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Perceived barriers to healthcare and receipt of recommended medical care among elderly Medicare Beneficiaries

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Abstract

Purpose—Many Medicare beneficiaries perceive barriers to receiving healthcare, although the consequences are unknown. Facilitators can aid in the receipt of healthcare services. The objective was to assess the relationship between perceived facilitators and barriers to healthcare and actual receipt of recommended medical care among elderly beneficiaries.

Methods—A cohort study using data from the 2001–2008 entry panels of the Medicare Current Beneficiary Survey that included 24,607 community-dwelling beneficiaries 65 years of age and older. Surveys elicited perceptions of healthcare with respect to: care coordination and quality; access to medical care; getting or delaying healthcare because of financial reasons; transportation; and usual source of care. The outcome was receipt of recommended medical care, expressed as an aggregate of 38 indicators covering initial evaluation, diagnostic tests, therapeutic interventions, hospitalization follow-up, and routine preventive care. Multivariable survey logistic regression

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produced odds ratios (ORs) and 95% confidence intervals (CIs) for receipt of recommended medical care, adjusted for sociodemographics, insurance, comorbidities, and disability.

Results—Beneficiaries who reported having trouble getting or reported delaying healthcare because of financial reasons (barrier) (adjusted OR=0.79, 95% CI: 0.73–0.86) and those who reported having no usual source of care (facilitator) (adjusted OR=0.55, 95% CI: 0.48–0.63) were less likely to receive recommended medical care.

Conclusions—Survey data that capture patient perceptions of facilitators and barriers to healthcare may be useful for identifying system factors that affect timely receipt of recommended medical care. This information can inform the design of policies and programs to improve the healthcare of older adults.

Keywords

barriers to healthcare; facilitators to healthcare; elderly; Medicare

1.1 INTRODUCTION

Medical advances have contributed substantially to increasing the duration and improving the quality of people's lives (National Institute on Aging, 2015). These important benefits can be extended further by improving access to high-quality healthcare. The Institute of Medicine (IOM) (Institute of Medicine Committee on Monitoring Access to Personal Health Care Services, 1993), the Agency for Healthcare Research and Quality (Agency for Healthcare Research and Quality, 2014b), and the Office of Disease Prevention and Health Promotion (HealthyPeople.gov, 2014) have identified several features of health systems that can serve as facilitators of the receipt of recommended medical care. Such facilitators include care coordination and quality, access to care, and having a usual source of care. There are also several recognized barriers to the receipt of recommended medical care, such as high cost of care and lack of transportation (Blustein, 1995; Crane et al., 1996). Measurement of facilitators and barriers to receipt of recommended medical care is challenging, especially as elements of the context of care—health systems, economic factors, infrastructure, and population characteristics—are continually changing. However, Medicare beneficiaries' perceptions of various facilitators and barriers to receipt of healthcare are regularly captured in survey data, collected in successive cohorts over time (US Department of Health & Human Services, 2010). The Medicare Current Beneficiary Survey (MCBS) asks enrollees about satisfaction with care coordination and quality, access to medical care, usual source of care, and trouble obtaining healthcare, attributable to cost and transportation issues. Although survey respondents report their satisfaction level to key features of their health delivery system, and many Medicare beneficiaries perceive barriers to receiving healthcare, the relationship of these perceptions to actual receipt of recommended medical care is unknown.

Care coordination and quality involves the intentional organization of patient care activities and sharing information with the patient, family members, and providers concerned with the patient's care to attain safer and more effective care (Agency for Healthcare Research and Quality, 2014b). Its main purpose is to meet patients' needs and preferences in obtaining

high-quality and appropriate healthcare. The IOM has identified enhanced care coordination and quality as a way to improve the efficiency, effectiveness, and safety of the healthcare system (Institute of Medicine Committee on Monitoring Access to Personal Health Care Services, 1993).

According to the IOM, access to medical care means having “the timely use of personal health services to achieve the best health outcomes” (Institute of Medicine Committee on Monitoring Access to Personal Health Care Services, 1993). To have good access to medical care, a person must be able to gain access to the healthcare system, be able to travel to places where care is provided, be able to find providers who deliver the services needed, and develop a relationship with the provider based on trust and communication (Agency for Healthcare Research and Quality, 2014a). Without access to the healthcare system, patients are unable to receive the care they need.

Medical costs continue to increase at an unprecedented rate. Factors that contribute to medical cost growth include rising prescription drug costs, unhealthy lifestyles, high prices for medical services, and the fee-for-service system that incents providers to provide quantity rather than quality (America's Health Insurance Plans, 2016).

Transportation is often a prerequisite for obtaining most healthcare services (Mattson J, 2010). Although particularly relevant for patients living in rural settings where travel distances can be great, this potential barrier is relevant to all patients.

Usual source of care can include doctor's offices, medical centers, clinics, or other places where a person would normally go if he or she were sick or in need of a consultation or information about their health (US Department of Health & Human Services, 2009). Those with a usual source of care tend to have better health outcomes (De Maeseneer et al., 2003; HealthyPeople.gov, 2014; Starfield and Shi, 2004). Having a usual source of care may improve the quality of care by facilitating relationships between patients and providers, resulting in greater trust in the provider, better communication, and increased likelihood of receiving appropriate care (HealthyPeople.gov, 2014; Mainous et al., 2001). Patients without a usual source of care have higher medical costs and more disparities (Mainous et al., 2001).

In this study, we used the MCBS to examine survey respondents' ratings of satisfaction with health system features that can facilitate care, plus perceived barriers to healthcare. We chose to focus specifically on questions related to satisfaction with care coordination and quality; satisfaction with access to medical care; trouble getting healthcare or delaying healthcare because of financial reasons; trouble getting healthcare because of transportation problems; and identification of a usual source of care (Agency for Healthcare Research and Quality, 2014b; Blustein, 1995; Crane et al., 1996; HealthyPeople.gov, 2014; Institute of Medicine Committee on Monitoring Access to Personal Health Care Services, 1993). The objective of this study was to assess whether Medicare beneficiaries' perceptions of facilitators and barriers to receiving healthcare are associated with actual receipt of recommended medical care among Medicare beneficiaries. We hypothesized that Medicare beneficiaries who reported being less satisfied with their care coordination and quality of care and being less satisfied with their access to medical care, would be less likely to receive

recommended medical care. We also hypothesized that if people had trouble getting healthcare or delaying healthcare because of financial reasons; had transportation difficulties; or had no usual source of care, would be less likely to receive recommended medical care.

1.2 METHODS

This study was approved by the Institutional Review Board at the University of Pennsylvania.

1.2.1 Data source

We used the MCBS, which is conducted by the Centers for Medicare and Medicaid Services and contains a systematic, representative sample that allows us to generalize our results to the entire elderly Medicare population for this study (Kautter et al., 2006; US Department of Health & Human Services, 2010). Survey weights account for MCBS' complex survey design and varying sources of non-response (Kautter et al., 2006). The respondent, either the sample person or a proxy, was interviewed three times a year over the course of four years, beginning in the autumn of their entry year into the survey. Survey data are linked to beneficiaries' Medicare inpatient, outpatient, and non-institutional claims data, which records healthcare service utilization.

1.2.2 Study cohort

We used the entry panels of Medicare community-dwelling beneficiaries 65 years of age and older from the 2001–2008 MCBS to define the sample. Beneficiaries in the 2001–2007 entry panels were included in three waves of data, while beneficiaries from the 2008 entry panel were included in two waves of data because of data availability. Those with missing data for any study variables were not included in the models.

1.2.3 Outcome

Our outcome variable is receipt of recommended medical care. We used an indicator system that measured the underuse of necessary care for elderly patients that was originally developed by Asch and colleagues (Asch et al., 2000) and then later adapted for persons with disabilities by Chan et al (Chan et al., 2008). We examined 38 indicators, 35 of which looked at care for acute or chronic conditions (acute myocardial infarction, anemia, angina, breast cancer, cerebrovascular accident, cholelithiasis, chronic obstructive pulmonary disease (COPD), congestive heart failure, depression, diabetes, gastrointestinal bleeding, hypertension, and transient ischemic attack). The other three indicators evaluated aspects of preventative care (visit every year with a physician, eye examination every two years, and mammography every two years in women aged 65–75 years old). These indicators covered processes of care including initial evaluation, diagnostic tests, therapeutic interventions, hospitalization follow-up, and routine preventive care.

The receipt of recommended medical care was categorized as present or absent. Each indicator was assessed separately so each sample person had the possibility of receiving recommended medical care for several indicators. Receipt of recommended medical care

was ascertained from the inpatient hospital services file, outpatient hospital services file, and physician services file.

1.2.4 Explanatory Variables

Explanatory variables of primary interest were measures of beneficiaries' satisfaction with features of their healthcare delivery system, and reported barriers to receiving healthcare. Table 1 lists the exact survey questions. Multiple survey questions measure a person's perceptions of satisfaction with care coordination and quality, and perceptions of their access to medical care. Respondents answered using a Likert scale with scores from 1 to 4 corresponding to very satisfied to very unsatisfied. Five questions regarding the beneficiaries' perceptions of their overall quality of care, information given, follow-up care, concern for overall health, and needs met at the same location comprised the care coordination and quality dimension. The access to medical care dimension consisted of three questions on the beneficiaries' perceptions of the availability of night/weekend care, ease/convenience, and out-of-pocket costs. Factor analysis supports the grouping of these questions into these two dimensions (Lee and Kasper, 1998). If a person reported "no experience" with a particular item, that item was counted as missing for that person. We summed the responses to each question under a specific dimension and calculated the average for questions within that dimension answered by each respondent. The upper quartile of participants based on this summed score were considered to be "most satisfied" (Bogner et al., 2015; Lee and Kasper, 1998), which was compared to the lower three quartiles, defined as "less satisfied."

SP=sample person

Two main questions were used to ascertain financial barriers to healthcare. Beneficiaries were first asked if they had trouble getting healthcare in the previous year. Those answering affirmatively were subsequently asked a question listing a series of possible reasons for the reported trouble. Based on a factor analysis, we classified beneficiaries as experiencing financial barriers to healthcare if the reported reason was "not having enough money to pay for healthcare," "medical care cost too high," "service/supplies not covered," or "not eligible for public coverage." Similarly, beneficiaries who indicated that they had delayed needed medical care in the previous year because of cost were also classified as experiencing a financial barrier to healthcare.

Beneficiaries who identified transportation to the doctor's office or hospital as a reason for trouble getting needed healthcare in the previous year were coded as experiencing transportation barriers.

Finally, respondents were asked if they had a usual source of care, i.e., a particular place where they received medical care such as a doctor's office, group practice, or doctor's clinic. Responses were categorized as yes or no.

1.2.5 Covariates

We included sociodemographics, number of comorbidities, and activity limitation stages as covariates in regression models. Sociodemographics include age, gender, race/ethnicity,

metropolitan setting, education, Medicaid enrollment, and living arrangement. The number of comorbidities was based on self-reported information about presence of the following medical conditions: Alzheimer's/dementia, angina/chronic heart disease, diabetes mellitus, emphysema/asthma/COPD, hypertension, mental/psychiatric disorder, mental retardation, myocardial infarction, non-rheumatoid arthritis, osteoporosis/soft bones, other heart disease, cancer of a site other than skin, Parkinson's disease, rheumatoid arthritis, and stroke.

Disability was expressed as activity limitation stages related to difficulties in basic activities of daily living (ADLs) (Kurichi et al., 2016; Stineman et al., 2014) that include eating, toileting, dressing, bathing/showering, getting in or out of bed/chairs, and walking. Classification is based on the respondent's answers about the level of difficulty experienced when performing the six ADLs. There are a total of 5 stages: 0-no limitation, I-mild limitation, II-moderate limitation, and IV-complete limitation. Higher numbered stages reflect greater disability and less preserved function. People who do not follow the typical hierarchy of loss of function are assigned to a non-fitting stage, stage III.

Information for the explanatory variables and covariates was obtained at the survey prior to the most recent assessment period for receipt of recommended medical care.

1.2.6 Analysis

Logistic regression models produced odds ratios (ORs) and 95% confidence intervals (CIs) for receipt of recommended medical care. We begin by presenting individual unadjusted estimates of the association of each facilitator or barrier to healthcare services and receipt of recommended medical care. Next, we present results of a model where all five facilitators or barriers are included simultaneously, while also adjusting for the comprehensive set of sociodemographic, insurance, comorbidities, and disability variables described above. In the model, we accounted for the correlation between the multiple indicators for receipt of recommended medical care from one respondent.

All analyses also took into account the complex sampling design including weight, clustering, and stratification. Sub-population analyses were conducted properly. We used SAS 9.4 (SAS Institute, Inc.) (Lo A and Ghu A, 2005). P-values are two-sided, with statistical significance defined *a priori* as $p < 0.05$.

1.3 RESULTS

Table 2 shows baseline characteristics of sample persons. There were a total of 24,607 Medicare beneficiaries 65 years of age and older, the majority of whom were female (56.5 weighted percent), non-Hispanic white (81.6 weighted percent), and live in a metropolitan setting (75.9 weighted percent). Most had received a high school diploma or had higher education (73.8 weighted percent), about 11% (weighted) were dually-enrolled in Medicare and Medicaid, and over half of the respondents lived with their spouse (52.7 weighted percent). Medicare beneficiaries had on average more than two self-reported comorbidities, and the majority (73.3 weighted percent) had no ADL limitations at baseline.

*Number of comorbidities including: Alzheimer's/dementia, angina/chronic heart disease, diabetes mellitus, emphysema/asthma/chronic obstructive pulmonary disease, hypertension, mental/psychiatric disorder, mental retardation, myocardial infarction, non-rheumatoid arthritis, osteoporosis/soft bones, other heart disease, other (non-skin) cancer, Parkinson's disease, rheumatoid arthritis, and stroke.

By definition, 27.4% (weighted) of respondents were classified as most satisfied with their care coordination and quality of medical care and 28.7% (weighted) as most satisfied with their access to medical care (Table 2). These numbers were not exactly 25% because of ties. Over 1,500 (representing 4,740,467 persons distributed over 8 years) or 6.6% of all elderly Medicare beneficiaries reported that they had experienced trouble getting or had delayed healthcare because of financial issues. The overwhelming majority (96.7 weighted percent) reported having a usual source of care, and less than 1% (weighted) reported having a transportation issue that kept them from receiving healthcare.

Sample persons were observed for 74,813 indicators and received a total of 55,268 (74%) instances of recommended medical care.

Table 3 shows unadjusted ORs and 95% CIs for the association between perceived facilitators and barriers to receiving healthcare and actual receipt of recommended medical care. In the unadjusted estimates, those who were less satisfied with their care coordination and quality (OR=0.91, 95% CI: 0.87–0.96; $p=0.0001$), those who were less satisfied with the access to medical care (OR=0.92, 95% CI: 0.88–0.96; $p=0.0002$), those who had trouble obtaining or delayed healthcare because of financial reasons (OR=0.72, 95% CI: 0.67–0.79; $p<0.0001$), and those who did not have a usual source of care (OR=0.39, 95% CI: 0.35–0.44; $p<0.01$) had reduced odds of receiving recommended medical care.

After adjustment, having no usual source of care was the barrier most strongly associated with reduced odds of receiving recommended medical care (OR=0.55; 95% CI: 0.48–0.63; $p<0.0001$). Having trouble obtaining or delaying healthcare because of financial reasons was also significantly associated with reduced odds of receiving recommended medical care (OR=0.79; 95% CI: 0.73–0.86; $p<0.0001$) (table 4). Although the point estimates for the other three facilitators and barriers to receiving healthcare were in the anticipated direction, none of the associations with receipt of recommended medical care was statistically significant in the adjusted model.

1.4 DISCUSSION

We found that among community-dwelling Medicare beneficiaries 65 years of age and older, self-report of not having a usual source of care, and self-report of having trouble getting or delaying healthcare because of financial reasons were both independently and inversely associated with actual receipt of recommended medical care.

The finding of a significant inverse association between lacking a usual source of care (i.e., a primary care provider) and receiving recommended medical care is consistent with results from other populations and outcomes. For example, people who did not have a usual source of care were less likely to receive smoking cessation advice from a physician (Banthin and

Bernard, 2006), to have preventive services such as mammograms, Papanicolaou smears, blood pressure measurements, and cholesterol tests (Schoen et al., 2005), and to receive screening, follow-up care, and pharmacologic treatment for hypertension (Wallace R et al., 2006). Our study focuses on the receipt of recommended medical care using an aggregate of 38 indicators that examine highly prevalent conditions and preventive care among older adults (Asch et al., 2000; Chan et al., 2008). Persons with a usual source of care are able to form sustained and meaningful relationships with, have better communication with, and have greater trust in their providers, and are more likely to receive appropriate care in a timely fashion (HealthCare.gov, 2016). Availability of a usual source of care may reduce the frequency or severity of illness through detection of early warning signs or symptoms that allows preventive measures, or detection of disease at an earlier, more treatable phase. Interventions such as increasing the availability of primary care providers may therefore improve receipt of recommended medical care for the small proportion of Medicare beneficiaries who lack such a source.

Having trouble getting healthcare or delaying healthcare because of financial reasons was also negatively associated with receiving recommended medical care. While numerous studies have found that patient-reported financial issues are an important reason for non-receipt of medical services and lack of adherence to treatment recommendations (Blustein, 1995; Carrasquillo et al., 2001; Gross and Brangan, 1999; Marchi et al., 2010; Rahimi et al., 2007), the exact mechanisms (i.e., copayment for a doctor's visit, prescription drugs, or supplies) have not been established. Even though Medicare beneficiaries have health coverage, out-of-pocket costs for healthcare can still be high, and appear to be increasing (Banthin and Bernard, 2006). For example, the proportion of costs associated with laboratory fees for which the patient is financially responsible might be perceived as prohibitive. Some beneficiaries may avoid care altogether or delay their care because of high costs associated with services and medications (Schoen et al., 2005). It will be important to identify ways to reduce out-of-pocket costs so that they are not burdensome to Medicare beneficiaries, allowing them to receive the recommended care for medical services that they need.

Satisfaction with healthcare services, particularly care coordination and quality of care and access to medical care, were significantly associated with receipt of recommended care only in the unadjusted analysis. It was somewhat surprising not to find a significant association in the adjusted analysis given that patient satisfaction has been shown to predict medication adherence (Hulka et al., 1976; Uhlmann et al., 1984), diabetes outcomes (Alazri and Neal, 2003), and follow-up care (Allen et al., 2008).

Transportation difficulties were not significantly associated with receipt of recommended care in the unadjusted or adjusted analyses. Contrary to conventional belief, only a limited proportion of Medicare beneficiaries reported having transportation difficulties as a reason for having trouble getting healthcare in the previous year. As a result, the 95% confidence interval for the odd ratio for transportation difficulties was very wide, suggesting that transportation cannot be ruled out as being a possible contributor of failure to receive recommended care. Other studies have documented transportation as a barrier to the delay of diagnoses, receipt of treatment and other health services, and participation in education or

counseling (Agency for Healthcare Research and Quality, 2009; Conviser and Pounds, 2002; Crane et al., 1996; Cunningham et al., 1999; Goodwin et al., 1996; Harris et al., 2015; Pfeiffer et al., 2016). Additional research on the transportation difficulties is needed.

This study has limitations. Patient-reported satisfaction with health services and perception of barriers to healthcare services are subjective, which may limit the accuracy of the associations. There may be imperfect recall or response bias due to the design of the survey. We included proxy responses in the analysis since bias may have been introduced if proxies were excluded (Stineman et al., 2005), however the proxy may not have answered the same way as the sample person would have, especially for the subjective questions that ask about the perception of care coordination and quality and access to medical care. There may be additional variables, such as attitudinal barriers (i.e., fear), unmet needs at the site of medical care (i.e., lack of interpreter availability), or changes in the healthcare system during the study timeframe associated with the receipt of recommended medical care that were not available in the MCBS data, and thus could not be included in the analyses. Future studies may include analyzing the potential economic costs for the public healthcare system of those beneficiaries with no usual source of care, having trouble getting or delaying healthcare because of financial reasons, or experiencing transportation difficulties.

1.5 Conclusion

This study demonstrates that survey data that capture patient or proxy perceptions of facilitators and barriers to healthcare may be useful for identifying system factors that affect timely receipt of recommended medical care. Not having a usual source of care and having trouble getting or delaying healthcare because of financial reasons were inversely associated with the receipt of recommended medical care among elderly Medicare beneficiaries. These findings can inform the design of specific policies and programs to improve the healthcare and health of older adults. For example, to prepare for the increasing need for health services for older people, and to ease the public health burden of disability associated with chronic conditions, we must continue to engage the primary healthcare sector in developing usual sources and sites of care for older adults. In addition, healthcare services for older adults should be developed with the awareness that financial costs may inhibit the ability to obtain needed healthcare, even for individuals with health insurance.

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Highlights

- Many Medicare beneficiaries perceive barriers to receiving healthcare.
- Medicare beneficiaries who reported having trouble getting or reported delaying healthcare because of financial reasons were less likely to receive recommended medical care.
- Medicare beneficiaries who reported having no usual source of care were less likely to receive recommended medical care.
- Survey data capturing patient or proxy perceptions of facilitators and barriers to healthcare may be useful for identifying system factors that affect timely receipt of recommended medical care.

Table 1

Questions that measured perceived facilitators and barriers to receiving healthcare

Perceived facilitator and barrier to receiving healthcare	Questions and response levels
Care coordination and quality	<p>We're interested in how you feel about the medical services (you have/SP has) received (over the past year/since previous survey) from doctors and hospitals. Please tell me how satisfied you have been with the following:</p> <ol style="list-style-type: none"> 1 The overall quality of the medical services (you have/SP has) received (over the past year/since previous survey) Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know 2 Please tell me how satisfied you have been with the information given to (you/you or SP) about what was wrong with (you/SP) Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know 3 Please tell me how satisfied you have been with the follow-up care (you/SP) received after an initial treatment or operation Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know 4 Please tell me how satisfied you have been with the concern of doctors for (your/SP's) overall health rather than just for an isolated symptom or disease Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know 5 Please tell me how satisfied you have been with getting all (your/SP's) medical care needs taken care of at the same location Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know
Access to medical care	<p>We're interested in how you feel about the medical services (you have/SP has) received (over the past year/since previous survey) from doctors and hospitals. Please tell me how satisfied you have been with the following:</p> <ol style="list-style-type: none"> 1 Please tell me how satisfied you have been with the availability of medical services at night and on weekends Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know 2 Please tell me how satisfied you have been with the ease and convenience of getting to a doctor from where (you live/SP lives) Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know 3 Please tell me how satisfied you have been with the out-of-pocket costs (you/SP) paid for medical services Response: very satisfied, satisfied, dissatisfied, very dissatisfied, not applicable, refused, don't know
Financial reasons	<ol style="list-style-type: none"> 1 In the last year, (have you/has SP) had any trouble getting health care that (you/he/she) wanted or needed? <i>Response: yes, no, refused, don't know</i> <ol style="list-style-type: none"> a. Why was that? <ol style="list-style-type: none"> i. SP does not have money (<i>Response: yes, no</i>) ii. Cost is too high (<i>Response: yes, no</i>) iii. Services/supplies not covered (<i>Response: yes, no</i>) iv. Not eligible for public coverage (<i>Response: yes, no</i>)

Perceived facilitator and barrier to receiving healthcare	Questions and response levels
	<p>2 In the last year, (have you/has SP) delayed seeking medical care because (you were/he was/she was) worried about the cost?</p> <p>Response: yes, no, refused, don't know</p>
Transportation difficulties	<p>1 In the last year, (have you/has SP) had any trouble getting health care that (you/he/she) wanted or needed?</p> <p><i>Response, yes, no, refused, don't know</i></p> <p>a. Why was that?</p> <p>i. Needed transportation to doctor/hospital (<i>Response: yes, no</i>)</p>
Usual source of care	<p>1 Is there a particular medical person or a clinic (you/SP) usually (go/goes) to when (you are/he is/she is) sick or for advice about (your/his/her) health?</p> <p>Response: yes, no, refused, don't know</p>

Table 2

Baseline perceived facilitators and barriers to receiving healthcare, sociodemographics, comorbidities, and activity limitation stages of Medicare beneficiaries 65 years of age and older

Variable	Unweighted N (weighted percent)
Total	24607
Sociodemographics	
Age	
Weighted mean $\pm$ standard deviation	74.6 $\pm$ 0.05
65–74	10516 (54.1)
75–84	10106 (35.1)
85	3985 (10.7)
Gender	
Male	10591 (43.5)
Female	14016 (56.5)
Race/Ethnicity	
Non-Hispanic White	20200 (81.6)
Non-Hispanic Black	1908 (7.8)
Hispanic	1774 (7.3)
Other	725 (3.2)
Metropolitan setting	
Yes	18373 (75.9)
No	6234 (24.1)
Education	
Below high school diploma	7032 (26.2)
High school diploma	17575 (73.8)
Dual insurance	
Medicare only	21646 (88.9)
Medicare plus Medicaid	2961 (11.1)
Living arrangement	
Retirement community	1847 (6.5)
With spouse	12103 (52.7)
With children	2531 (9.4)
With others	1158 (4.8)
Alone	6968 (26.5)
Number of comorbidities*	
Weighted mean $\pm$ standard deviation	2.5 $\pm$ 0.02
Activity Limitation Stages	
Activity of Daily Living stage	
0	17177 (73.3)
I	3930 (14.6)

Variable	Unweighted N (weighted percent)
II	1930 (6.7)
III	1321 (4.6)
IV	249 (0.8)
Perceived facilitators and barriers to receiving healthcare	
Care coordination and quality	
Most satisfied with care quality	6492 (27.4)
Less satisfied with care quality	18115 (72.6)
Access to medical care	
Most satisfied with access to medical care	6849 (28.7)
Less satisfied with access to medical care	17758 (71.3)
Has trouble getting healthcare or delayed healthcare because of financial reasons	
Yes	1512 (6.6)
No	23095 (93.4)
Has transportation difficulties	
Yes	78 (0.3)
No	24529 (99.7)
Has usual source of care	
Yes	23881 (96.7)
No	726 (3.3)

Table 3

Unadjusted association between perceived facilitators and barriers to healthcare and receipt of recommended medical care

Facilitator or barrier to healthcare	Unadjusted estimates	
	Unadjusted odds ratios (95% Confidence Intervals)	p-value
Care coordination and quality	0.91 (0.87–0.96)	0.0001
Access to medical care	0.92 (0.88–0.96)	0.0002
Financial reasons	0.72 (0.67–0.79)	<.0001
Transportation difficulties	0.81 (0.57–1.16)	0.25
No usual source of care	0.39 (0.35–0.44)	<0.01

Table 4

Adjusted association between perceived facilitators and barriers to healthcare and receipt of recommended medical care

Variables	Adjusted odds ratios (95% Confidence Intervals)	p-value
Perceived facilitators and barriers to receiving healthcare		
Care coordination and quality	1.02 (0.97–1.08)	0.4334
Access to medical care	1.01 (0.95–1.06)	0.8251
Has trouble getting healthcare or delayed healthcare because of financial reasons	0.79 (0.73–0.86)	<.0001
Has transportation difficulties	1.03 (0.74–1.45)	0.8562
Has no usual source of care	0.55 (0.48–0.63)	<.0001
Sociodemographics		
Age (reference: 65–74)		
75–84	1.16 (1.10–1.21)	<.0001
85	1.14 (1.07–1.21)	<.0001
Gender (reference: female)		
Male	0.87 (0.83–0.91)	<.0001
Race (reference: Non-Hispanic White)		
Non-Hispanic black	0.89 (0.82–0.97)	0.0083
Hispanic	0.99 (0.90–1.10)	0.8651
Other	0.94 (0.83–1.07)	0.3556
Metropolitan setting	1.13 (1.08–1.19)	<.0001
Education (reference: High school diploma)		
Below high school diploma	0.83 (0.79–0.87)	<.0001
Dual insurance (reference: Medicare only)		
Medicare plus Medicaid	0.98 (0.92–1.06)	0.6294
Living arrangement (reference: With spouse)		
Retirement community	0.93 (0.86–1.02)	0.1141
With children	0.76 (0.71–0.83)	<.0001
With others	0.77 (0.69–0.85)	<.0001
Alone	0.90 (0.86–0.95)	0.0002
Number of comorbidities		
Sum of comorbidities	1.08 (1.07–1.09)	<.0001
Activity Limitation Stages		
Activity of Daily Living stage (reference: stage 0)		
Stage I	0.94 (0.89–0.99)	0.0178
Stage II	0.85 (0.79–0.92)	<.0001
Stage III	0.79 (0.72–0.86)	<.0001
Stage IV	0.54 (0.44–0.65)	<.0001