

# 2021 Medicare Current Beneficiary Survey (MCBS) Socio-demographic and Health Characteristics of Medicare Beneficiaries Living in the Community by Metropolitan Residence Status Public Use File (PUF) Technical Appendix

## DATA AND METHODS

This Technical Appendix provides information about the production of the estimates and margins of error (MOEs) presented in the 2021 Medicare Current Beneficiary Survey (MCBS) Socio-demographic and Health Characteristics of Medicare Beneficiaries Living in the Community by Metropolitan Residence Status Public Use File (PUF).

These estimates are based on 2021 data from the MCBS, a 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). 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.

MCBS Limited Data Sets (LDS) are available to researchers with a data use agreement. Information on ordering MCBS files from CMS can be obtained through the CMS LDS website at [https://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/Data-Disclosures-Data-Agreements/DUA - NewLDS](https://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/Data-Disclosures-Data-Agreements/DUA-NewLDS). MCBS Microdata Public Use Files (PUF) are also available to the public as free downloads and can be found through the CMS PUF website at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/MCBS-Public-Use-File/index>. The 2021 MCBS Socio-demographic and Health Characteristics of Medicare Beneficiaries Living in the Community by Metropolitan Residence Status PUF and other PUFs based on MCBS microdata are available here: <https://www.cms.gov/research-statistics-data-and-systems/research/mcbs/data-tables>.

For details about the MCBS sample design, survey operations, and data files, please see the most recent *MCBS Methodology Report* and *Data User's Guides* available on the CMS MCBS website at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/index>.

The universe for this PUF includes Medicare beneficiaries who were ever enrolled in Medicare in 2021 and completed a Community interview in Fall 2021, Winter 2022, or Summer 2022. Beneficiaries who received a Community interview answered questions themselves or by proxy.

Some measures are constructed from survey questions that involve questionnaire skip logic. For these items, unless otherwise noted, if the respondent provided a "No" response and subsequently skipped the follow-up question, the response was still included in the denominator and the follow-up question that was skipped was treated as a "No" response for measure calculation. "Don't know" and "Refused" responses were treated as missing values and excluded from both the numerator and denominator in measure calculation.

The Survey File ever-enrolled weights were used to produce estimates that represent the population that was ever enrolled in Medicare and still alive, entitled, and living in the community during the season in which the corresponding questionnaire item was fielded (Fall

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2021,<sup>1</sup> Winter 2022,<sup>2</sup> and Summer 2022<sup>3</sup>). Estimates generated using data from Topical segments, which were fielded in the winter and summer rounds following the data year, used the special non-response adjustment weights that are specific to each Topical segment. Balanced repeated replication survey weights were used to account for the complex sample design.

Estimate suppression is used to protect the confidentiality of Medicare beneficiaries by avoiding the release of information that can be used to identify individual beneficiaries. Estimates with a denominator of less than 50 sample persons or with a numerator of zero sample persons are suppressed. In addition, some estimates are suppressed because they do not meet minimum criteria for reliability. For the proportions in these tables, the Clopper-Pearson method was used to compute confidence intervals for each estimate. Estimates with a confidence interval whose absolute width is at least 0.30, with a confidence interval whose absolute width is no greater than 0.05, or with a relative confidence interval width of more than 130 percent of the estimate are suppressed.<sup>4</sup> MOEs are presented for each estimate.

The MCBS is authorized by section 1875 (42 USC 139511) of the Social Security Act and is conducted by NORC at the University of Chicago for the U.S. Department of Health and Human Services. The OMB Number for this survey is 0938-0568.

Additional technical questions concerning these estimates may be directed to:  
[MCBS@cms.hhs.gov](mailto:MCBS@cms.hhs.gov).

### GLOSSARY

This Glossary provides an explanation of key terms and defines the measures for which estimates are presented in this PUF.

**Activities of daily living (ADLs):** Activities of daily living are activities related to personal care. They include bathing or showering; dressing; getting in and out of bed or a chair; walking; using the toilet; and eating. If a beneficiary had any difficulty performing an activity by themselves and without special equipment or did not perform the activity at all because of health problems, the person was deemed to have a limitation in that activity. The limitation may have been temporary or chronic at the time of the survey.

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<sup>1</sup> The Survey File ever-enrolled cross-sectional weights were used for socio-demographic, health status and functioning, and chronic condition estimates collected in Fall 2021.

<sup>2</sup> The Access to Care Questionnaire (ACQ) Survey File ever-enrolled weights were used for ER and outpatient visit estimates collected in Winter 2022. The Usual Source of Care Questionnaire (USQ) Survey File ever-enrolled weights were used for usual source of care estimates collected in Winter 2022. The Telemedicine Questionnaire (TLQ) Survey File ever-enrolled weights were used for telemedicine estimates collected in Winter 2022.

<sup>3</sup> The Chronic Pain Questionnaire (CPQ) Survey File ever-enrolled weights were used for chronic pain estimates collected in Summer 2022.

<sup>4</sup> Parker, Jennifer D., Makram Talih, Donald J., Malec, et al. "National Center for Health Statistics Data Presentation Standards for Proportions." National Center for Health Statistics. *Vital Health Stat* 2, no. 175 (2017). Available from: [https://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_175.pdf](https://www.cdc.gov/nchs/data/series/sr_02/sr02_175.pdf).

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**Age:** Age is obtained from administrative data sources.

**Area deprivation index (ADI):** ADI is an indicator of the socioeconomic disadvantage of geographic areas. National rankings are based on the Census block group for the beneficiary's primary residence address. ADI values in the first percentile are the least disadvantaged, and those in the hundredth are the most disadvantaged.<sup>5</sup> Respondents with ADI values in the 1<sup>st</sup> to 79<sup>th</sup> percentile were categorized as "Does not live in a disadvantaged area." Respondents with ADI values in the 80<sup>th</sup> to 100<sup>th</sup> percentile were categorized as "Lives in a disadvantaged area."

**Beneficiary:** Beneficiary refers to a person receiving Medicare services who may or may not be participating in the MCBS. Beneficiary may also refer to an individual selected from the MCBS sample about whom the MCBS collects information.<sup>6</sup>

**Body Mass Index (BMI):** BMI is a measure of body fat that is calculated by multiplying survey-reported weight in pounds by 703 and dividing that value by survey-reported height in inches squared. BMI values under 18.5 were categorized as "Underweight," values greater than or equal to 18.5 and less than 25 were categorized as "Healthy," values greater than or equal to 25 and less than 30 were categorized as "Overweight," values greater than or equal to 30 and less than 40 were categorized as "Obese," and values greater than or equal to 40 were categorized as "Extreme or high risk obesity."

**Cancer, other than skin cancer:** Respondents were asked whether a doctor or other health professional had ever told them that they had any kind of cancer, malignancy, or tumor other than skin cancer.

**Chronic conditions:** Chronic conditions comprises a group of 14 health conditions measures: heart disease, cancer (other than skin cancer), Alzheimer's disease, dementia other than Alzheimer's disease, depression, mental condition, hypertension, diabetes, arthritis, osteoporosis/broken hip, pulmonary disease, stroke, high cholesterol, and Parkinson's disease. It is possible for a beneficiary to have "ever" been diagnosed with both Alzheimer's disease and dementia (other than Alzheimer's disease) as previous survey responses are carried forward into subsequent data years. For the purposes of the number of chronic conditions measure, Alzheimer's disease and dementia (other than Alzheimer's disease) are counted as one chronic condition for beneficiaries diagnosed with both conditions. As the definition of mental condition encompasses depression, for the purposes of the number of chronic conditions measure, depression and mental condition are counted as one chronic condition for beneficiaries diagnosed with both conditions.

**Chronic pain:** Respondents who reported having chronic pain at least some days were asked whether they have been bothered by back pain; hand, arm, or shoulder pain; hip, knee, or foot pain; headache, migraine, or facial pain; abdominal, pelvic, or genital pain; or toothache or jaw

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<sup>5</sup> "2020 Area Deprivation Index v3.2," University of Wisconsin School of Medicine and Public Health, <https://www.neighborhoodatlas.medicine.wisc.edu/>.

<sup>6</sup> <https://www.cms.gov/Medicare/Medicare-General-Information/MedicareGenInfo/index.html>

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pain in the past three months. Respondents who reported "A little," "A lot," or "Somewhere between a little and a lot" were categorized as "Yes." Respondents who reported "Not at all" or never having chronic pain were categorized as "No." This question was only asked of beneficiaries (i.e., not proxy respondents) during the summer interview.

**Community interview:** Survey administered for beneficiaries living in the community (i.e., not in a long-term care facility such as a nursing home) during the reference period covered by the MCBS interview. An interview may be conducted with the beneficiary or a proxy.

**Depression:** Respondents were asked whether a doctor or other health professional had ever told them that they had depression.

**Diabetes:** Respondents were asked whether a doctor or other health professional had ever told them that they had any type of diabetes. In this PUF, diabetes encompasses Type I, Type II, borderline diabetes, prediabetes, gestational diabetes, and high blood sugar.

**Dietary supplements:** Respondents were asked whether they used or had taken any vitamins, minerals, herbals, or other dietary supplements in the last year.

**Disability status:** Respondents were asked whether they have serious difficulty hearing; seeing; concentrating, remembering, or making decisions; walking or climbing stairs; dressing or bathing; or with errands. Beneficiaries who had no serious difficulties with these activities were included in the category "No disability." Beneficiaries who had a serious difficulty in one area were categorized as "One disability" and those who had a serious difficulty in more than one area were categorized as "Two or more disabilities."

**Dual eligibility status:** Annual Medicare-Medicaid dual eligibility was based on the state Medicare Modernization Act (MMA) files. Medicare beneficiaries were considered "dually eligible" if they were enrolled in Medicaid for at least one month. Beneficiaries who were not enrolled in Medicaid for at least one month in the calendar year were categorized as "non-dually eligible." This information was obtained from administrative data sources.

**Education:** Education refers to the highest level of education that a beneficiary has completed, as reported by the respondent. Beneficiaries were categorized as "Less than a high school diploma," "High school graduate," "Some college/vocational school," "Bachelor's degree" (e.g., BA, BS), or "Graduate or professional degree" (e.g., MA, MS, MD, DDS, DVM, LLB, JD, PhD).

**Ever enrolled:** A Medicare beneficiary who was enrolled at any time during the calendar year including people who dis-enrolled or died prior to their fall interview. Excluded from this population are residents of foreign countries and of U.S. possessions and territories.

**Fee-for-Service (FFS):** FFS Medicare encompasses beneficiaries eligible for Part A and/or Part B Medicare benefits at any time during the data collection year, and who were not enrolled in a Medicare Advantage plan at any time during the year. However, beneficiaries may have had Medicaid coverage or other public insurance coverage, such as a state-sponsored prescription drug plan, or may have been eligible for Department of Veterans Affairs health care benefits.

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Beneficiaries enrolled in FFS coverage may also have supplemental private insurance coverage. Coverage status is indicated for records for which administrative data are available.

**Functional limitations:** Beneficiaries who reported no limitations in any of the activities of daily living (ADLs) or instrumental activities of daily living (IADLs) due to health problems were included in the category "None." Otherwise, beneficiaries with one or more ADL limitations or one or more IADL limitations were categorized as having a functional limitation.

**Heart disease:** Respondents were asked whether a doctor or other health professional had ever told them that they had myocardial infarction (heart attack), angina pectoris or coronary heart disease, congestive heart failure, or any other heart condition. The heart disease measure counts the presence of at least one of these conditions. Beneficiaries who have more than one condition are only counted once for the purposes of calculating the proportion of beneficiaries with heart disease.

**High cholesterol:** Respondents were asked whether a doctor or other health professional has told them that they have high cholesterol.

**Housing in special community:** Respondents were asked if their place of residence is part of one of these types of communities: retirement community; senior citizens housing; assisted living facility; continuing care community; staged living community; retirement apartments; church-provided housing; personal or residential care home; or some other type of community. Beneficiaries whose place of residence is part of one of these types of communities were categorized as "Yes." This question is not administered for unhoused or incarcerated beneficiaries.

**Housing quality issues:** Respondents were asked if any of the following conditions were present in their place of residence: pests such as bugs, ants, or mice; mold; lead paint or pipes; lack of heat; lack of cooling system; oven or stove not working; smoke detectors missing or not working; or water leaks. Beneficiaries who live in residences without any of these conditions were included in the category "No housing quality issues." Those who live in residences with one of these conditions were included in the category "One housing quality issue." Those who live in residences with two or more of these conditions were included in the category "Two or more housing quality issues."

**Housing type:** Respondents were asked to select from a list of categories which housing type best describes their home. Responses of "Two-family or duplex," "Apartment or condominium building," and "Rowhouse or townhouse" were collapsed as "Duplex, apartment building, or townhouse." Responses of "Mobile home or trailer," "Mother-in-law apartment," and "Other type of dwelling" were collapsed as "Other housing type." This question is not administered for unhoused or incarcerated beneficiaries.

**Hypertension:** Respondents were asked whether a doctor or other health professional has ever told them that they had hypertension or high blood pressure.

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**Income:** Information on income is self-reported by the respondent for the calendar year. Respondents are asked to report the total income the beneficiary and their spouse/partner (if applicable) received from all sources during the year, including Social Security, Railroad Retirement, Supplemental Security Income (SSI), the Veteran's Administration, pensions, retirement accounts, interest, banking accounts, businesses, real estate, and jobs, before any taxes or deductions. Income represents the best source or estimate of income received during the year based on the most recent information reported.

**Income to poverty ratio (IPR):** IPR is calculated only for household sizes of one (beneficiary living alone) or two (beneficiary living with a spouse/partner only) as the income and asset information is collected only from the beneficiary and the beneficiary's spouse/partner. Medicare beneficiaries have slightly different poverty level indices used for program eligibility. The IPR uses the Medicare poverty thresholds for calculation.

**Instrumental activities of daily living (IADLs):** Instrumental activities of daily living are activities related to independent living. They include preparing meals; managing money; shopping for groceries or personal items; performing light or heavy housework; and using a telephone. If a beneficiary had any difficulty performing an activity by themselves or did not perform the activity at all because of health problems, the person was deemed to have a limitation in that activity. The limitation may have been temporary or chronic at the time of the survey.

**Language spoken at home:** Respondents were asked if they speak a language other than English at home.

**Living arrangement:** Living arrangement reflects the beneficiary's household composition. Responses of "Spouse only" and "Partners only" were collapsed as "Lives with spouse/partner only." Responses of "Spouse & children," "Spouse & grandchildren," "Spouse & children & grandchildren," "Partners & children," "Children only," "Grandchildren only," "Children & grandchildren," "Parents only," and "Parents & siblings" were collapsed as "Lives in a multigenerational household." Responses of "Siblings only," "Other relatives," "Non-relatives only," and "Other" were collapsed as "Other living arrangement."

**Margin of error (MOE):** MOE is a measure of an estimate's variability. The larger the MOE in relation to the size of the estimate, the less reliable the estimate. This number, when added to and subtracted from the estimate, forms the 90 percent confidence interval. MOEs are based on standard errors calculated using replicate weights.

**Medicare Advantage (MA):** Medicare Advantage Plans, sometimes called "Part C" or "MA Plans," are offered by private companies under contracts with Medicare. In addition, other managed care plans are offered by private companies under contracts with Medicare under different parts of the Medicare statute. These Medicare managed care plans generally cover Medicare Part A and/or Part B benefits and are paid on either a risk-based capitated basis (MA plans) or on a reasonable cost basis (cost plans and health care prepayment plans).

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Beneficiaries were coded as having Medicare Advantage coverage if they had coverage for one or more months out of the calendar year. This information is obtained from administrative data sources.

**Mental condition:** Respondents were asked whether a doctor or other health professional had ever told them that they had depression or a mental or psychiatric disorder other than depression. The mental condition measure counts the presence of at least one of these conditions. Beneficiaries who have more than one condition are only counted once for the purposes of calculating the proportion of beneficiaries with a mental condition.

**Metropolitan area resident:** This classification is based on Core Based Statistical Area (CBSA) designations.<sup>7</sup> Beneficiaries who live in a micropolitan statistical area or outside the boundaries of a CBSA designation were categorized as "Non-metropolitan area residents." This information was obtained from administrative data sources.

**Osteoporosis/broken hip:** Respondents were asked whether a doctor or other health profession has ever told them that they had osteoporosis or a broken hip. The osteoporosis/broken hip measure counts the presence of at least one of these conditions. Beneficiaries who have more than one condition are only counted once for the purposes of calculating the proportion of beneficiaries with osteoporosis/broken hip.

**Proxy:** Beneficiaries who were too ill, or who could not complete the interview for other reasons, were asked to designate a proxy, someone very knowledgeable about the beneficiary's health and living habits. In most cases, the proxy was a close relative such as the spouse/partner or a son or daughter. In a few cases, the proxy was a non-relative like a close friend or caregiver. In addition, a proxy was utilized if a beneficiary had been reported as deceased during the current round's reference period or if a beneficiary who was living in the community in the previous round had since entered into a long-term care facility.

**Pulmonary disease:** Respondents were asked whether a doctor or other health professional had ever told them that they had emphysema, asthma, or chronic obstructive pulmonary disease (COPD). The pulmonary disease measure counts the presence of at least one of these conditions. Beneficiaries who have more than one condition are only counted once for the purposes of calculating the proportion of beneficiaries with pulmonary disease.

**Race/ethnicity:** Hispanic origin and race are two separate and distinct categories. Persons of Hispanic origin may be of any race or combination of races. Hispanic origin includes persons of Mexican, Puerto Rican, Cuban, Central and South American, or Spanish origin. For the MCBS, responses to beneficiary race and ethnicity questions are reported by the respondent. More than one race may be reported. For conciseness, the text, tables, and figures in this document use shorter versions of the terms for race and Hispanic or Latino origin specified in the Office of Management and Budget 1997 Standards for Data on Race and Ethnicity. Beneficiaries reported

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<sup>7</sup> <https://www.census.gov/programs-surveys/metro-micro/about/glossary.html>

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as White and not of Hispanic origin were coded as White non-Hispanic; beneficiaries reported as Black/African-American and not of Hispanic origin were coded as Black non-Hispanic; beneficiaries reported as Hispanic, Latino/Latina, or of Spanish origin, regardless of their race, were coded as Hispanic. The "Other Race/Ethnicity" category includes other single races not of Hispanic origin (including American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander), or Two or More Races.

**Reference period:** The timeframe to which a questionnaire item refers.

**Respondent:** Respondent refers to a person who answers questions for the MCBS; for Community interviews, this person can be the beneficiary or a proxy. If the respondent is a proxy, they answer questions about the beneficiary rather than themselves.

**Self-reported health status:** Respondents were asked to rate their general health compared to other people of the same age. Beneficiaries answered health status questions themselves unless they were unable to do so.

**Sex:** Respondents were asked to self-report the beneficiary's sex.

**Stroke:** Respondents were asked whether a doctor or other health professional had ever told them that they had a stroke, brain hemorrhage, or cerebrovascular accident, including transient ischemic attack. The stroke measure counts the presence of at least one of these diagnoses. Beneficiaries who have more than one diagnosis are only counted once for the purposes of calculating the proportion of beneficiaries with history of stroke.

**Smoking status:** Respondents were asked whether they had smoked at least 100 cigarettes or 50 cigars in their entire life and whether they currently smoke. Beneficiaries who currently smoke were categorized as "Current smoker." Beneficiaries who smoked 100 or more cigarettes or 50 or more cigars, but who were not current smokers were categorized as "Former smoker." Beneficiaries who did not meet the "Current smoker" or "Former smoker" criteria who do not smoke or have not smoked, as reported for at least one of the cigar or cigarette use survey questions, were categorized as "Never smoked". Smoking includes the smoking of cigarettes or cigars, but it does not include the use of other forms of tobacco, such as smokeless tobacco, pipe tobacco, or e-cigarettes.

**Telemedicine:** The use of remote clinical services, such as videoconferencing for consultations with health professionals.<sup>8</sup> Estimates of telemedicine use based on administrative data sources, including claims, may not match the estimates presented in this PUF due to differences in the definition of telemedicine service and the universe of beneficiaries used to estimate telemedicine use.<sup>9</sup>

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<sup>8</sup> "Telehealth Interventions to Improve Chronic Disease." Centers for Disease Control and Prevention. Last modified May 11, 2020. <https://www.cdc.gov/dhdsp/pubs/telehealth.htm>.

<sup>9</sup> Centers for Medicare & Medicaid Services. Medicare Telemedicine Snapshot. Last modified March 29, 2022. <https://www.cms.gov/medicare-telemedicine-snapshot>.

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**Trouble eating solid foods:** Respondents were asked how much trouble they have eating solid foods because of problems with their mouth or teeth. Response options include “No trouble”, “A little trouble”, and “A lot of trouble.” “A little trouble” and “A lot of trouble” were collapsed into “Has trouble eating solid foods due to teeth.”

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