

Supplemental Online Content

Raver E, Jung J, Xu WY. Medicare Advantage disenrollment patterns among beneficiaries with multiple chronic conditions. *JAMA*. doi:10.1001/jama.2023.10369

eMethods

eReferences

This supplemental material has been provided by the authors to give readers additional information about their work.

eMethods

Description of the Medicare Current Beneficiary Survey¹

The Medicare Current Beneficiary Survey (MCBS) is a continuous short panel survey of Medicare beneficiaries. Survey participants are interviewed in three rounds during the year and form rotating panels up to four years long. For the purposes of this study, only two-year panels were analyzed for switching between one year and the following year. New incoming panels are selected from a 5% sample of the Medicare administrative enrollment records. The MCBS uses a three-stage cluster sample design, with oversampling of Hispanic beneficiaries (starting in 2015) and beneficiaries younger than 45 years or older than 85 years.

MCBS data for 2014 were never released by the Centers for Medicare & Medicaid Services (CMS).

The National Opinion Research Center (NORC) conducts the MCBS in partnership with CMS. The NORC Institutional Review Board (IRB) reviews and approves all MCBS data collection protocols, questionnaires, and respondent materials to ensure human subject protections are properly addressed before field data collection began. For MCBS data collection, the research protocol and consent procedures were first approved by NORC's IRB, with subsequent changes to the protocol approved through amendments and annual renewal. The written consent form that was provided to respondents can be found online at <https://www.reginfo.gov/public/do/DownloadDocument?objectID=65785501>.

Surveys are conducted in-person by trained interviewers using computer-assisted personal interviewing (CAPI). For survey years 2009-2019, response rates for initial interviews averaged 65.2%. Response rates for follow-up interviews through the second year averaged 78.3%, conditional on participating in the initial interview. Nonrespondents are more likely to be female (56.6% of nonrespondents v. 53.1% of respondents, $p < .01$) and less likely to be non-Hispanic Black (8.8% of nonrespondents v. 10.3% of respondents, $p < .01$). Additionally, nonrespondents are generally more likely to have chronic kidney disease, diabetes, depression, and asthma. However, the differences between respondents and nonrespondents vary by interview round and in some cases, opposite patterns to the general finding are observed.²

Survey weights account for the complex design of the survey, including the sampling strategy and rotating panel design. Additionally, weighting includes a nonresponse adjustment to correct for potential nonresponse bias based on propensity to respond to the MCBS. The propensity to respond was estimated based on demographic characteristics (e.g., sex, age, race/ethnicity, Census region), chronic conditions, and claim payment amounts for several different types of health care.

Definitions of Chronic Conditions

Chronic conditions were identified by self-reported survey questions asking, "Has a doctor or other health professional ever told you that you had...?" Conditions included in the study are:

- Acute myocardial infarction
- Alzheimer's disease and related dementias
- Angina pectoris
- Arteriosclerosis
- Arthritis (osteoarthritis or rheumatoid arthritis)
- Atrial fibrillation and other heart arrhythmias
- Cancer
- Chronic heart failure
- Chronic obstructive pulmonary disease and asthma
- Depression
- Heart valve disease
- Hyperlipidemia
- Hypertension
- Ischemic heart disease
- Osteoporosis

- Parkinson’s disease
- Psychiatric disorders (other than depression)
- Stroke or brain hemorrhage

The reported conditions for each respondent were counted and categorized into four groups: 0-1 condition, 2-3 conditions, 4-5 conditions, and 6 or more conditions, following the methodology used by the Centers for Medicare & Medicaid Services (CMS)³ and the Centers for Disease Control and Prevention.⁴

Statistical Analysis

Logistic regression models adjusted for demographic variables available in the MCBS data, including sex, race/ethnicity, rurality, education, and Medicare-Medicaid dual eligibility. Sex was categorized as male or female and identified by CMS administrative data linked to the MCBS Survey File data. Race/ethnicity was reported by survey participants and categorized as:

- African American or Black (non-Hispanic)
- American Indian, Alaskan Native, other race, or more than one race (non-Hispanic)
- Asian or Pacific Islander (non-Hispanic)
- Hispanic (any race)
- White (non-Hispanic)

Rurality was categorized as residence in a metropolitan versus non-metropolitan, following the Rural Urban Commuting Area classification codes.⁵ These data were identified by ZIP codes in CMS administrative data linked to the MCBS Survey File data. Education was reported by survey participants as the highest grade or degree completed, and categorized as:

- High school diploma or less
- Vocational, technical, or business training; some college; or associate’s degree
- Bachelor’s degree, graduate degree, or professional degree

Medicaid dual eligibility was identified through CMS administrative data linked to MCBS Survey File data. Medicare enrollees were considered to be dual eligible if they had any dual eligibility (e.g., full or partial benefit Qualifying Medicare Beneficiaries, Qualifying Individuals, Specified Low-Income Medicare Beneficiaries, etc.) for any part of the year.

eReferences

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