Diabetes Occurrence, Costs, and Access to Care among Medicare Beneficiaries Aged 65 Years and Over

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Few diseases in the United States can match the health and economic toll wrought by diabetes, especially in the older population.[1] One in 11 Americans overall—and one in five Americans aged 65 years and over—has been diagnosed with type 1 or type 2 diabetes.[2] Direct medical costs for diabetes in the United States totaled $176 billion in 2012.[3]

Using data from the 2013 Medicare Current Beneficiary Survey (MCBS),[4] this report presents prevalence and access to care patterns of persons with type 1 and type 2 diabetes among Medicare beneficiaries aged 65 years and over. This report also compares the outcomes of beneficiaries with and without diabetes, both in terms health status and personal health care expenses.[5] We found that Medicare beneficiaries with diabetes face challenges regarding access to care, out-of-pocket expenses, and overall health status.

Diabetes affects roughly one in five Medicare beneficiaries aged 65 years and over.

Figure 1. Self- reported prevalence of diabetes among Medicare beneficiaries aged 65 years and over, 2013
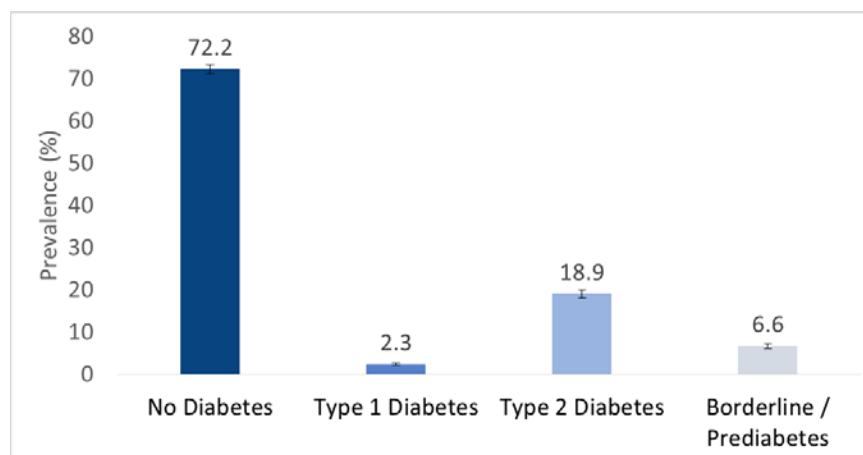

KEY FINDINGS

Data from the Medicare Current Beneficiary Survey

- Type 1 diabetes was reported for 2.3% of Medicare beneficiaries aged 65 years and over in 2013. The prevalence of type 2 diabetes was 18.9%.

- Beneficiaries with type 1 diabetes were less likely to have a usual source of care; beneficiaries with type 1 or 2 diabetes were more likely to have someone accompany them to medical appointments than those without diabetes.

- Beneficiaries with diabetes reported worse general health, more inpatient admissions, and higher out-of-pocket health care costs than those without diabetes.

SOURCE: Medicare Current Beneficiary Survey, 2013 Access to Care, community-dwelling respondents aged 65 years and over (n=7,903).Beneficiaries reporting only gestational diabetes were included in the "No Diabetes" category. 95% confidence intervals are represented with error bars. Survey weights were used to account for the complex sample design; balanced repeated replication weights were used for variance estimation.

Beneficiaries with diabetes exhibit some barriers in accessing health care.

Figure 2. Access to care measures by diabetes status among Medicare beneficiaries aged 65 years and over
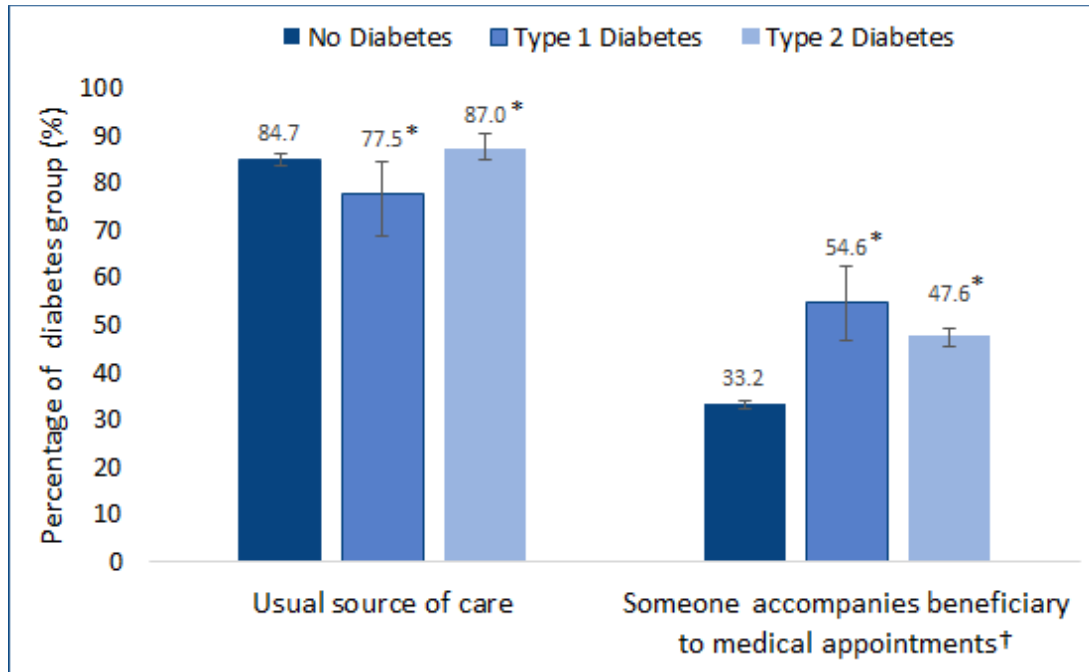
SOURCE: Medicare Current Beneficiary Survey, 2013 Access to Care, community-dwelling respondents aged 65 years and over (unweighted sample n=7,394 for usual source of care and n=6,478 for someone accompanying respondent to doctor).
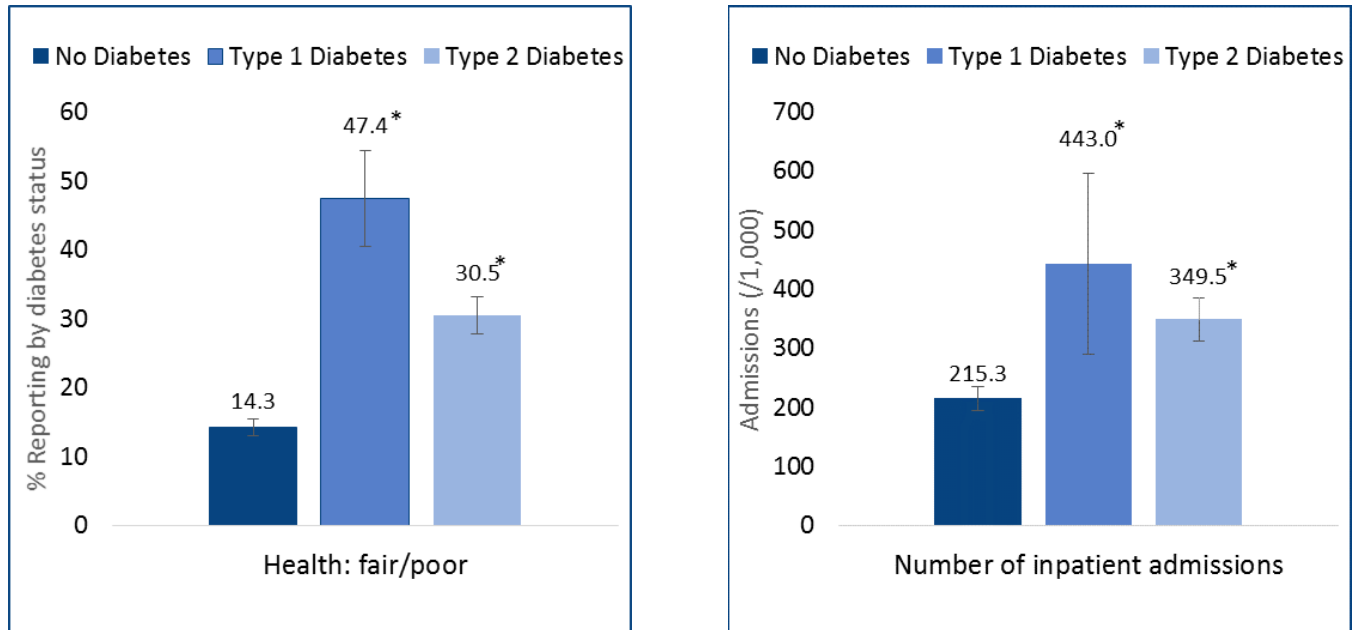†Among those who had a usual source of care.
*p<0.05 (p-values from adjusted Wald test; first category listed is the reference group). 95% confidence intervals are represented with error bars. Survey weights were used to account for the complex sample design; balanced repeated replication weights were used for variance estimation.

- Beneficiaries with type 1 diabetes were less likely to report a usual source of health care than those without diabetes. Beneficiaries with type 2 diabetes were more likely to report a usual source of care than those without diabetes.

- Beneficiaries with either type 1 or type 2 diabetes were more likely to report that someone routinely accompanies them to medical appointments than those without diabetes.

Diabetes is associated with more negative health outcomes.

Figure 3. Self-reported general health status and number of inpatient admissions (per 1,000 beneficiaries) by diabetes status among Medicare beneficiaries aged 65 years and over, 2013
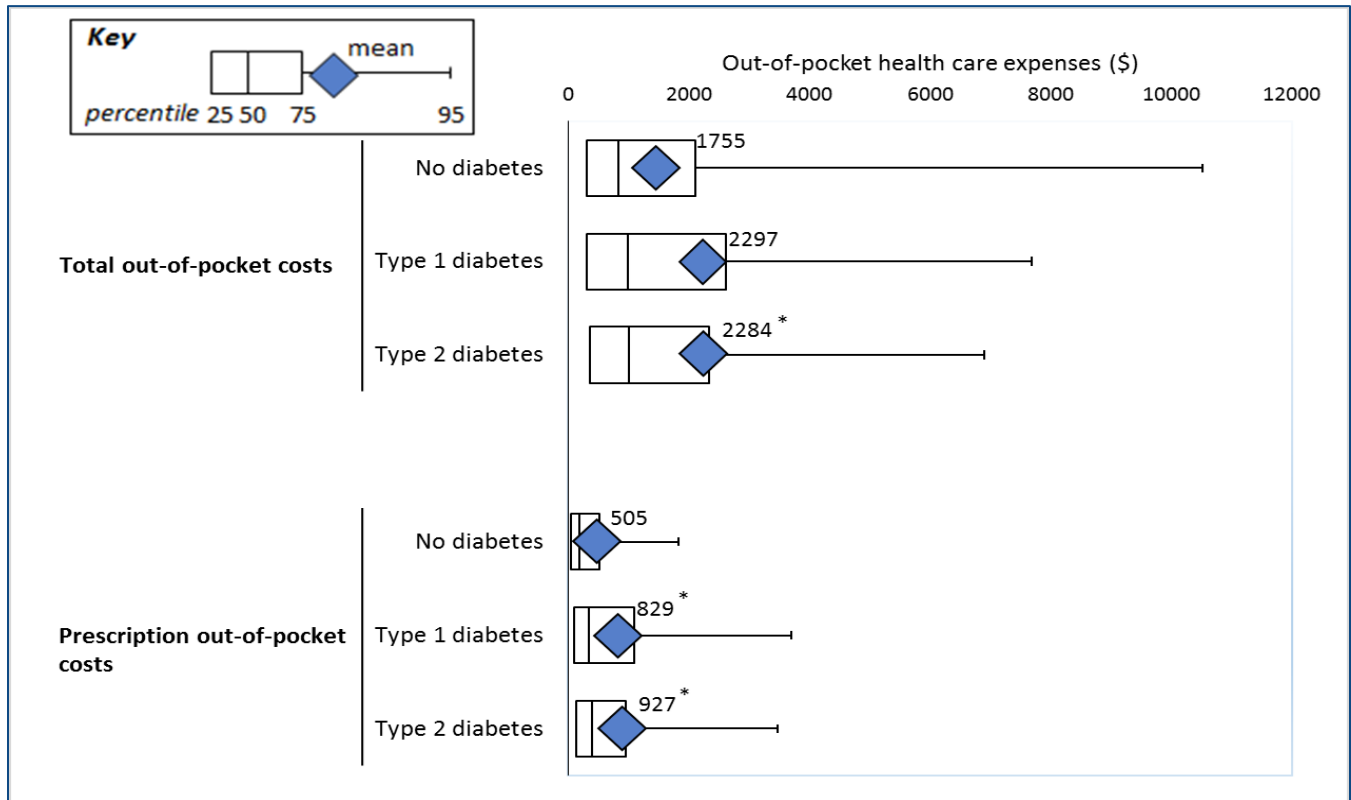

SOURCE: Medicare Current Beneficiary Survey, 2013 Access to Care, community-dwelling respondents aged 65 years and over (unweighted sample n=7,368 for health status and n=7,394 for inpatient admissions).

*p<0.05 (p-values from adjusted Wald test; first category listed is the reference group). 95% confidence intervals are represented with error bars. Survey weights were used to account for the complex sample design; balanced repeated replication weights were used for variance estimation.

- Beneficiaries with type 1 or type 2 diabetes were two to three times more likely to report fair or poor health than those without diabetes.

- Beneficiaries with type 1 or type 2 diabetes averaged more inpatient admissions per 1,000 beneficiaries (443.0 for type 1 and 349.5 for type 2) than those without diabetes (215.3).

Out-of-pocket health care costs were higher for beneficiaries with diabetes.

Figure 4. Out-of-pocket costs by diabetes status among Medicare beneficiaries aged 65 years and over, 2013

SOURCE: Medicare Current Beneficiary Survey, 2013 Access to Care, community-dwelling respondents aged 65 years and over (unweighted sample n=7,394).
*p<0.05 (p-values from adjusted Wald test; first category listed is the reference group). Survey weights were used to account for the complex sample design; balanced repeated replication weights were used for variance estimation.

- Total out-of-pocket costs were higher among beneficiaries with type 2 diabetes ($2,284) than those without diabetes ($1,755).

- Prescription out-of-pocket costs were higher among beneficiaries with either type of diabetes than those without diabetes.

- There was no significant difference in either total out-of-pocket costs or prescription out-of-pocket costs between beneficiaries with type 1 and type 2 diabetes.

DISCUSSION

The prevalence of type 1 and type 2 diabetes reported in the 2013 MCBS for community-dwelling beneficiaries generally mirrors estimates from the National Health Interview Survey[2]—roughly one out of five Americans aged 65 years and over had some form of diabetes.

Medicare beneficiaries with type 1 diabetes were less likely than those with type 2 diabetes and others to report having a usual physician; they were, however, the group most likely to use personal accompaniment to medical appointments. Both of these measures—lack of usual physician and the need for personal accompaniment—are meant as indicators that beneficiaries were having difficulty accessing care themselves. The current analysis also shows that beneficiaries with type 1 diabetes had more difficulty accessing care and also had worse general health.

Beneficiaries with type 1 or type 2 diabetes reported similar out-of-pocket costs on health care overall. As seen elsewhere,[5] the out-of-pocket health care costs for beneficiaries with either type of diabetes in the MCBS were substantially higher than costs for their peers without diabetes. Out-of-pocket costs among Medicare beneficiaries with diabetes aged 65 years and over were 30% higher for total costs, and 64% to 83% higher for prescription costs, compared to those without diabetes.

The findings reported here may be sensitive to how diabetes is defined. The MCBS data from community-dwelling beneficiaries are self-reported, which may cause the prevalence of diabetes presented here to differ from prevalence estimates based on clinical and/or administrative data. In particular, prediabetes, which is a condition widely understood to be both under-identified and under-reported,[7-8] was not subject to analysis in this report.

DEFINITIONS

Diabetes – We used two MCBS questions to identify beneficiaries with diabetes: (1) "Has a doctor ever told you that you had any type of diabetes, including: sugar diabetes, high blood sugar (also borderline diabetes, pre-diabetes, or pregnancy-related diabetes/borderline diabetes, or pre-diabetes)?" and (2) "Looking at this card, please tell me which type of diabetes the doctor said that you have" with the following response options: "Type 1," "Type 2," "Borderline," "Pre-Diabetes," "Gestational (Pregnancy-related)," "some other Type," "don't know/refused." If a beneficiary answered "yes" to the first question and "Type 1," "Type 2," or "Borderline or Prediabetes" to the second question, then they were defined as having diabetes of the specified type; a beneficiary identifying only "Gestational (Pregnancy-related)" was defined as having no diabetes for this analysis. Beneficiaries who reported "some other Type" or "don't know/refused" were excluded from the analysis. Those with "Borderline or Prediabetes" were excluded from analysis after the prevalence numbers reported in Figure 1.

General Health Status – The MCBS asks "In general, compared to other people your age, would you say that your health is: "excellent," "very good," "good," "fair," or "poor." We present estimates for beneficiaries who self-report their health as "fair" or "poor"; those reporting "don't know" or who refused a response were excluded from the relevant portion of the analysis.

Access to care – We identified two MCBS measures that assess access to care: (1) self-report of usual place or provider of care; and (2) whether someone typically accompanies beneficiary to the doctor's office. For the first, the beneficiary is asked "Is there a particular medical person or a clinic you usually go to when you are sick or for advice about your health?" If the beneficiary answered yes to this question and identified either a regular doctor's office or an alternative place of care but a specific doctor at that location, we noted that beneficiary as having a usual place or provider of care. Those who reported on whether someone typically accompanies them must be eligible for the usual provider

question and have a valid response to the follow-up question "How do you usually get to the doctor's office?" This skip logic restriction reduced the sample size of the latter variable.

Out-of-pocket costs – This report provides estimates of annual out-of-pocket spending for all health care encounters and prescription medications; these estimates were not restricted to diabetes-related use or medications and may include beneficiaries with no costs for these categories. The MCBS attempts to collect all sources of payers for every health care encounter for all beneficiaries. Imputation is necessary when this information is incomplete. To impute costs, the roster of payers was determined for each medical claim. Beneficiaries with complete payment information were used as donors to impute payment data for those beneficiaries with incomplete information. Beneficiaries requiring imputation were matched to donors based on the roster of payers and several demographic variables. Payment data from matched donors were used to fill in the incomplete data (hot-deck imputation). Of the 7,394 beneficiaries in the sample, 3,022 (40.9%) had at least some out-of-pocket cost amounts, including 1,407 (19.2%) who had imputed out-of-pocket costs for prescribed medications. Further adjustment was made for beneficiaries who had gaps in the reference period, resulting in out-of-pocket expenses being revised for 492 (6.7%) beneficiaries in the sample.

DATA SOURCES AND METHODS

We analyzed data from the 2013 Medicare Current Beneficiary Survey (MCBS), an in-person, nationally representative, longitudinal survey of Medicare beneficiaries sponsored by the Centers for Medicare & Medicaid Services (CMS) and directed by the Office of Enterprise Data and Analytics (OEDA).[4] The MCBS is the most comprehensive and complete survey available on the Medicare population and is essential in capturing data not otherwise collected through operations and administration of the Medicare program. The MCBS contains detailed information on self-report of diabetes, general health status, health care use, and out-of-pocket costs. MCBS data files are available to researchers with a data use agreement.[8] Information on ordering MCBS files from CMS can be obtained through CMS' LDS website at https://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/Data-Disclosures-Data-Agreements/DUA_-_NewLDS.html.

The MCBS employs a rotating panel design in which beneficiaries remain in the sample for a maximum of four years. Each year, beneficiaries who have remained in the sample for up to four years exit the sample, and a new sample of beneficiaries are selected to replace those exiting the sample (roughly one-third of the sample is replaced each year). We used cross-sectional survey weights to account for overall selection probability of each sample person and included adjustments for the stratified sampling design, survey nonresponse, and coverage error. Balanced repeated replication (BRR) weights were used for variance estimation.

Adjusted Wald tests were used to test for statistically significant differences in proportions or means across groups. These tests adjust the degrees of freedom to account for the complex survey design.[9] All significant findings cited in-text are statistically significant at the $p < 0.05$ level unless otherwise stated. P-values underwent a Bonferroni correction to account for the number of independent categories within each variable. Since the analytic dataset had negligible rates of item nonresponse (less than 1%), we performed complete case analysis using appropriate sub-population or domain

statements to ensure no observations were excluded from the survey-weighted analyses. SAS 9.4 was used to construct analytic datasets and Stata 14.1 was used to conduct the analyses.

Study Population. The sampling frame for this analysis included all Medicare beneficiaries enrolled in the Medicare program at any time during 2013, living in the community (i.e., not living in a facility), aged 65 years and over, in the lower 48 US states or Puerto Rico, with a defined diabetes status (see above). The final dataset includes 7,903 beneficiaries (weighted N=39,365,471).

ABOUT THE AUTHORS

This report was written under contract number HHSM-500-2014-00035I/T0002 by Jennifer Hasche and Christopher Ward of NORC at the University of Chicago, in collaboration with Nicholas Schluterman at the Centers for Medicare & Medicaid Services (CMS) Office of Enterprise Data and Analytics (OEDA).

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