MCBS
Medicare Current Beneficiary Survey

CMS
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OFFICE OF ENTERPRISE DATA & ANALYTICS

Data Highlight May 2019

Cost-related nonadherence to prescription medications among Medicare Fee-For-Service beneficiaries

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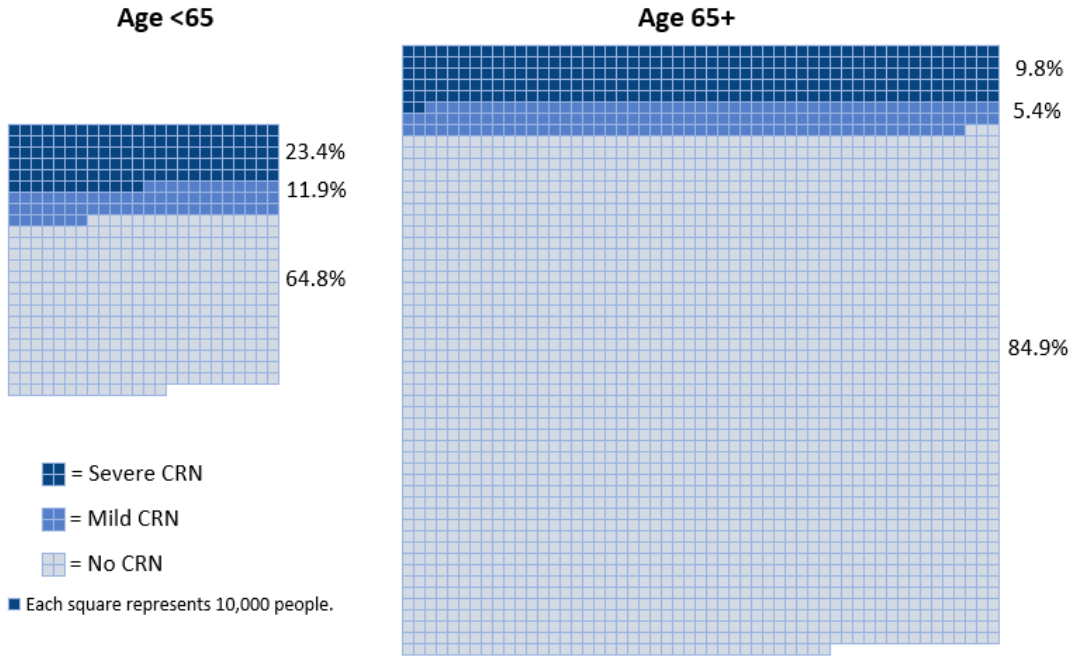
The average community-based Medicare beneficiary spent $607 out-of-pocket on prescription medications in 2016,[1] and these costs are cited by many beneficiaries as a major source of financial hardship.[2-5] Facing financial constraints, some beneficiaries may choose to leave their prescriptions unfilled or not take them as prescribed.[3-7]

The consequences of cost-related nonadherence (CRN) to prescription medications depend on the patient's underlying medical conditions.[8] This data brief examines one potential health outcome associated with CRN to prescription medications: emergency department (ED) visits. The analysis uses Medicare Fee-For-Service claims data and data from the 2016 Medicare Current Beneficiary Survey (MCBS).[9]

KEY FINDINGS

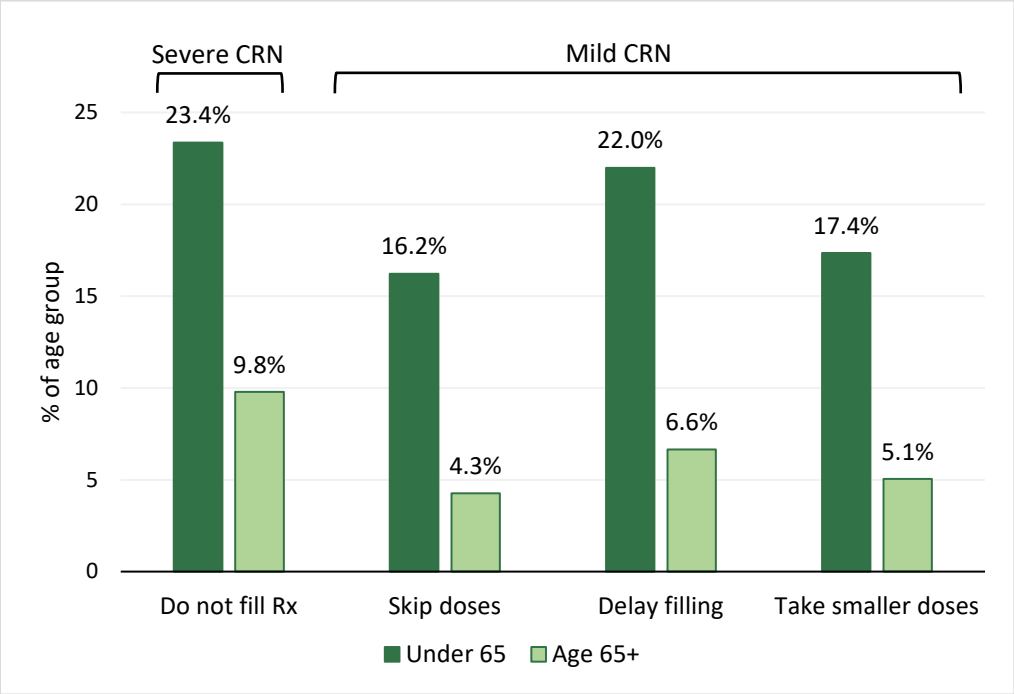
- Responses in the Medicare Current Beneficiary Survey (MCBS) indicated that more than six million Medicare Fee-For-Service (FFS) beneficiaries nationwide experienced some degree of cost-related nonadherence (CRN) to prescription medications in 2016.
- CRN was more common among the under-65, lower-income, and less healthy populations of Medicare beneficiaries.
- CRN did not show a consistent link to emergency department (ED) visits; however, the MCBS offers many more opportunities to assess the causes and consequences of CRN.

Figure 1: Prevalence of reported cost-related non-adherence (CRN) to prescription medications, among community-based Medicare Fee-For-Service (FFS) beneficiaries, 2016.



Weighted to represent the national population of community-based Medicare FFS beneficiaries enrolled in Medicare at any point in 2016 (unweighted n=8,310). Beneficiaries may respond that they had experienced more than one type of CRN. Beneficiaries who fit the definition for both "Severe CRN" and "Mild CRN" were classified as having "Severe CRN."
Source data: 2016 MCBS Survey File.

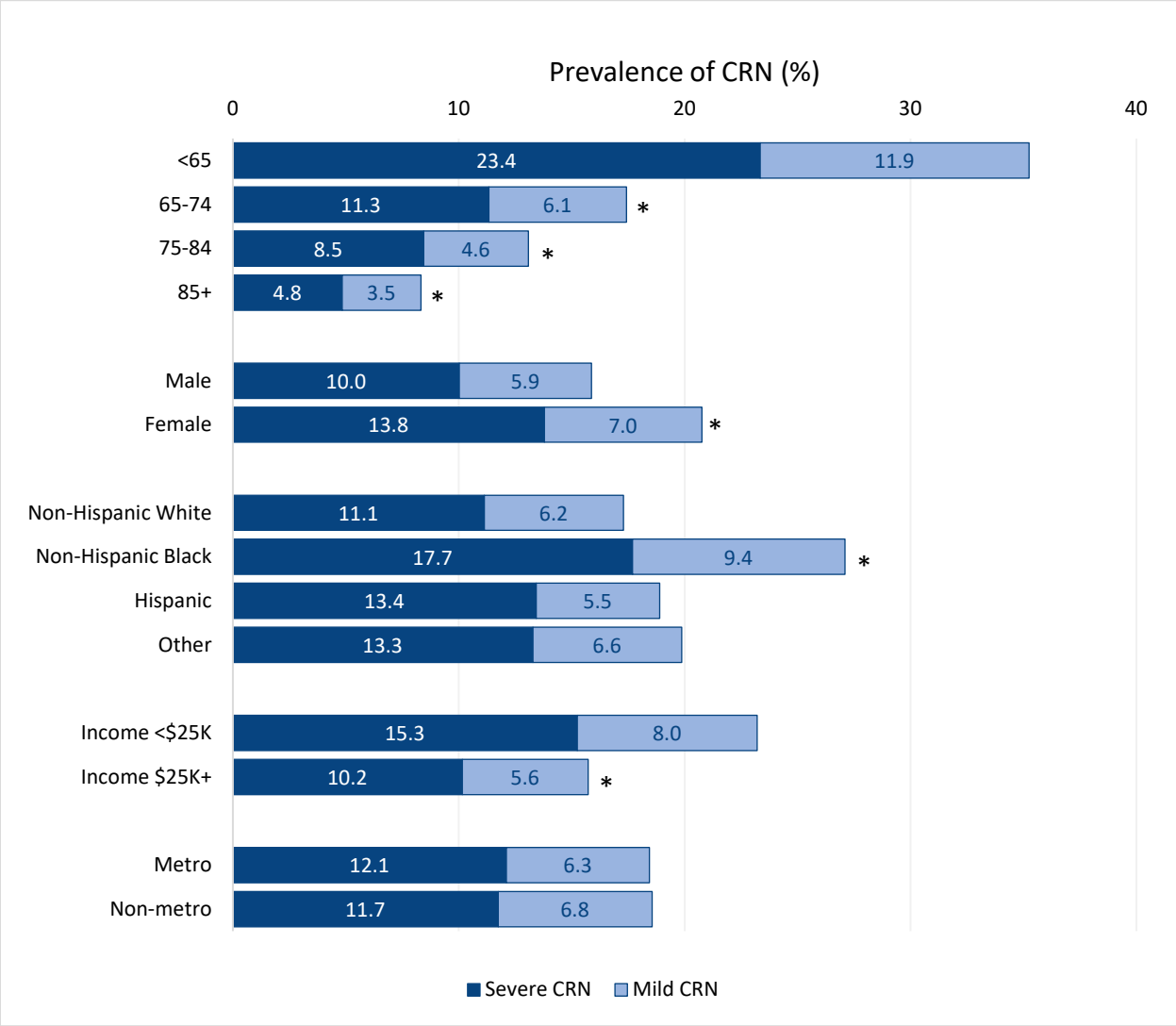
Figure 2: Types of cost-related nonadherence (CRN) to prescription medications reported by community-based Medicare Fee-For-Service (FFS) beneficiaries, 2016.



Weighted to represent the national population of community-based Medicare FFS beneficiaries enrolled in Medicare at any point in 2016 (unweighted n=8,310).
Beneficiaries may respond that they had experienced more than one type of CRN. Beneficiaries who fit the definition for both "Severe CRN" and "Mild CRN" were classified as having "Severe CRN."
Source data: 2016 Medicare Current Beneficiary Survey (MCBS) Survey File.

- "Severe CRN" was defined as not filling prescriptions due to cost. "Mild CRN" was defined as skipping, delaying, or taking smaller doses due to cost.
- Each of the four CRN types was more common among the under-65 age group than those aged 65 and over.
- Severe CRN was reported by 23.4% of the under-65 age group and 9.8% of those aged 65 and over.
- Of the mild forms of CRN, delayed filling of prescriptions was the most common, being reporting by 22.0% of the under-65 and 6.6% of the aged 65-and-over Medicare FFS populations.

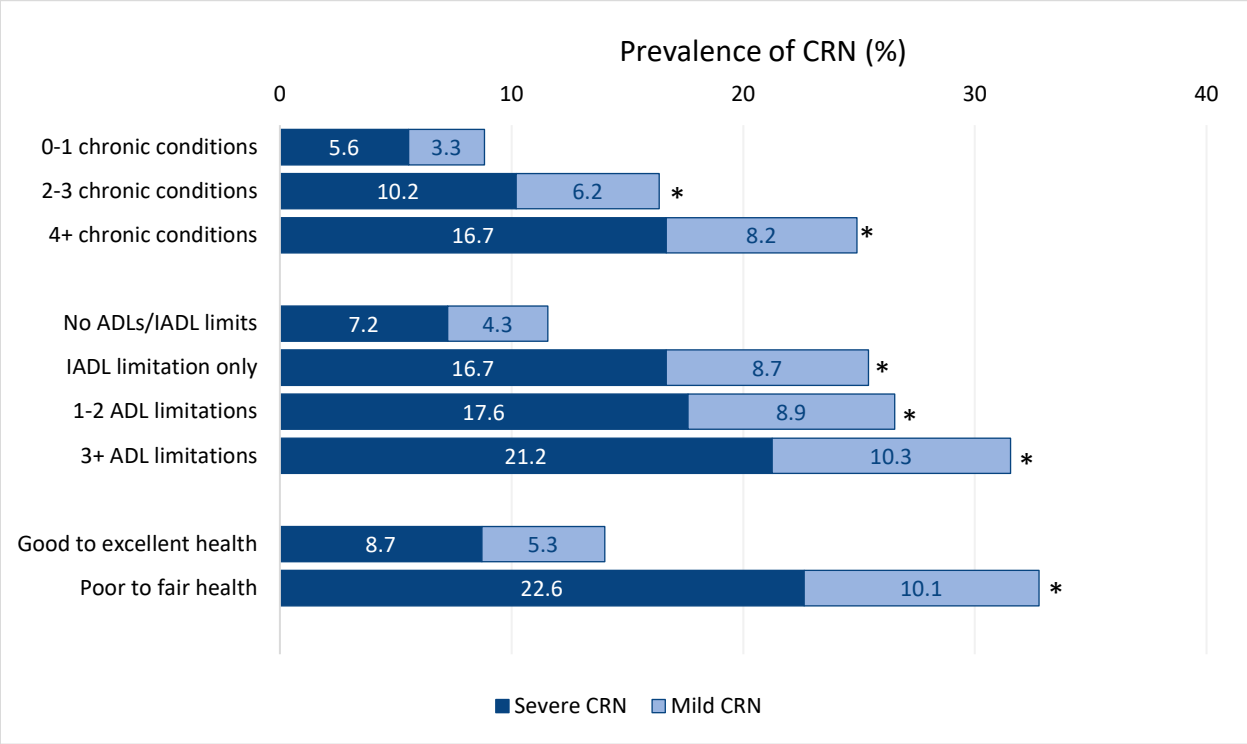
Figure 3: Prevalence of reported cost-related non-adherence (CRN) to prescription medications, among sociodemographic groups of community-based Medicare Fee-For-Service (FFS) beneficiaries, 2016.



Weighted to represent the national population of community-based Medicare FFS beneficiaries enrolled in Medicare at any point in 2016 (unweighted n=8,310).
*Significantly different prevalence of total CRN, compared to first category listed (Rao-Scott chi-square test)
Source data: 2016 Medicare Current Beneficiary Survey (MCBS) Survey File.

- CRN was closely linked to age, as each successively older age group reported less CRN than the younger age groups.
- Approximately 20.8% of female beneficiaries reported any level of CRN in 2016, which was significantly higher than the 15.9% of males who reported CRN.
- CRN was also related to race and income, as non-Hispanic black beneficiaries and those who had an annual household income of less than $25,000 were more likely than their peers to report CRN.

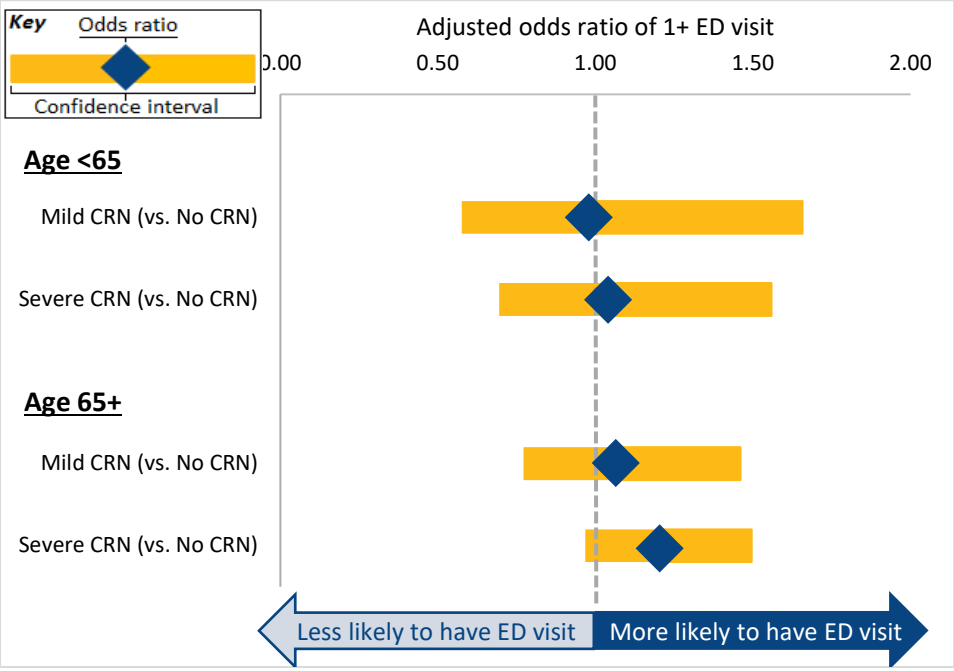
Figure 4: Prevalence of reported cost-related non-adherence (CRN) to prescription medications, by health status among of community-based Medicare fee-for-service (FFS) beneficiaries, 2016.



Weighted to represent the national population of community-based Medicare Fee-For-Service (FFS) beneficiaries enrolled in Medicare at any point in 2016 (unweighted n=8,310).
ADL: Activity of daily living; IADL: Instrumental activity of daily living
*Significantly different prevalence of total CRN, compared to first category listed (Rao-Scott chi-square test).
Source data: 2016 Medicare Current Beneficiary Survey (MCBS) Survey File.

- CRN was closely related to health status, as beneficiaries in worse health were more likely than their peers to report CRN.
- Beneficiaries with more chronic conditions and more limitations in activities of daily living (ADLs) reported CRN at a higher rate than others.

Figure 5: Adjusted odds of having at least one emergency department (ED) visit in the 12 months following interview, by age and CRN status among community-based Medicare Fee-For-Service (FFS) beneficiaries, 2016.



Weighted to represent the national population of community-based Medicare FFS beneficiaries enrolled in both Parts A and B during the entire 12-month study period (unweighted n=7,726).
Approximately 37.9% of under-65 beneficiaries and 26.9% of beneficiaries aged 65 and over had at least one ED visit.
CRN: cost-related nonadherence to prescription medications.
Weighted logistic regression, adjusted for sex, race, income, metropolitan residence, number of chronic conditions, number of health limitations, general health, and prescription insurance type. Bars represent 95% confidence intervals of odds ratios.
Source data: 2016 Medicare Current Beneficiary Survey (MCBS) Survey File, and Chronic Conditions Warehouse, Medicare FFS claims data.

- In the under-65 age group, no consistent relationship existed between CRN and ED visits, after adjusting for sociodemographic factors, health status, and prescription insurance coverage.
- Among beneficiaries aged 65 and over, those with severe CRN had higher odds of an ED visit than those with no CRN, but this difference was not significant.

DISCUSSION

Cost represents a substantial barrier to healthcare access for many Americans. As shown in this data highlight, the costs of prescription medications lead millions of Medicare beneficiaries across the country not to adhere to their drugs as prescribed. Cost-related nonadherence (CRN) may come in the form of not filling prescriptions, skipping doses, delaying filling, or reducing the amounts taken.

Beneficiaries under the age of 65, most of whom became eligible for Medicare because of a disability, were much more likely than age-eligible beneficiaries to report CRN. This followed the general trend seen here that beneficiaries in worse health had higher levels of CRN than their healthier peers. Lower-income beneficiaries, too, reported higher levels of CRN.

Similar to a study of MCBS and Medicare claims data from 2006-07,[11] the relationship between CRN and ED visits was weak or inconclusive in this data highlight. ED visits are just one of many potential health outcomes that could have been studied, offered as an example of what topics can be examined using a combination of MCBS and Medicare claims data. Whether CRN results in other adverse health outcomes—for example, hospital admissions, specific diseases or events, or death—is a topic that could also utilize these data sources.[2] Researchers could also use these data to examine more closely the causes of CRN;[7] for example, were beneficiaries more likely to experience CRN if they had certain types of Medicare or non-Medicare prescription coverage?

DEFINITIONS

Cost-related nonadherence

Cost-related nonadherence (CRN) to prescription medications was defined as "Severe" if the beneficiary indicated that he or she had, in the past year, not filled a prescription due to cost (variable SCPMCOST="Indicated," or NOFILLRX="Often" or "Sometimes). Among those who did not have Severe CRN, beneficiaries were classified as having "Mild CRN" if they reported that, in the past year and due to costs, they had "often" or "sometimes" skipped doses (SKIPRX), delayed filling (DELAYRX), or taken smaller-than prescribed doses (DOSESRX). CRN data came from the beneficiaries' fall 2016 MCBS interviews.

Number of chronic conditions

Self-reported MCBS data, current as of the beneficiaries' fall 2016 MCBS interview, indicated whether the beneficiary had ever been diagnosed with any of a list of chronic conditions. The listed chronic conditions used for this data highlight included the following:

- Heart conditions (including myocardial infarction (variable OCMYOCAR), angina pectoris or coronary heart disease (OCCHD), congestive heart failure (OCFAIL), and other heart conditions (OCHRTCND))
- Alzheimer's (OCALZMER) or non-Alzheimer's dementia (OCDEMENT)
- Arthritis (including rheumatoid (OCARTHRH), osteoarthritis (OCOSARTH,) and other arthritis (OCARTHOT))
- Diabetes (OCDBETES)
- Hypertension (OCHBP)
- Depression (OCDEPRESS) or other mental illness (OCPSYCHO)
- Osteoporosis (OCOSTEOP)
- Broken hip (OCBRKHIP)
- Cancer (OCCANCER)
- Parkinson's disease (OCPARKIN)
- Stroke (OCSTROKE)
- Lung disease (OCEMPHYS, which includes emphysema, asthma, and chronic obstructive pulmonary disease).

One category could lead to multiple specific types of chronic conditions being counted. For example, a beneficiary with both a history of myocardial infarction and congestive heart failure would be counted as having two chronic conditions.

Number of limitations with daily living

Limitations included those involving activities of daily living (ADLs) and instrumental activities of daily living (IADLs). A limitation occurred if a beneficiary reported during his or her fall 2016 MCBS interview that he or she needed help or had stopped doing an activity due to health reasons. Listed ADLs included bathing, getting in and out of bed or chairs, dressing, eating, using the toilet, and walking. IADLs included using the telephone, paying bills, heavy housework, light housework, preparing meals, and shopping.

General health

During their fall 2016 MCBS interview, beneficiaries were asked to self-rate their health in general compared to others their age as excellent, very good, good, fair, or poor (variable GENHLTH).

Emergency department visits

Medicare FFS data from the Medicare Chronic Conditions Warehouse (CCW) was merged with MCBS data to define utilization of emergency department (ED) services. The time horizon was 365 days from the date of the beneficiary's fall 2016 MCBS interview. Claims data was not available for Medicare Advantage enrollees, so these beneficiaries were excluded from the analysis.

DATA SOURCES AND METHODS

The MCBS is an in-person, longitudinal survey of Medicare beneficiaries that is sponsored by the Centers for Medicare & Medicaid Services (CMS) and directed by the Office of Enterprise Data and Analytics (OEDA). 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 sample includes participants from the 48 continental United States, plus Puerto Rico.

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 is selected to replace those exiting the sample (roughly one-third of the sample is replaced each year). This data highlight 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.

A general linear model produced the adjusted odds ratios of an emergency department visit shown in Figure 5. This model was adjusted for survey weights and replicate weights, and including first-order terms for sex, race, income, metropolitan residence, number of chronic conditions, number of health limitations, self-rated general health, and prescription insurance type.

Researchers who are interested in a wider set of variables on the MCBS sample may obtain the MCBS Limited Data Set (MCBS LDS) files, which are available from the CMS for a fee and require a data use agreement. The MCBS LDS consists of the MCBS Survey File and the MCBS Cost Supplement. The MCBS Survey File includes survey-based and administrative data on beneficiary socio-demographic characteristics, health status and functioning, access to care, satisfaction, and sources of care. The MCBS Cost Supplement includes survey-based and administrative data on beneficiary health care costs, utilization, sources of payment. MCBS LDS files are available to researchers with a data use agreement, and information on ordering MCBS files can be obtained from CMS' LDS website at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/Data-Disclosures-Data-Agreements/DUA_-_NewLDS.html

This data highlight also used Medicare Fee-For-Service claims data from the Chronic Conditions Warehouse (CCW). The CCW contains Medicare and Medicaid beneficiary, claims, assessment data. CCW data may be linked to MCBS data for the small portion of Medicare beneficiaries who participate in the MCBS. Researchers may access CCW data for a fee and with a data use agreement. More information on accessing CCW data is available at: https://www.ccwdata.org/web/guest/request-data

Study Population.

The analytic dataset included 8,310 Medicare beneficiaries who represented the national population of community-based (i.e. not living in a facility) Medicare beneficiaries. Beneficiaries

who were enrolled at Medicare Advantage at any point during the 12-month claims follow-up period were excluded, because complete claims data was not available for these beneficiaries. Weighted data allowed the results to represent a national population of 34,252,380 community-based Medicare FFS beneficiaries. Probability of selection into the sample was stratified by age, sex, race, and place of residence. For more information on sampling procedures, please see the 2016 MCBS Methodology Report.[11] The analysis concerning ED visits was restricted to those who were enrolled in both Medicare Part A and Part B during the entire 12-month study period (unweighted n=7,726) , as this is the population for which complete FFS claims data was available.

ABOUT THE AUTHORS

This report was written by Nicholas Schluterman and John C. McCormick at the Centers for Medicare & Medicaid Services (CMS) Office of Enterprise Data and Analytics (OEDA).

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