
Private	66 (48.4%) †	1,562 (24.1%)	85 (56.8%)	1,111 (38.4%)	19,022 (61.0%)	144	<.001
Other public	7 (5.2%) †	109 (1.7%)	8 (5.6%) †	169 (5.8%)	1,119 (3.6%)	10.8	<.001

† Relative standard error (weighted estimate/standard error of the estimate) >30%, indicating an unstable population estimate.

Significant variation was seen among the groups for their sources of non-Medicare health insurance. As has been seen in previous studies, SSDI beneficiaries under the age of 65 had the highest rate of dual eligibility for Medicaid (46.3%) and retirees had the highest rate of private coverage (61%).

Evaluated and Perceived Need Characteristics

Only community residents were used for the need comparisons, as the medical history variables used for community and facility residents do not fully correspond. These beneficiaries varied significantly on variables assessing perceived need in the form of self-rated health and evaluated need health status in the form of number of limitations on activities of daily living and number of chronic conditions (Table 3).

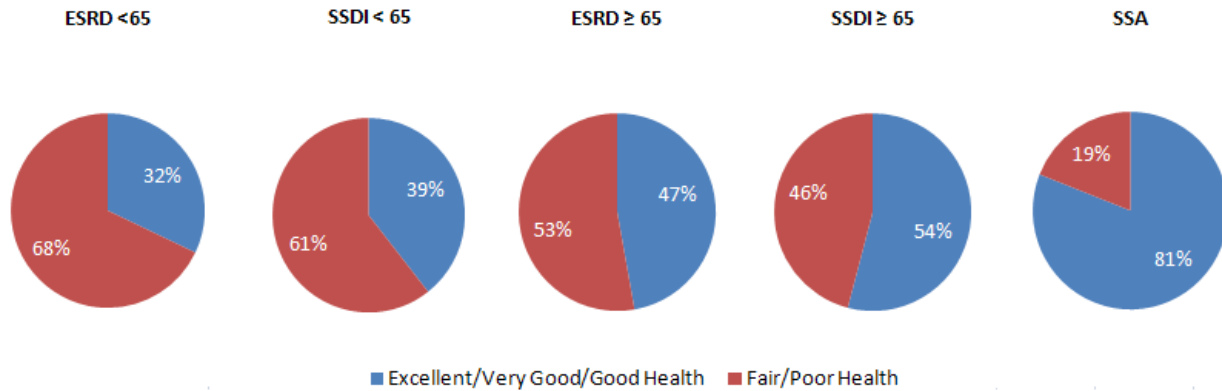
As with previous younger/older comparisons, this study found beneficiaries under the age of 65 (both SSDI and ESRD) to have the worst self-rated health (Figure 2). Younger ESRD and SSDI beneficiaries reported the lowest rates of considering themselves in excellent, very good, or good health (32.1% and 39.5% respectively), while retirees had the highest (81.1%). More former SSDI beneficiaries rated their health positively than the younger SSDI beneficiaries (54.1% vs. 39.5%) despite being more likely to have multiple chronic conditions (87.5% with two or more chronic conditions, vs. 75.2%) and having equivalent rates of ADL limitations (28.5% vs. 29.3%). A similar pattern appeared within the ESRD beneficiaries, with the older beneficiaries rating their health positively more frequently than the younger beneficiaries (47.2% vs. 32.1%), even though the older beneficiaries had higher prevalence of multiple chronic conditions (98.5% vs. 87.8%) and similar rates of ADL limitation (32.1% vs. 31.5%).

Table 3: Evaluated and perceived need characteristics by age and eligibility

Estimated population (in thousands)	ESRD < 65 N = 126	SSDI < 65 N = 6,162	ESRD ≥ 65 N = 144	SSDI ≥ 65 N = 2,679	SSA N = 29,939	χ ²	p
Number of chronic conditions*						26.9	<.001
None	0	563 (9.1%)	2 (1.5%) †	50 (1.9%)	2,321 (7.8%)		
1	15 (12.3%) †	967 (15.7%)	0	284 (10.6%)	5,055 (16.9%)		
2	21 (16.8%) †	1,212 (19.7%)	36 (25.2%) †	475 (17.7%)	7,608 (25.4%)		
3 or more	89 (71.0%)	3,421 (55.5%)	106 (73.3%)	1,870 (69.8%)	14,955 (50.0%)		
Number of limitations in ADLs**						19.8	<.001
None	86 (68.5%)	4,355 (70.7%)	98 (67.9%)	1,915 (71.5%)	25,856 (86.4%)		
1	12 (9.6%) †	735 (11.9%)	7 (5.0%) †	251 (9.4%)	1,512 (5.1%)		
2 or more	27 (21.9%) †	1,072 (17.4%)	39 (27.1%)	513 (19.1%)	2,571 (8.6%)		
Self-rated health						181.5	<.001
Excellent/Very Good/Good	40 (32.1%) †	2,419 (39.5%)	68 (47.2%)	1,444 (54.1%)	24,129 (81.1%)		
Fair/Poor	85 (67.9%)	3,712 (60.6%)	76 (52.8%)	1,225 (45.9%)	5,642 (19.0%)		

† Relative standard error (weighted estimate/standard error of the estimate) >30%, indicating an unstable population estimate.
 * Number of current or former diagnoses of any of the following: cardiovascular disease, arthritis, cancer, psychiatric disorder, neurological condition, diabetes, stroke, hypertension/high blood pressure, and emphysema.
 **Number of reported problems with any of the following: bathing, dressing, eating, getting in or out of beds and chairs, walking, and using the toilet.

Figure 2: Self-rated health percentages by age and eligibility.



Perceived Access

Facility residents are not asked access to care questions and therefore were not included in this set of analyses. The five groups varied significantly on each of the three perceived access measures (Table 4). Younger beneficiaries of both eligibility types were the most likely to report trouble getting needed care (15.2% for ESRD <65 and 13.7% for SSDI <65, as compared to only 2.9% for retirees). These younger beneficiaries were also the most likely to report not having a medical home (6.1% for ESRD <65 and 6.8% for SSDI <65). However, younger ESRD beneficiaries had much lower rates (6.6%) of delaying care due to cost than SSDI beneficiaries under 65 (22.4%).

Table 4: Beneficiary perceptions of access by age and eligibility.

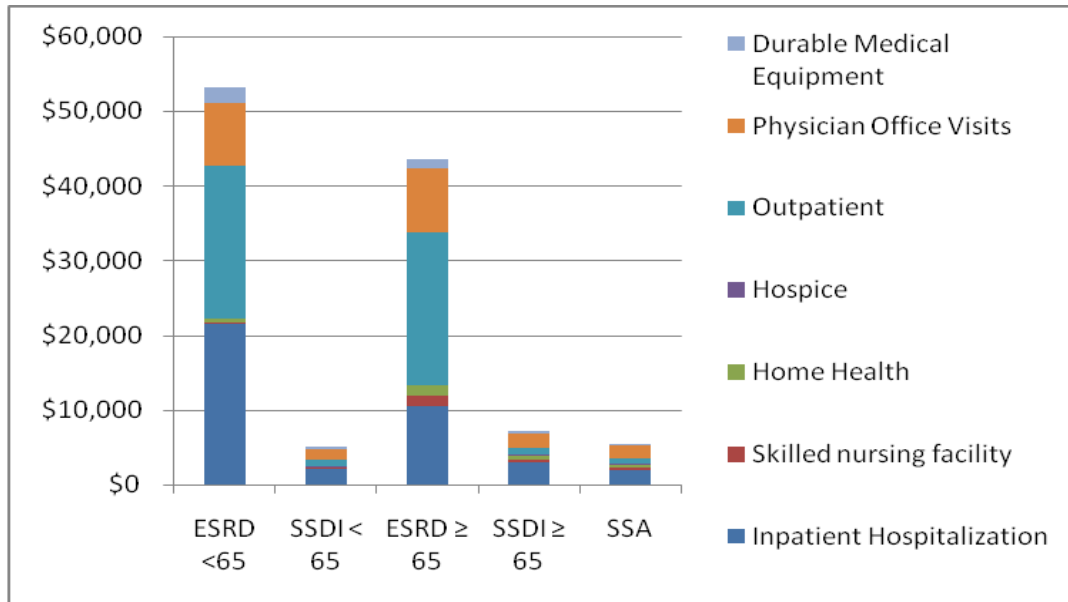
	ESRD < 65	SSDI < 65	ESRD ≥ 65	SSDI ≥ 65	SSA	χ²	p
Estimated population (in thousands)	N = 126	N = 6,162	N = 144	N = 2,679	N = 29,939		
Trouble getting needed care?	19 (15.2%) †	838 (13.7%)	6 (4.1%) †	153 (5.8%)	874 (2.9%)	35.8	<.001
Delay care due to cost?	8 (6.6%) †	1,371 (22.4%)	5 (3.3%) †	245 (9.2%)	1,374 (4.6%)	41.5	<.001
Go to a particular place for medical care?	118 (93.9%)	5,715 (93.2%)	139 (96.7%)	2,581 (96.6%)	28,557 (95.8%)	4.1	<.001

Actual Use

Significant variation was seen among the five groups on measures of reimbursement for inpatient hospital services, skilled nursing facility services, home health services, outpatient services, physician office visits, and durable medical equipment (Table 5). The only measure for which there was no significant variation between the groups was the number of hospice days and the amount of hospice reimbursement. Both of these hospice variables had extremely low values for all groups. This was likely due to the fact that the Access to Care file includes only full-year beneficiaries, and therefore would

have excluded beneficiaries who passed away during the study year and incurred hospice costs previous to their death.

Figure 3: Average annual health services use by age and eligibility



In all service domains except for hospice care, ESRD beneficiaries, both current and former, had the highest rates of reimbursement, and were by far the most expensive subgroups for Medicare (Figure 3). Although in some cases (DME, inpatient) the younger ESRD beneficiaries were more expensive, former ESRD beneficiaries generally incurred the highest reimbursement amounts. Former SSDI beneficiaries uniformly incurred higher reimbursement charges for each variable than their younger counterparts.

Table 5: Annual reimbursed health services use by age and eligibility.

	ESRD <65 N = 55	SSDI < 65 N = 2,559	ESRD ≥ 65 N = 50	SSDI ≥ 65 N= 1,068	SSA N = 11,072	χ ²	p
Inpatient Hospitalization							
# of admissions	1.7	0.3	1.0	0.3	0.2	128.5	<.001
# of covered days	11.8	1.7	7.5	1.8	1.1	127.4	<.001
Reimbursement amount	\$21,601	\$2,169	\$10,579	\$2,971	\$1,988	129.2	<.001
Skilled nursing facility							
# of admissions	0.1	0.0	0.1	0.4	0.0	46.8	<.001
# covered days	0.6	0.3	4.1	1.0	0.9	48.1	<.001
Reimbursement amount	\$171	\$107	\$1,239	\$360	\$337	47.7	<.001
Home Health							
Total visits	3.3	1.2	8.5	3.8	3.3	111.3	<.001
Reimbursement amount, Part A	\$399	\$82	\$827	\$195	\$166	102.7	<.001
Reimbursement amount, Part B	\$111	\$105	\$727	\$309	\$230	31.5	<.001
Hospice							
Covered days	0.0	0.3	0.0	0.8	0.8	7.4	0.1161
Total reimbursement	\$0	\$42	\$0	\$122	\$112	7.4	0.1161
Outpatient							
Total outpatient bills	15.5	4.0	18.0	3.7	3.0	186.3	<.001
Total reimbursement	\$20,417	\$862	\$20,454	\$952	\$633	175.3	<.001
Physician Office Visits							
Total office visits	8.7	4.5	8.6	5.9	5.7	134.5	<.001
Total reimbursement	\$8,342	\$1,416	\$8,542	\$1,866	\$1,721	207.8	<.001
Durable Medical Equipment							
Number of claims	6.3	1.9	5.4	3.0	1.6	190.3	<.001
Total reimbursement	\$2,130	\$276	\$1,190	\$414	\$185	181.5	<.001
Totals							
Total Part A Reimbursement	\$2,217	\$2,399	\$12,645	\$3,649	\$2,603	134.6	<.001
Total Part B Reimbursement	\$30,989	\$2,659	\$30,914	\$3,541	\$2,770	199.7	<.001

CHAPTER FOUR

The findings of this thesis support the assertion that dividing Medicare beneficiary populations both by original eligibility (ESRD, SSDI, and SSA) and age (under 65, 65 and older) is necessary to fully assess the health services use of Medicare beneficiaries and the factors influencing that use.

Study Limitations

The composition of the study population was potentially subject to the historical evolution of the Medicare program. Although a 65-year-old, formerly SSDI-eligible beneficiary interviewed for the 2007 Access to Care survey could theoretically have received Medicare eligibility as late as 2006, it is likely that the majority of former SSDI beneficiaries qualified for Medicare well before age 65. Therefore, a cohort effect in these different populations may reflect the trend toward expansion of SSDI eligibility standards in recent decades, with younger beneficiaries more likely to be eligible through more recent avenues such as mental disabilities. This in turn could have a profound influence on the predisposing and enabling characteristics that each of these cohorts bring with them into the Medicare program.

The small number of ESRD beneficiaries available in the dataset limited the stability of the conclusions that could be drawn about this population. Existing research and the findings of this study both suggest that this is a high-need population that receives limited research attention. This study was unable to establish stable estimates for crucial variables in each of the model's domains. Considering their ongoing, high-cost presence in the Medicare population, future iterations of the MCBS should consider intentionally oversampling ESRD beneficiaries in order to facilitate further studies of this type.

A major limitation to the cost variables of the study was that only Medicare reimbursement amounts were used. Most beneficiaries had other sources of coverage for their medical care, but the Access to Care file does not include reimbursements from non-Medicare payers. For dually eligible

beneficiaries, Medicare pays first for services that are covered by both programs: however, Medicaid ultimately pays for about 60% of the total medical care charged for these beneficiaries (Centers for Medicare and Medicaid Services, 2010; Coughlin, Waidmann, & O'Malley Watts, 2009). The Cost and Use dataset of the Medicare Current Beneficiary Survey includes reimbursements from non-Medicare payers, and could be used to more fully compare the five subpopulations on the same cost measures used above.

Research Implications

These analyses of Medicare beneficiaries revealed significant differences between each group that were hidden by using only age or eligibility as independent variables. Future studies should use both age and original eligibility when assessing factors that influence health services use within the Medicare population. Research based on the concept of the average Medicare beneficiary is technically correct, but misleading in context of the wide variation between subpopulations on almost every measure evaluated. Medicare beneficiaries are an extremely large and heterogeneous group, and they deserve focused research attention that acknowledges the multiple routes to Medicare eligibility. As well, studies that assess Medicare as compared to other insurance programs must account for Medicare's interaction with an individual's work history, long-term health and disability status, or both. Due to the complexities of receiving and keeping Medicare as a working-age adult, it is not directly comparable to employer-sponsored or privately purchased health insurance programs. The variation seen among these subpopulations indicates that much of the existing literature about Medicare beneficiaries could benefit from a more fine-grained analysis based on both original eligibility and age.

In both the ESRD-eligible and SSDI-eligible groups, former ESRD and SSDI beneficiaries scored worse on the measures of evaluated need (number of chronic conditions and number of limitations on activities of daily living) than the younger beneficiaries in each eligibility group, but were much less likely

to rate their health as “fair or poor” or to report perceived access problems. The assessed differences between these populations within this study may explain this incongruity to some extent: for example, older ESRD and SSDI beneficiaries had higher rates of private coverage and other enabling resources. However, the answer may also lie in the one aspect of the Andersen model that was not assessed by this study, namely health beliefs. Health beliefs are “attitudes, values, and knowledge that people have about health and health services that might influence their subsequent perceptions of need and use of health services” such as expected value of a given treatment or perceived severity of a health condition (Andersen, 1995). Although the self-rated health variable only captured these indirectly, the MCBS contains variables that might aggregate well into a proxy measure of health beliefs. For example, one section of the survey queries community respondents about why they have not received certain recommended services, and the response listing includes health belief related answers such as “could get cancer anyway/test useless” for a missed mammogram. A more complete model would capture the interaction of evaluated health and health beliefs on perceived need for health services.

Clinical Implications

While the five groups differed on health and disability measures, it should be noted that this difference does not necessarily reflect inadequacy of coverage or care. Due to their route to eligibility, SSDI and ESRD beneficiaries are defined by their health, as opposed to the retirees who are defined by their work. Although useful for broad population comparisons, the aggregate measures of “number of limitations in ADLs” and “number of chronic conditions” do not capture the differing prevalence of various diseases among these populations and the resultant different need for medical treatments. As well, comparisons based on counting chronic conditions and limitations on activities of daily living are unable to answer the underlying question of whether these beneficiaries’ health conditions are adequately managed by the care paid for by Medicare. Continuing to conduct targeted health outcome

comparisons to non-Medicare populations would help assess the adequacy of existing coverage and access, as has been done for certain conditions such as breast cancer (McCarthy et al., 2006; Roetzheim & Chirikos, 2002) and lung cancer (Iezzoni et al., 2008).

Policy Implications

This study and others of its type use “disabled worker” as a shorthand to refer to current and former SSDI recipients. However, disability is a complex and evolving concept that has meaning beyond the medical field in political, social, and cultural realms. In general, administrative data such as MCBS restricts researchers to a medical definition of disability (Iezzoni, 2002), but even within research using the MCBS, other definitions of disability are sometimes used. For example, limitations in activities of daily living and instrumental activities of daily living are present in all five subpopulations; disability in this sense is not restricted only to SSDI beneficiaries. To create policies that benefit Medicare beneficiaries with disabilities, policymakers must move beyond entitlement as the defining feature of that population. Neither eligibility nor medical assessment can fully measure the concept of disability or evaluate the associated quality of life issues for individuals with disabilities.

The comparisons within this study identify disparities between the five subpopulations on a variety of measures. In particular, the disparities in evaluated need suggest that equitable access within Medicare has not yet been achieved. These findings indicate the need for more subpopulation-focused policymaking on the part of CMS and the federal government. Considering the millions of individuals involved in these subpopulations, an increased research focus on these disparities could lead to increased policy attention, and may inspire advocacy groups who could play a similar role for SSDI beneficiaries and ESRD beneficiaries as AARP does for retired workers. Although the predisposing characteristics and enabling resources associated with non-retirement routes to Medicare are beyond the control of CMS, improved access and satisfaction are attainable policy goals.

CONCLUSION

Medicare beneficiaries are a complex population that represents a major policy focus for the federal government. As the national discussion about healthcare reform continues, it will be more important than ever to have timely and accurate information about who uses Medicare and how they can be better served. Future studies should consider both original eligibility and age when studying Medicare beneficiaries, both to create a more precise body of literature about this population and to inform targeted policy efforts.

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