2021 | DATA USER'S GUIDE: COVID-19 WINTER SUPPLEMENT PUBLIC USE FILE

Centers for Medicare & Medicaid Services (CMS)
Office of Enterprise Data and Analytics (OEDA)

Version Control Log

Date	Version	Revisions
7/21/2021	1.0	Initial version published.

TABLE OF CONTENTS

LIST OF EXHIBITS

ACRONYM LIST

AAPOR	American Association for Public Opinion Research
CAWI	Computer-Assisted Web Interviewing
CMS	Centers for Medicare & Medicaid Services
CSV	Comma-separated values file
COVIDWIN	LDS 2020 Survey File COVID-19 Winter Supplement Segment
DUA	Data Use Agreement
CPWWWGTS	COVID-19 PUF Winter Full Sample Weights
HHS	U.S. Department of Health and Human Services
IRB	Institutional Review Board
LDS	Limited Data Set(s)
MA	Medicare Advantage
MCBS	Medicare Current Beneficiary Survey
NORC	NORC at the University of Chicago
OMB	Office of Management and Budget
PHI	Protected Health Information
PII	Personally Identifiable Information
PSU	Primary Sampling Units
PUF	Public Use File
SAS	Statistical Analysis System
SSU	Secondary Sampling Units
USU	Ultimate Sampling Unit

1. INTRODUCTION

Over the past several years, the Centers for Medicare and Medicaid Services (CMS) has made it a priority to make more data available, including releasing to the public an unprecedented amount of information on services and procedures provided to Medicare beneficiaries. CMS provides users with multiple ways to access Medicare Current Beneficiary Survey (MCBS) data, and a wide array of documentation is publically available on the CMS MCBS website. MCBS data are made available via two annual Limited Data Set (LDS) releases and a MCBS Public Use File (MCBS PUF) based on the Survey File LDS. In response to the emergence of the novel (new) coronavirus in the United States in 2020, the MCBS has also released out-of-cycle topic-specific Public Use Files (MCBS COVID-19 Summer 2020 PUF, MCBS COVID-19 Fall 2020 PUF, and MCBS COVID-19 Winter 2021 PUF).

On January 31, 2020, the Health and Human Services (HHS) Secretary determined that a Public Health Emergency existed for the United States to aid the nation's healthcare community in responding to the novel "severe acute respiratory syndrome coronavirus 2" ("SARS-CoV-2") virus and the disease it causes, "coronavirus disease 2019" ("COVID-19"); this determination has been renewed regularly throughout the course of the pandemic.[1] Older people and people of all ages with severe chronic medical conditions — like heart disease, lung disease and diabetes, for example — seem to be at higher risk of developing serious COVID-19 illness.[2] With the emergence of the COVID-19 pandemic in the U.S., CMS was uniquely positioned to collect timely and vital information on how the pandemic was impacting the Medicare population by utilizing the MCBS.

CMS took advantage of the MCBS panel design to assess and understand the COVID-19 pandemic by planning a series of rapid response surveys as a supplement to the main MCBS. The first supplement was administered during the regular production cycle of Summer 2020 (Round 87) to existing MCBS sampled beneficiaries who were living in the community as a test of the COVID-19 rapid response protocol. After a successful Summer 2020 Community Supplement, CMS administered the COVID-19 Fall 2020 Supplement during the regular production cycle of Fall 2020 (Round 88) and the COVID-19 Winter 2021 Supplement during the regular production cycle of Winter 2021 (Round 89); one questionnaire was administered to existing MCBS sampled beneficiaries who were living in the community and another, for the first time in Fall 2020, to facility staff (i.e., Facility respondents) about beneficiaries living in a facility.

After Winter 2021, a subset of the COVID-19 Community Supplement items will be integrated into the main MCBS questionnaire instrument starting in Summer 2021 (Round 90). The COVID-19 Facility Supplement will continue to be fielded within the main MCBS Facility instrument.

Data collected for MCBS sampled beneficiaries living in the community who were administered the MCBS COVID-19 Summer 2020 Rapid Response Supplement and MCBS COVID-19 Fall 2020 Rapid Response Supplement are available as individual standalone COVID-19 PUFs and are also available as part of the 2019 Survey File LDS. The MCBS COVID-19 Winter 2021 Rapid Response Supplement will be made available as an individual standalone COIVD-19 PUF and will also be made available as part of the 2020 Survey File LDS. Data on the COVID-19 pandemic collected via the main MCBS questionnaire in the future will be released as part of

---

[1] Public Health Emergency Declarations. U.S. Department of Health and Human Services.
https://www.phe.gov/emergency/news/healthactions/phe/Pages/default.aspx.

[2] Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. MMWR Morb Mortal Wkly Rep 2020; 69:458–464. DOI: http://dx.doi.org/10.15585/mmwr.mm6915e3.

the regular MCBS data releases. Exhibit 1.1.1 shows the schedule of COVID-19 Supplements and PUF data released to date.

Data collected for MCBS sampled beneficiaries living in a facility using the MCBS COVID-19 Winter 2021 Rapid Response Supplement will be released in the 2021 Survey File LDS. Due to disclosure concerns, data collected for MCBS sampled beneficiaries living in a facility using the MCBS COVID-19 Winter 2021 Rapid Response Supplement will not be released as a PUF.

Exhibit 1.1.1 Anticipated Schedule of COVID-19 Supplements for Beneficiaries Living in the Community

COVID-19 Supplements	Date of Survey Administration	Planned LDS File Release	Release Date of LDS File	Planned Public Use File Release	Release Date of Public Use File
COVID-19 Summer 2020 Community Supplement	June-July 2020	2019 Survey File COVIDSUM Segment	Summer 2021	COVID-19 Summer 2020 PUF	Released 10/16/20
COVID-19 Fall 2020 Community Supplement	October-November 2020	2019 Survey File COVIDFAL Segment	Summer 2021	COVID-19 Fall 2020 PUF	Released 1/15/21
COVID-19 Winter 2021 Community Supplement	March-April 2021	2020 Survey File COVIDWIN Segment	Summer 2022	COVID-19 Winter 2021 PUF	3rd Quarter 2021

The content of the MCBS COVID-19 Winter 2021 PUF is governed by the central focus of the MCBS: to serve as a unique source of information on beneficiaries' health and well-being that cannot be obtained through CMS administrative sources alone. Disclosure protections have been applied to the file, including de-identification and other methods. As a result, the MCBS COVID-19 Winter 2021 PUF does not require a Data Use Agreement (DUA). In contrast, the MCBS LDS releases contain beneficiary-level protected health information (PHI) and therefore require a DUA. The MCBS COVID-19 Winter 2021 PUF is not intended to replace the more detailed LDS files; rather, it makes available a general-use publically-available alternative that provides the highest degree of protection to the Medicare beneficiaries' PHI.

The main benefits of the MCBS COVID-19 Winter 2021 PUF are:

1. Increased data access for researchers of the MCBS through a free file download that is consistent with other HHS public-use survey files;
2. Increased policy-relevant analyses, by attracting new researchers and policy-makers, for whom the cost and time associated with accessing the MCBS LDS can pose significant deterrents to use;
3. Access for researchers to policy-relevant and time-sensitive data during the ongoing pandemic.

This user guide contains information about the MCBS COVID-19 Winter 2021 PUF. It contains detailed information about the MCBS, COVID-19 Supplement, and specific background information to help data users understand and analyze the MCBS COVID-19 Winter 2021 PUF data.

Readers interested in analyzing the MCBS COVID-19 Winter 2021 PUF should also reference the COVID-19 Winter 2021 Supplement questionnaire specifications at: https://www.cms.gov/research-statistics-data-and-systemsresearchmcbsquestionnaires/2021-winter-supplemental-covid-19-questionnaires.

For more information about the survey design and data collection methods of the COVID-19 Winter Supplement and the main MCBS survey, readers should reference the forthcoming *2020 Data User's Guide: Survey File* and *2020 MCBS Methodology Report* (to be released in 2022 with the 2020 Survey File LDS). For

general information about the MCBS, researchers can refer to the *2018 Data User's Guide: Survey File* (currently available on the CMS website) and *2018 Methodology Report*. Data users can access these documents along with other data documentation at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks. Data users interested in a collection of charts and tables presenting estimates from the LDS releases can access the *MCBS Chartbook* at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Data-Tables.

For questions or suggestions on this document or other MCBS data-related questions, please email MCBS@cms.hhs.gov.

2. WHAT'S NEW FOR THE COVID-19 WINTER 2021 COMMUNITY SUPPLEMENT?

Below are the highlights and updates for the Winter 2021 Community Supplement as compared to the Fall 2020 Community Supplement.

2.1 Questionnaire

Changes implemented for Winter 2021 included updates to the survey's reference period, modifications to the question text, and the removal and addition of items to align with the other federal surveys as well as changes in the COVID-19 pandemic. Note that variable names referenced below are the questionnaire variable names. Data users can view the questionnaire specifications for each supplement along with the questionnaire variable names referenced below and question text on the MCBS website at https://www.cms.gov/research-statistics-data-and-systemsresearchmcbsquestionnaires/2021-winter-supplemental-covid-19-questionnaires.

2.1.1 General

- The reference period throughout the survey was updated from "Since July 1, 2020 ..." to "Since November 1, 2020…". The one exception is the COVID-19 vaccination series, which uses a reference date of December 2020 to align with when Emergency Use Authorization was issued.

2.1.2 Section-Specific Changes

Forgone Health Care as a Result of the Pandemic: The series on forgone care was updated to include "Mental Health Care" at question NOCARTY2 as a type of care that beneficiaries may have deferred as a result of the pandemic.

COVID-19 Vaccination: Working with the Centers for Disease Control and Prevention (CDC), questions about presumptive and actual COVID-19 vaccine uptake were added to the COVID-19 Community Supplement in Fall 2020, but questions about vaccine uptake were not administered because a vaccine was not yet available. The original intent was that the items on presumptive vaccine uptake (GETVAC and NOGETVAC) would be asked in lieu of a publically available vaccine whereas the series on vaccine utilization (CVDVAC, VACNUM, VACDAT1, VACDAT2, NOVACRSN) would be asked once a vaccine was released for public use.

The U.S. Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) for the use of a COVID-19 vaccine in December 2020.[3] Given that the U.S. supply of COVID-19 vaccines was limited at first, the CDC recommended a phased distribution approach based on age, place of residence, employment, and risk factors.[4] For this reason, the Winter 2021 Supplement asked about both vaccination utilization since December 2020 (CVDVAC) and presumptive vaccine uptake (PRSUMVAC).

The vaccination series underwent minor question text and help text revisions to reflect the dosage requirements available to the public. In addition, NOVCRNOS was added to the series to collect "other, specify" responses to NOVACRSN.

---

[3] "FDA Takes Key Action to Fight Against COVID-19 by Issuing Emergency Use Authorization for Frist COVID-19 Vaccine". U.S. Food and Drug Administration. December 11, 2020. https://www.fda.gov/news-events/press-announcements/fda-takes-key-action-fight-against-covid-19-issuing-emergency-use-authorization-first-covid-19.

[4] "Vaccine Rollout Recommendations". U.S. Centers for Disease Control and Prevention. February 3, 2021. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations.html.

3. OVERVIEW OF THE MCBS

3.1 Overview of the MCBS

Medicare is the nation's health insurance program for persons 65 years and over and for persons younger than 65 years who have a qualifying disability. The MCBS is sponsored by CMS and contains data provided by a representative national sample of the Medicare population. The MCBS is designed to aid CMS in administering, monitoring, and evaluating the Medicare program. A leading source of information on Medicare and its impact on beneficiaries, the MCBS provides important information on beneficiaries that is not otherwise collected through operational or administrative data on the Medicare program and plays an essential role in the monitoring and evaluation of beneficiary health status and health care policy.

The MCBS is a continuous, multi-purpose longitudinal survey representing the population of beneficiaries aged 65 and over and beneficiaries aged 64 and below with certain disabling conditions, residing in the United States. Interviews are usually conducted in-person using computer-assisted personal interviewing (CAPI); however, conducting interviews by phone has also been permitted on a limited basis since the origin of the MCBS.

Fieldwork for the first round of data collection began in September 1991; since then, the MCBS has continued to collect and provide essential data on the costs, use, and health care status of Medicare beneficiaries. The MCBS has been continuously conducted since 1991, completing more than 1.2 million interviews provided by thousands of respondents.

The MCBS primarily focuses on economic and beneficiary topics including health care use and health care access barriers, health care expenditures, and factors that affect health care utilization. As a part of this focus, the MCBS collects a variety of information about the beneficiary, including demographic characteristics, health status and functioning, access to care, insurance coverage and out of pocket expenses, financial resources, and potential family support. The MCBS collects this information in three data collection periods, or rounds, per year. Over the years, data from the MCBS have been used to inform many advancements to the Medicare program, including the creation of new benefits such as Medicare's Part D prescription drug benefit.

3.2 Overview of the MCBS COVID-19 Winter 2021 Rapid Response Community Supplement

With the emergence of COVID-19 in the U.S., CMS was uniquely positioned to quickly collect vital information on how the pandemic is impacting the Medicare population by using the MCBS as a vehicle to collect data. Medicare beneficiaries, by definition, are most at risk for underlying conditions that may lead to more severe COVID-19 illness or complications. The MCBS has a sample size sufficient for precise estimation and power for tests of differences nationally and thus provides a ready source to obtain high quality data on the impact of the pandemic on the most vulnerable.

CMS conducted the MCBS COVID-19 Winter 2021 Rapid Response Community Supplement (referred to as the COVID-19 Winter 2021 Community Supplement) in March and April 2021 by telephone with existing MCBS beneficiaries living in the community at the time of their interview (i.e. residence or a household). The 15-minute survey collected data on the impact of COVID-19 on the lives of Medicare beneficiaries, including topics such as the availability of telemedicine visits, deferred medical care, social distancing and other preventive health behaviors, COVID-19 testing and vaccination, and the consequences for social, emotional, and financial well-being. The MCBS COVID-19 Winter 2021 PUF combines data from this Supplement with demographic and health status data collected from MCBS respondents during prior interviews.

4. TECHNICAL AND PROGRAMMING INFORMATION

4.1 General Information

The MCBS COVID-19 Winter 2021 PUF includes data for 11,107 sampled beneficiaries who were interviewed for the MCBS in 2020 and interviewed for the COVID-19 Community Supplement in Winter 2021. The MCBS COVID-19 Winter 2021 PUF includes preliminary survey weights that allow for analyses that are nationally representative of the population of beneficiaries that was ever enrolled in Medicare at any point in 2020 and continued to be enrolled through Winter 2021. See Section 8.1 for further details on construction of the preliminary weights.

All records begin with a COVID_ID, a unique number for each beneficiary in the MCBS COVID-19 Winter 2021 PUF. This COVID_ID serves to identify records in the MCBS COVID-19 Winter 2021 PUF only and cannot be used for linking to MCBS data files or other MCBS PUF files. Each beneficiary's COVID_ID is randomly generated for each COVID-19 PUF release, so it is not possible to link a beneficiary's data between years, and the value of the COVID_ID does not provide any information about the beneficiary.

All variables in the MCBS COVID-19 Winter 2021 PUF are in numeric or integer formats. Formats and values for each variable are available in the MCBS COVID-19 Winter 2021 PUF codebook.

Variable groups contain prefixes to help users identify these groups by topic area. Each variable's prefix in the MCBS COVID-19 Winter 2021 PUF ends with "V" to distinguish the variables from the main MCBS PUF variables. Exhibit 4.1.1 includes information about these variable topic groupings and prefixes.

Exhibit 4.1.1: MCBS COVID-19 Winter 2021 PUF Segment Variable Prefixes, Number of Variables, Descriptions, and Related LDS Survey File Segments

MCBS COVID-19 PUF Variable Prefix	Description	Number of COVID-19 PUF Variables in Grouping
INV_	Interview characteristics	3
DMV_	Demographic information	11
ACV_	Access to care during the pandemic	135
XCV_	Personal experiences with COVID-19	42
PKV_	Preventive measures and knowledge about COVID-19	61
EMV_	Economic and mental effects of the pandemic	10
HLV_	Non-COVID-19 health status	24

4.2 Data File Information

Detailed information about variables in the MCBS COVID-19 Winter 2021 PUF can be found in the MCBS COVID-19 Winter 2021 PUF codebook. The codebook includes SAS® variable names and labels, a note indicating which beneficiaries were eligible for the question, the question number corresponding to the survey item, and response option labels and frequencies. Certain variables, primarily demographic variables, in the PUF were recoded due to disclosure concerns so the categories in the PUF codebook may differ from the categories in the questionnaire specifications (e.g., the age categories for variable DMV_AGECAT reflect such recoding). Other variables were created by combining two variables, and their variable name indicates a recoded variable (e.g., HLV_OCALZDEM).

For each variable, the formats and format values are included in the codebook:

- Values of .R indicate "refused" and .D indicate "don't know."

- All values of "inapplicable" have been combined with missing values.

- Unweighted frequencies of most variables included in the MCBS PUF are provided in the accompanying codebook file.

The MCBS COVID-19 Winter 2021 PUF dataset is saved as a SAS export file. Directions and sample SAS code are given below and also in Appendix B to help users read the dataset into SAS.

Assume the MCBS COVID-19 Winter 2021 PUF export file (e.g. COVIDPUF_3_2021W.xpt) is downloaded into the folder "C:\MCBS\DOWNLOAD". The following SAS code can then be used to import the COVID-19 PUF segment into SAS:

```
LIBNAME PUFLIB "C:\MCBS\SASDATA";
FILENAME W "C:\MCBS\DOWNLOAD\COVIDPUF_3_2021W.XPT";
PROC IMPORT LIBRARY=PUFLIB INFILE=W;
RUN;
```

Additionally, a comma-separated values (CSV) file is available for use with other statistical software packages such as R® and STATA®.

A text file with SAS programming code to import the .xpt files, create formats, and apply SAS labels is provided for users.

4.3 Comparison to the LDS

The data collected in the COVID-19 Winter 2021 Community Supplement will be available to data users both in the MCBS COVID-19 Winter 2021 PUF and as part of the 2020 Survey File LDS files, which are available with a DUA.

The MCBS COVID-19 Winter 2021 PUF has been evaluated for disclosure risk to protect beneficiary confidentiality. The MCBS COVID-19 Winter 2021 PUF is a standalone file that cannot be linked to any other MCBS PUFs or LDS segments. In addition to the questions administered as part of the COVID-19 Winter 2021 Community Supplement, the MCBS COVID-19 Winter 2021 PUF includes select socio-demographic, chronic condition, and use of inhaled tobacco products variables sourced from the 2020 Survey File LDS files. These additional variables were collected during the Fall 2020 (Round 88) interview, if applicable. The majority of beneficiaries included in the MCBS COVID-19 Winter 2021 PUF completed a Fall 2020 (Round 88) interview; however, a small number did not complete a Fall 2020 (Round 88) interview and therefore do not have data for the Fall 2020 (Round 88) variables.

The 2020 Survey File LDS will also include the data collected by the COVID-19 Winter 2021 Community Supplement as a standalone LDS segment, COVIDWIN. Unlike the MCBS COVID-19 Winter 2021 PUF, the COVIDWIN segment will include the beneficiary identifier, BASEID, which allows researchers to link the segment to other LDS segments containing data from the 2020 data year that may be directly relevant to beneficiaries' experiences leading up to and during the pandemic. This includes information on health insurance coverage, health status during 2020, and experiences with care.

Unlike the MCBS COVID-19 Fall 2020 PUF, the Winter 2021 PUF release does not bring forward data relating to personal experiences with COVID-19 (i.e., the variables beginning with the "XCV_" prefix) from previous rounds, as newer panel members would not have previous data to bring forward. This means that the frequencies for these variables are similar between the COVID-19 Winter 2021 PUF and the 2020 MCBS Survey File COVIDWIN segment; both of these files refer to data collected in the Winter 2021 COVID-19 Supplement, and not to combined data from multiple rounds. In contrast, a comparison between the COVID-19 Fall 2020

PUF and the 2019 MCBS Survey File COVIDFAL segment, would show more "Yes" responses for the variables asking about personal COVID-19 experiences, especially items relating to testing and diagnosis because the PUF (but not the Survey File segment) combines data from multiple rounds for these variables.

The MCBS COVID-19 Winter 2021 PUF is free and available for download on the CMS website. For users interested in the MCBS Survey File and Cost Supplement File LDS, more information on the LDS process can be found at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS.

Exhibit 4.3.1 compares socio-demographic variables and values available in the MCBS COVID-19 Winter 2021 PUF and the MCBS Survey File LDS. The MCBS Survey File LDS contains more detailed versions of the socio-demographics than what is available in the MCBS COVID-19 Winter 2021 PUF as well as additional variables that do not have an equivalent in the MCBS PUF, noted below the exhibit.[5]

Exhibit 4.3.1: Comparison of Socio-demographic Variables and Values in the MCBS COVID-19 Winter 2021 PUF and MCBS Survey File LDS

Socio-demographic Characteristic	MCBS COVID-19 Winter 2021 PUF Variables and Values	MCBS Survey File LDS Variables and Values
Gender	DMV_SEX (Gender): Male; Female	ROSTSEX (Gender): Male; Female
Age	DMV_AGECAT (Age group): <65 years; 65-74 years; ≥75 years	D_STRAT (MCBS Sample age stratum): 0-44 years; 45-64 years; 65-69 years; 70-74 years; 75-79 years; 80-84 years; ≥85 years H_AGE (Age of beneficiary): Age of beneficiary in years
Income	DMV_INCOME (Income group of SP and Spouse): <$25,000; ≥$25,000	INCOME (Income range of SP and spouse): <$5,000; $5,000 - <$10,000; $10,000 - <$15,000; $15,000 - <$20,000; $20,000 - <$25,000; $25,000 - <$30,000; $30,000 - <$40,000; $40,000 - <$50,000; ≥$50,000 INCOME_H (SP and spouse total income last year): Range of values
Interview Language or Language Spoken at Home	INV_LANG (Language of interview): English; Spanish	INTLANG (Language of interview): English; Spanish WHATLANG (Language spoken at home): Spanish; French; German; Italian; Tagalog; Chinese; Polish; Korean; Greek; Filipino; Arabic; Portuguese; Other OTHRLANG (Language other than English spoken at home): Yes; No
Metro Status	DMV_CBSA (Metro status): Metro area; Non-metro area	H_CBSA (Type of CBSA as designated by CBSA): Metropolitan area-population of ≥50,000; Micropolitan area-population between 10,000 to 50,000; Non-CBSA

---

[5] The MCBS Survey File LDS contains additional socio-demographic information, including location of residence, rural-urban commuting area details, the number of living children the beneficiary has, employment status, status of SSA check, and English proficiency, which do not have corresponding variables available in the MCBS PUF. Please note that additional race/ethnicity variables from administrative sources are included in the MCBS Survey File LDS.

Socio-demographic Characteristic	MCBS COVID-19 Winter 2021 PUF Variables and Values	MCBS Survey File LDS Variables and Values
Race/Ethnicity	DMV_RACE (Race/ethnicity group): Non-Hispanic White; Non-Hispanic Black; Hispanic; Other/Unknown	D_RACE2 (Race of SP): Asian; African American; Native Hawaiian or Pacific Islander; White; American Indian or Alaska Native; More than one RACEAS: Asian; RACEASAI: Asian Indian; RACEASCH: Chinese; RACEASFI: Filipino; RACEASJA: Japanese; RACEASKO: Korean; RACEASVI: Vietnamese; RACEASOT: Other Asian; RACEAA: Black or African-American; RACENH: Native Hawaiian or Pacific Islander; RACEPIHA: Native Hawaiian; RACEPIGU: Guamanian Chamorro; RACEPISA: Samoan; RACEPIOT: Other Pacific Islander; RACEWH: Caucasian; RACEAI: American Indian or Alaska Native HISPORIG (Is SP of Hispanic or Latino origin?): Yes; No HISPORMA: Mexican/Mex American/Chicano; HISPORPR: Puerto Rican; HISPORCU: Cuban; HISPOROT: Other Hispanic/Latino/Spanish origin
Race/Ethnicity by Age Group	DMV_RE_AGE (Race/ethnicity age group): Non-Hispanic White, <65 years; Non-Hispanic White, 65-74 years; Non-Hispanic White, 75-84 years; Non-Hispanic White, 85+ years; Non-Hispanic Black, <65 years; Non-Hispanic Black, 65-74 years; Non-Hispanic Black, 75-84 years; Non-Hispanic Black, 85+ years; Hispanic, <65 years; Hispanic 65-74 years; Hispanic 75+ years; Other/Unknown, <65 years; Other/Unknown 65-74 years; Other/Unknown 75+ years	Note: An MCBS Survey File LDS user could construct a similar race/ethnicity by age variable using D_RACE2, HISPORIG, and D_STRAT.
Medicare Advantage (MA)	DMV_MA_FLAG (Medicare Advantage flag for the year): No MA enrollment in 2020; Partial-year MA; Full-year MA	Note: An MCBS Survey File LDS user could construct a similar MA status variable using the monthly MA flags H_MAFF01 through H_MAFF12.

5. SURVEY OVERVIEW

5.1 Design of the MCBS COVID-19 Winter 2021 Community Supplement

Although participation in the main MCBS survey is limited to four years, data collection is continuous throughout the year with three distinct seasons (i.e., rounds) of data collection per year. In general, the three rounds are: winter (January through April); summer (May through August); and fall (September through December).

The COVID-19 Winter 2021 Community Supplement was an out-of-cycle, standalone survey administered as a supplement to the main MCBS survey design. It was administered by telephone from March 1to April 25, 2021 to existing MCBS sampled beneficiaries who had completed an MCBS interview from July 2020 through December 2020, making the sampled beneficiary eligible to be included in the 2020 Survey File.

Approximately 90 percent of the interviews for the main MCBS are administered for beneficiaries living in the community (i.e., not in a long-term care facility such as a nursing home); these interviews are called Community interviews. The remaining 10 percent of the interviews are called Facility interviews; they are administered to facility staff who respond on behalf of sampled beneficiaries living in a facility such as long-term care nursing homes or other institutions. The COVID-19 Winter 2021 Community Supplement was only administered for beneficiaries living in the community. If beneficiaries are unable to answer questions or require language assistance, they can enlist the help of an assistant, such as a family member, to help complete the interview; a proxy can also respond on behalf of the beneficiary if they are incapacitated or unable to complete the interview. The COVID-19 Winter 2021 PUF includes data for beneficiaries living in the community who were included in the COVID-19 Winter 2021 Community Supplement. A COVID-19 Winter 2021 Facility Supplement was also administered to facility staff on behalf of beneficiaries living in a facility. Due to disclosure concerns, those data will not be released as a PUF but will be available in the 2021 LDS files.

5.2 Sample Design

The MCBS uses a rotating panel sample design, covering the population of Medicare beneficiaries residing in the continental U.S. (48 states and the District of Columbia) for the survey year.[6] Each MCBS panel, an annual statistical sample of all Medicare enrollees, is interviewed up to three times per year over a four year period.[7] One panel is retired at the conclusion of each winter round, and a new panel is selected to replace it each fall round.

Beneficiaries for the MCBS are sampled from the Medicare Administrative enrollment data. The beneficiaries included in the MCBS LDS and COVID-19 PUF represent a randomly selected cross-section of all beneficiaries who were ever enrolled in either Part A or Part B of the Medicare program for any portion of 2020.[8]

The COVID-19 Winter 2021 Community Supplement was a cross-sectional survey administered for existing MCBS beneficiaries from the 2017, 2018, 2019, and 2020 panels. Exhibit 5.2.1 shows the distribution of each of the four panels included in the MCBS COVID-19 Winter 2021 PUF. Because the population for the COVID-19

---

[6] Alaska and Hawaii are not included among the states from which the sample is selected due to the high cost of data collection in those areas; however, they are included in control totals for weighting purposes. Beginning in 2017, sampling from Puerto Rico was discontinued. Beginning in 2018, all data collection in Puerto Rico was discontinued.

[7] The three rounds per year are referred to seasonally. Respondents are interviewed in the winter round, the summer round, and the fall round each year.

[8] While beneficiaries included in the LDS releases represent both the ever enrolled and continuously enrolled Medicare population, the MCBS COVID-19 Winter 2021 PUF solely represents the population of beneficiaries who were ever enrolled in 2020 and were continuously enrolled through the time of the COVID-19 Winter 2021 Supplement.

Supplement includes existing MCBS beneficiaries, all information in the preceding section on the MCBS sample design and source of the sample also applies to the COVID-19 Supplement.

For more information on the main MCBS sample design, please see the *Survey File Data User's Guide* at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.

Exhibit 5.2.1: MCBS Composition of Panels in the MCBS COVID-19 Winter 2021 PUF

Data Year	Number of Beneficiaries Selected
2017	1,955
2018	2,182
2019	2,767
2020	4,203

5.3 Eligibility

To be eligible for the COVID-19 Winter 2021 Community Supplement, a beneficiary must have been continuously enrolled in Medicare from the beginning of 2020 and still be alive, living in the community, and eligible and enrolled in Medicare at the time of their COVID-19 Winter 2021 Community Supplement interview.

For more information on the main MCBS eligibility criteria, please see the most recent *Survey File Data User's Guide* at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.

5.4 Interviewing and Training Procedures

CMS contracts with NORC at the University of Chicago (NORC) to administer the MCBS. Traditionally, a national team of specially trained and certified NORC field interviewers conduct either face-to-face interviews with MCBS beneficiaries or their designated proxies or they conduct face-to-face interviews with Facility administrators on behalf of beneficiaries. Starting in March 2020, MCBS interviews were conducted by trained and certified NORC field interviewers by telephone in accordance with public health guidance during the COVID-19 pandemic.

The COVID-19 Winter 2021 Community Supplement was conducted by telephone from March to April, 2021. Fielding of the Supplement overlapped with the MCBS Winter 2021 (Round 89) data collection, which was conducted from January through April 2021.

For more information on the main MCBS data collection and training procedures, please see the most recent *Survey File Data User's Guide* at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.

5.4.1 Overview of Recruitment of Beneficiaries and Scheduling Procedures

As on the main MCBS, respondents were contacted via telephone to schedule an appointment to conduct the interview. Consistent with MCBS protocols, beneficiaries were able to use the help of an assistant or proxy when needed. A Spanish version of the COVID-19 Supplement was available and bilingual interviewers were available to conduct the COVID-19 Supplement in Spanish. The average administration time for the COVID-19 Supplement was 15 minutes.

5.4.2 Computer-Assisted Web Interviewing (CAWI)

Due to the COVID-19 pandemic, the COVID-19 Winter 2021 Community Supplement was conducted by telephone. The COVID-19 Winter 2021 Community Supplement was programmed using Voxco, a software platform well-suited for computer assisted web interviewing (CAWI) surveys. It was administered by trained field interviewers using the same interview equipment already in their possession for use on the MCBS – laptops, tablets, and telephone. Even though it was programmed for web administration, the questions were asked by trained interviewers using the telephone. Like the MCBS CAPI instrument loaded on a laptop, the CAWI instrument automatically guided the field interviewer through questions, recoded the answers, and contained logic and skip flows that increased the output of timely and high quality data.

5.4.3 Interviewer Training

All MCBS interviewers completed a remote training on topics specific to the COVID-19 Supplement prior to the start of COVID-19 Winter 2021 Community Supplement data collection.

5.4.4 Privacy and Data Security

Field interviewer training stresses the importance of maintaining respondent privacy, and project protocols are documented within the field interviewer manual. Field outreach and contacting procedures also maintain and ensure confidentiality. These procedures include the utilization of standard computer security protocol (dual authentication password protection for each interviewer laptop) and restrictions on submitting personally identifiable information (PII) through electronic mail. All MCBS survey staff directly involved in data collection and/or analysis activities are required to sign a Non-Disclosure Agreement and a confidentiality agreement.

NORC and CMS are committed to protecting respondent confidentiality and privacy, and both organizations diligently uphold provisions established under the Privacy Act of 1974, the NORC Institutional Review Board (IRB), the Office of Management and Budget (OMB), and the Federal Information Security Management Act of 2002. As stated in the MCBS OMB documentation, the information collected for MCBS is protected by NORC and by CMS. Respondent data are used only for research and statistical purposes. As required under the Privacy Act of 1974, identifiable information is not disclosed or released without the consent of the individual or the establishment, except to those involved in research (Public Law 93-579). 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.

6. QUESTIONNAIRES

6.1 Overview

The COVID-19 Winter 2021 Community Supplement questionnaire consists of topics specific to the impact of the COVID-19 pandemic on Medicare beneficiaries' lives. Information from the Fall 2020 MCBS interview was appended to the MCBS COVID-19 Winter 2021 PUF for use in analysis, including demographics, chronic conditions, and inhaled tobacco product use. The questions in the COVID-19 Supplement were adapted from a range of sources and intended to align with other federal surveys on similar topics. As discussed in Section 5.1., the COVID-19 Winter 2021 Community Supplement was only administered to beneficiaries living in the community at the time of the interview.

The topics measured by the COVID-19 Winter 2021 Community Supplement were:

- Availability and Use of Telemedicine

- Access to Computers and Internet

- Forgone Health Care as a Result of the Pandemic

- Autoimmune Disease Prevalence

- Utilization of COVID-19 Testing

- COVID-19 Care

- COVID-19 Vaccination

- Preventive Measures

- Sources of COVID-19 Information

- Knowledge and Perceptions of COVID-19

- Ability to Access Basic Needs During the Pandemic

- Impact to Financial and Mental Health

Below are descriptions of each topic area. See the CMS website for the questionnaire specifications for the COVID-19 Winter 2021 Community Supplement, here: https://www.cms.gov/research-statistics-data-and-systemsresearchmcbsquestionnaires/2021-winter-supplemental-covid-19-questionnaires.

See Sections 6.2 and 6.3 within the Survey File Data User's Guide for information on the main MCBS questionnaires: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.

Availability and Use of Telemedicine

During the COVID-19 pandemic, Medicare temporarily expanded coverage of telemedicine to help beneficiaries access a wider range of services from providers without having to travel to a healthcare office.[9] To measure the impacts of this change in policy, the COVID-19 Winter 2021 Community Supplement included questions on availability of telemedicine services before and during the pandemic and the utilization of telemedicine services

---

[9] "Medicare & Coronavirus" U.S. Centers for Medicare & Medicaid Services. Accessed on August 5, 2020. https://www.medicare.gov/medicare-coronavirus

during the pandemic. These questions were adapted from items on the National Center for Health Statistics (NCHS) COVID-19 Research and Development Survey (RANDS).[10]

Access to Computers and Internet

To inform research questions pertaining to access to telemedicine services, the COVID-19 Winter 2021 Community Supplement also contained a series of items on the use of computers, smartphones, tablets, videoconferencing, and access to the internet. These items were sourced from the Census Bureau's American Community Survey (ACS)[11] and November 2019 Current Population Survey (CPS) Computer and Internet Use Supplement.[12]

Forgone Health Care as a Result of the Pandemic

The COVID-19 Winter 2021 Community Supplement contained a series of items about medical care that was needed for something other than COVID-19 but was not obtained because of the pandemic. The Supplement asked if any care was forgone, what type of care it was, and for each type of care forgone, the Supplement asked whether it was the beneficiary or provider who made the decision to forgo care, and why the decision to forgo care was made. These items were adapted from the NCHS RANDS survey.

Autoimmune Disease Prevalence

Early findings show that certain preexisting medical conditions and autoimmune diseases make a person more vulnerable to contracting COVID-19.[13] The main MCBS questionnaire already collects information on prevalence of chronic conditions but does not ask about diagnosis of autoimmune diseases. Therefore, the COVID-19 Winter 2021 Community Supplement asked two questions about autoimmune diseases sourced from the NCHS RANDS survey.

Utilization of COVID-19 Testing

The COVID-19 Winter 2021 Community Supplement included two sets of items pertaining to the utilization of COVID-19 testing, one on the utilization of viral testing and one on the utilization of antibody testing. For each type of test, respondents were asked about utilization of testing, and, if a test was received, are asked about the result of the test, wait time for results, and portion of the cost that was paid out-of-pocket for the test. These items were sourced from the NCHS RANDS survey and National Health Interview Survey (NHIS).[14]

---

[10] "COVID-19 Research and Development Survey (RANDS)" National Center for Health Statistics. 2020. https://www.cdc.gov/nchs/covid19/rands.htm

[11] "2020 American Community Survey" U.S. Census Bureau. Accessed May, 2020. https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2020/quest20.pdf

[12] "November 2019 Current Population Survey Computer and Internet Use Supplement" U.S. Census Bureau. Accessed May, 2020. https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov19.pdf

[13] "Certain Medical Conditions and Risk for Severe COVID-19 Illness" U.S. Centers for Disease Control and Prevention. Last modified March 29, 2021. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fneed-extra-precautions%2Fgroups-at-higher-risk.html

[14] "National Health Interview Survey" U.S. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm

COVID-19 Care

For those who had a probable or confirmed diagnosis of COVID-19, the Winter 2021 Community Supplement included items related to utilization of medical care and hospitalization for COVID-19, severity of coronavirus symptoms, and persistent health effects of the virus. These items were adapted from the NCHS RANDS survey.

COVID-19 Vaccination

The COVID-19 Winter 2021 Community Supplement included a question series on COVID-19 vaccine utilization and, for those who had not received a vaccine dose yet at the time of their interview, presumptive vaccine uptake. The series asked if a vaccination had been received, how many doses had been received, and the month and year of the vaccination doses received. If no vaccination had been received, the beneficiary was asked how likely they would be to get a COVID-19 vaccination once it were available to them and the reasons why they hadn't received a vaccination to date. These questions used a reference period of "Since December 2020…" to align with the date the first COVID-19 vaccinations were authorized for emergency use by the U.S. Food and Drug Administration.[15] These items were also included as a part of the COVID-19 Winter 2021 Facility Supplement.

If a beneficiary had not received the vaccine, the questionnaire routed to NOVACRSN (reason(s) why the beneficiary has not gotten the vaccine). Field interviewers coded NOVACRSN responses into an existing code frame of 21 potential reasons. If the response did not fit into any of the closed-ended response options presented, then the field interviewer could select "other" and enter the "other specify" text verbatim in the character variable NOVCRNOS.

"Other specify" text was backcoded into closed-ended response options, where applicable. The variable NOAPPT ("Upcoming appointment scheduled") was added to the PUF file, even though it wasn't part of the original code frame for NOVACRSN, for responses indicating that the beneficiary had a COVID-19 vaccine appointment scheduled in the future.

All data collected related to COVID-19 vaccination reflect responses at the time of the COVID-19 Winter 2021 Supplement interview (occurring between March 1 and April 25, 2021). Given the rapid increase in in COVID-19 vaccination across the U.S., it is likely these data underestimate Medicare beneficiaries' COVID-19 vaccination uptake and likelihood of receiving a COVID-19 vaccine.

Preventive Measures

The COVID-19 Winter 2021 Community Supplement included items on which preventive measures were taken to avoid exposure to the virus. The survey asked about 16 different measures that were recommended by the CDC and public health community during the pandemic, including washing hands, coughing or sneezing into a tissue, avoiding large groups of people, wearing facemasks, and purchasing extra supplies such as food, cleaning supplies, and prescriptions. These items were adapted from the NCHS RANDS survey and other sources.[16]

---

[15] "FDA Takes Key Action to Fight Against COVID-19 by Issuing Emergency Use Authorization for Frist COVID-19 Vaccine". U.S. Food and Drug Administration. December 11, 2020. https://www.fda.gov/news-events/press-announcements/fda-takes-key-action-fight-against-covid-19-issuing-emergency-use-authorization-first-covid-19.

[16] "How to Protect Yourself & Others" U.S. Centers for Disease Control and Prevention. Accessed May, 2020. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

Sources of COVID-19 Information

The COVID-19 Winter 2021 Community Supplement included items relating to the media or other types of sources the beneficiary relies on for information about the pandemic. These items were sourced from the March 2020 AP-NORC Center Poll.[17]

Knowledge and Perceptions of COVID-19

The COVID-19 Winter 2021 Community Supplement included a series measuring knowledge of public health messaging about the virus. The survey asked about knowledge of guidance related to frequent hand washing, healthy people wearing facemasks in public, avoiding gatherings with large numbers of people, sheltering in place, and seeking medical attention for trouble breathing. These items were sourced from the March 2020 AP-NORC Center Poll.

The Supplement also included a series on the perceived severity of the coronavirus—both generally and as compared to the flu. These items were sourced from the University of California Irvine's COVID-19 Outbreak Study.[18]

Ability to Access Basic Needs During the Pandemic

The COVID-19 Winter 2021 Community Supplement included a series of items measuring disruption to basic needs caused by the pandemic, including ability to pay rent or mortgage and access to medication, health care, food, household supplies, and face masks. These items were adapted from the NCHS RANDS survey.

Impact to Financial and Mental Health

The COVID-19 Winter 2021 Community Supplement included a series on impacts of the outbreak, including financial security, and feelings of stress or anxiety, loneliness or sadness, and social connection. These items were adapted from the NCHS RANDS survey.

6.2 Additional Variables Included in the MCBS COVID-19 Winter 2021 PUF

In addition to the content described in the prior section on items administered as part of the COVID-19 Winter 2021 Community Supplement, the MCBS COVID-19 Winter 2021 PUF also includes variables sourced from the 2020 Survey File LDS that were collected during the main MCBS Fall 2020 (Round 88) interview. These variables include socio-demographics, chronic conditions, and use of inhaled tobacco products.

More information about these segments can be found in the most recent version of the *Data User's Guide: Survey File* currently available on the CMS website.

---

[17] "March 2020 Poll AP-NORC Center Poll" The Associated Press-NORC Center for Public Affairs Research. Accessed May, 2020. https://apnorc.org/wp-content/uploads/2020/04/march2020_topline.pdf

[18] Roxane Cohen Silver and Alison Holman. "COVID-19 Outbreak Study". March-April 2020. University of California Irvine.

7. SAMPLING

7.1 Medicare Population Covered by the MCBS COVID-19 Winter 2021 PUF

The MCBS data releases are a reflection of enrolled Medicare beneficiaries residing in the continental United States. The sample for the MCBS is drawn from a subset of the Medicare enrollment data, which is a list of all Medicare beneficiaries. Residents of foreign countries and U.S. possessions and territories are excluded.

Beneficiaries were eligible for the COVID-19 Winter 2021 Community Supplement if they were continuously enrolled in Medicare from the beginning of 2020 and were alive, living in the community, and still eligible for and enrolled in Medicare at the time of their COVID-19 Winter 2021 Community Supplement interview.

Exhibits 7.1.1 and 7.1.2 present estimates of the size of the 2020 ever enrolled Medicare population still alive and enrolled and residing in the community during Winter 2021, by race and age (as of December 31, 2020) and by sex in the MCBS COVID-19 Winter 2021 PUF. Exhibit 7.1.3 presents the aggregated estimates of the size of the 2020 ever enrolled Medicare population still alive and enrolled and residing in the community during Winter 2021, overall and by sex and race.

Exhibit 7.1.1: Estimated Number of Male Community Medicare Beneficiaries by Race and Age, in the MCBS COVID-19 Winter 2021 PUF*

Race	Age as of 12/31/2020	Weighted Count
White non-Hispanic	Under 65 years	2,625,917
	65-74 years	10,695,194
	75+ years	6,499,268
Black non-Hispanic	Under 65 years	650,971
	65-74 years	1,208,190
	75+ years	496,668
Hispanic	Under 65 years	485,796
	65-74 years	1,101,952
	75+ years	611,131
Other †	Under 65 years	301,581
	65-74 years	829,443
	75+ years	540,162

SOURCE: MCBS COVID-19 Winter 2021 PUF, weighted counts.

*Weighted counts may not sum to the total of beneficiaries living in the community in the U.S. due to missingness.
† The 'Other' race category includes other single races not of Hispanic origin, two or more races, or unknown races. See the Glossary entry for race/ethnicity for more information.

Exhibit 7.1.2: Estimated Number of Female Community Medicare Beneficiaries by Race and Age, in the MCBS COVID-19 Winter 2021 PUF*

Race	Age as of 12/31/2020	Weighted Count
White non-Hispanic	Under 65 years	2,692,597
	65-74 years	12,019,301
	75+ years	8,969,630

Race	Age as of 12/31/2020	Weighted Count
Black non-Hispanic	Under 65 years	822,407
	65-74 years	1,356,584
	75+ years	980,395
Hispanic	Under 65 years	443,549
	65-74 years	1,420,696
	75+ years	766,134
Other †	Under 65 years	362,044
	65-74 years	934,767
	75+ years	572,897

SOURCE: MCBS COVID-19 Winter 2021 PUF, weighted counts.

*Weighted counts may not sum to the total of beneficiaries living in the community in the U.S. due to missingness.
† The 'Other' race category includes other single races not of Hispanic origin, two or more races, or unknown races. See the Glossary entry for race/ethnicity for more information.

Exhibit 7.1.3: Estimated Number of Community Medicare Beneficiaries by Sex and Race, in the MCBS COVID-19 Winter 2021 PUF*

Group	Subgroup	Weighted Count
Overall Total		57,387,274
Sex	Male Total	26,046,272
	Female Total	31,341,002
Race	White non-Hispanic Total	43,501,907
	Black non-Hispanic Total	5,515,214
	Hispanic Total	4,829,258
	Other Total†	3,540,895

SOURCE: MCBS COVID-19 Winter 2021 PUF, weighted counts.

*Weighted counts may not sum to the total of beneficiaries living in the community in the U.S. due to missingness.
† The 'Other' race category includes other single races not of Hispanic origin, two or more races, or unknown races. See the Glossary entry for race/ethnicity for more information.

7.2 Targeted Population and Sampling Strata

The targeted population for the MCBS consists of persons enrolled in one or both parts of the Medicare program, that is, Part A or Part B, as of December 31 of the sample-selection year, and whose address on the Medicare files is in one of the 48 contiguous states (excludes Alaska and Hawaii), the District of Columbia, or Puerto Rico. Since 2015, the MCBS has oversampled Hispanic beneficiaries residing in the continental U.S. Beginning in 2017, Puerto Rico was removed from the MCBS sample; thus, the MCBS sample was selected entirely from the continental U.S. and the District of Columbia beginning with the 2017 Panel.

The targeted population for the COVID-19 Winter 2021 Community Supplement was the same as the main MCBS.

For more information on the sampling strata, please see Section 6 of the *Survey File Data User's Guide*: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.

7.3 Primary and Secondary Sampling Units

All of the panels in the MCBS data releases are distributed across the subset of 104 non-Puerto Rican PSUs from the redesigned sample of 107 PSUs selected in 2001.[19] These PSUs are a representative, national sample of beneficiaries who are geographically dispersed throughout metropolitan areas and groups of non-metropolitan counties. Recall that SSUs are census tracts or groups of contiguous tracts within the selected PSUs.

7.4 Sample Selection

The MCBS sampling design provides nearly self-weighting (i.e., equal probabilities of selection) samples of beneficiaries within each of the 14 sampling strata. Within the selected PSUs and SSUs, a systematic sampling scheme with random starts is employed for selecting beneficiaries.[20]

---

[19] An original set of 107 PSUs was selected at the start of the MCBS in 1991; the current PSUs were selected in 2001 with a focus on maximizing overlap with the original set of PSUs. With the rotating panel design, the PSU redesign is transparent to data users and no special processing is required. For more details on the PSU redesign, see Lo, A, A Chu, and R Apodaca. "Redesign of the Medicare Current Beneficiary Survey Sample," Proceedings of the Survey Research Section of the American Statistical Association 2002.

[20] The MCBS Incoming Panel was drawn by systematic random sampling with probability proportional to probabilities of selection with an independently selected random start within each PSU. For more information on this sampling method, please see the *MCBS Methodology Report*, available at: https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.

8. TECHNICAL NOTES ON USING THE DATA

8.1 Weights and Variance Estimation

The sample design of MCBS includes stratification, clustering, multiple stages of selection, and disproportionate sampling. Furthermore, the MCBS sampling weights reflect adjustments for survey nonresponse. These survey design and estimation complexities require special consideration when analyzing MCBS data (i.e., it is not appropriate to assume simple random sampling).

To obtain accurate estimates from MCBS data, for either descriptive statistics or more sophisticated analyses based on multivariate models, the survey design complexities need to be taken into account by applying MCBS weights to produce estimates and using an appropriate technique to derive standard errors associated with the weighted estimates. The MCBS COVID-19 Winter 2021 PUF includes preliminary full-sample cross-sectional weights derived from nonresponse-adjusted weights among the beneficiaries sampled for the COVID-19 Winter 2021 Community Supplement (CPWWWGT). These preliminary weights are intended for use in cross-sectional statistics. Each weight is greater than zero for all beneficiaries on the file. The weights should be used to make preliminary estimates of parameters for the Medicare population who were enrolled at any point in 2020 and still alive, enrolled, and living in the community in Winter 2021. Note these weights are considered preliminary because 2020 administrative data on beneficiary status and Medicare eligibility are not yet finalized. It is possible that these preliminary weights may include a small number of beneficiaries who will later be determined to have been ineligible. The final weights will be provided on the COVID-19 Winter 2021 segment of the 2020 Survey File LDS.

To permit the calculation of random errors due to sampling, a series of replicate weights were computed for the MCBS COVID-19 Winter 2021 PUF. Unless the complex nature of the MCBS is taken into account, estimates of the variance of a survey statistic may be biased downward. The replicate weights included in the MCBS COVID-19 Winter 2021 PUF can be used to calculate standard errors of the sample-based estimates. These replicate cross-sectional weights are labeled CPWW001 through CPWW100 corresponding to the ever enrolled weight CPWWWGT.

Most commercial software packages today include techniques to accommodate the complex design, through replicate weight approaches. Among these are STATA®, SUDAAN®, R®, and the complex survey procedures in SAS®. When using the replicate weight approach to variance estimation, the variance estimation method of balanced repeated replication (BRR) using Fay's adjustment of 0.3 is recommended. Sample code in SAS, STATA, and R for estimating statistics can be found in Appendix B. Analysis of subgroups should utilize the domain functions within the statistical package of your choice (e.g., the DOMAIN statement in SAS, or the OVER function in STATA); restricting the sample to the subgroup and then performing an analysis would lead to slightly biased estimates of variance.

8.2 Item Non-Response

As in any other survey, some respondents could not, or would not, supply answers to some questions.[21] Item non-response rates are generally low in the MCBS data, but the analyst still needs to be aware of the missing data and be cautious about patterns of non-response.[22] The calculation of the study-wide response rates generally follows the guidelines specified by the American Association for Public Opinion Research (AAPOR)

---

[21] This is different from when an individual refuses to participate in the survey altogether, which is called unit non-response. Unit non-response is discussed in detail in the *MCBS Methodology Report*, Section 9.

[22] In the LDS files, item non-response types are indicated by missing type codes in SAS, including refusal to answer, don't know the answer, and invalid skip. The code .D represents a "don't know" response, the code .R represents a "refused" response, and .N represents an "invalid skip" response.

and OMB. For the population represented by the MCBS COVID-19 Winter 2021 PUF, the calculated overall response rate was 79.6 percent.

8.3 Subgroup Analysis

When analyzing survey data, researchers are often interested in focusing their analyses on specific subgroups of the full population sample (e.g., Medicare beneficiaries aged 65 and over, Hispanics, or females). A common pitfall when performing sub-group analysis of survey data when variance estimation methods such as Taylor Series are used is to delete or exclude observations not relevant to the subgroup of interest. Standard errors for MCBS estimates are most accurate when the analytic file includes all beneficiaries. However, when replicate weights are used for variance estimation, deleting observations not relevant to the subgroup of interest prior to analyzing the subgroup will still produce unbiased standard errors. Almost all statistical packages provide the capability to limit the analysis to a subgroup of the population.

The Taylor Series linearization method of variance estimation is not recommended for subgroup analysis with MCBS data because accidentally excluding any observation in the sample while conducting the subgroup analysis using this variance estimation method will result in biased standard error estimates. Variance estimation using the Taylor Series linearization method for subgroup analyses requires a "domain" or "subgroup" statement (available in most statistical packages) to account for estimated domain sizes (i.e., uncertainty in the denominator). The recommended method of variance estimation for subgroup analysis is the BRR method; which does not require any special subgroup considerations. The BRR method allows the analyst to subset data to a subgroup of interest and still produce unbiased standard error estimates.

8.4 Example Research Questions

Exhibit 8.4.1 presents example research questions that can be addressed by the MCBS COVID-19 Winter 2021 PUF. These research questions are intended to illustrate the types of analyses researchers can perform using the MCBS COVID-19 Winter 2021 PUF and are not meant to be a comprehensive list of possible research questions that can be answered with these data. Note that researchers who wish to conduct analyses including data from the MCBS COVID-19 Community Supplements combined with data from the main MCBS (e.g., health insurance coverage, usual source of care information, mental health, and cost and utilization history) should refer to the MCBS Survey File LDS rather than the MCBS COVID-19 Winter 2021 PUF.

Exhibit 8.4.1: Example Research Questions That Can be Answered Using the MCBS COVID-19 Winter 2021 PUF

Topic	Example Research Questions
Pandemic Impact on Daily Life	Are there differences in the self-reported impact of the COVID-19 pandemic on Medicare beneficiaries' daily lives (e.g., ability to pay housing costs, get food) across socio-demographic characteristics?
Availability of and Use of Telemedicine Services	Among Medicare beneficiaries, are there differences in availability of telemedicine services by income (below or above $25,000)?
Preventive Health Behaviors	Are there differences in self-reported preventive health behaviors (e.g., washing hands, wearing face masks) by age group?
Health Behaviors or Social Determinants of Health	Are there differences in the percentage of Medicare beneficiaries who were tested for COVID-19 by use of inhaled tobacco products?
Health Status and Functioning	Were Medicare beneficiaries with particular chronic disease conditions more likely than others to suspect they had COVID-19?

Topic	Example Research Questions
COVID-19 Vaccination	Were there differences in likelihood of getting a COVID-19 vaccine (if one were available) by perceptions of COVID-19 severity (e.g., coronavirus is more deadly than the flu)?
COVID-19 Vaccination	Were there differences in COVID-19 vaccination uptake across socio-demographic characteristics?

8.5 Guidelines for Citation of Data Source

This document was produced, published, and disseminated at U.S. taxpayer expense. All material appearing in this document is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

Accordingly, CMS requests that data users cite CMS and the Medicare Current Beneficiary Survey as the data source in any publications or research based upon these data. Suggested citation formats are below.

Tables and Graphs: The suggested citation to appear at the bottom of all tables and graphs should read:

> SOURCE: Centers for Medicare & Medicaid Services, Medicare Current Beneficiary Survey, Medicare Current Beneficiary Survey, COVID-19 Winter Supplement Public Use File, 2021.

Bibliography: The suggested citation for the *MCBS Data User's Guide: COVID-19 Winter 2021 Supplement Public Use File* should read:

> SOURCE: Centers for Medicare & Medicaid Services. 2021 Medicare Current Beneficiary Survey Data User's Guide: COVID-19 Winter Supplement Public Use File. Retrieved from [ADD URL], 2021.

Survey Data: The suggested citation for the MCBS survey data files and other documentation should read:

> SOURCE: Centers for Medicare & Medicaid Services. Medicare Current Beneficiary Survey, COVID-19 Winter Supplement Public Use File. Baltimore, MD: U.S. Department of Health and Human Services, 2021.

9. REFERENCES

Holman, A, and Silver, R. "COVID-19 Outbreak Study." University of California Irvine. Accessed April 2020.

Lo, A, Chu A, and Apodaca, R. "Redesign of the Medicare Current Beneficiary Survey Sample." *Proceedings of the Survey Research Section of the American Statistical Association* (2002): 2139-44.

Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. MMWR Morb Mortal Wkly Rep 2020; 69:458–464. DOI: http://dx.doi.org/10.15585/mmwr.mm6915e3.

National Center for Health Statistics. "COVID-19 Research and Development Survey (RANDS)." 2020. https://www.cdc.gov/nchs/covid19/rands.htm.

The Associated Press-NORC Center for Public Affairs Research. "March 2020 Poll AP-NORC Center Poll." Accessed May, 2020. https://apnorc.org/wp-content/uploads/2020/04/march2020_topline.pdf.

U.S. Census Bureau. "2020 American Community Survey." Accessed May, 2020. https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2020/quest20.pdf.

U.S. Centers for Disease Control and Prevention. "Certain Medical Conditions and Risk for Severe COVID-19 Illness." Last modified July 30, 2020. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fneed-extra-precautions%2Fgroups-at-higher-risk.html.

U.S. Centers for Disease Control and Prevention. "How to Protect Yourself & Others". Accessed May, 2020. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

U.S. Centers for Disease Control and Prevention. "National Health Interview Survey". https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm

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

U.S. Centers for Disease Control and Prevention. "What You Should Know About COVID-19 to Protect Yourself and Others." Last modified June 1, 2020. https://www.cdc.gov/coronavirus/2019-ncov/downloads/2019-ncov-factsheet.pdf.

U.S. Census Bureau. "November 2019 Current Population Survey Computer and Internet Use Supplement." Accessed May, 2020. https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov19.pdf.

U.S. Centers for Medicare & Medicaid Services. "Medicare & Coronavirus." Accessed on August, 2020. https://www.medicare.gov/medicare-coronavirus.

APPENDICES

10. APPENDICES

Appendix A: Glossary

Beneficiary: Beneficiary refers to a person receiving Medicare services who may or not be participating in the MCBS. Beneficiary may also refer to an individual selected from the MCBS sample about whom the MCBS collects information. Beneficiaries must meet at least one of three criteria for Medicare eligibility (is aged 65 years or older, is under age 65 with certain disabilities, or is of any age with End-Stage Renal Disease) and is entitled to health insurance benefits. (Source: https://www.cms.gov/Medicare/Medicare-General-Information/MedicareGenInfo/index.html).

Community component: 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.

Continuously enrolled (aka always enrolled): A Medicare beneficiary who was enrolled in Medicare from the first day of the calendar year until the fall interview and did not die prior to the fall round. This population excludes beneficiaries who enrolled during the calendar year 2018, those who dis-enrolled or died prior to their fall interview, residents of foreign countries, and residents of U.S. possessions and territories other than Puerto Rico.

Coronavirus (COVID-19 or SARS-CoV-2): An illness caused by a new coronavirus that can spread person to person. Symptoms range from mild (or no symptoms) to severe illness.[23] The virus has been named "severe acute respiratory syndrome coronavirus 2" (SARS-CoV-2) and the disease it causes has been named "coronavirus disease 2019" ("COVID-19").

COVID-19 Winter 2021 Community Supplement: A nationally representative, cross-sectional telephone survey of Medicare beneficiaries living in the community that was administered from March 2021 through April 2021.

COVID-19 Winter 2021 Facility Supplement: A nationally representative, cross-sectional telephone survey of Medicare beneficiaries living in a facility that was administered from January 2021 through April 2021.

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 other than Puerto Rico.

Facility component: Survey administered for beneficiaries living in facilities, such as long-term care nursing homes or other institutions, during the reference period covered by the MCBS interview. Interviewers conduct the Facility component with staff members located at the facility (i.e., facility respondents); beneficiaries are not interviewed if they reside at a facility.

Incoming Panel sample (formerly known as Supplemental Panel): A statistically sampled group of beneficiaries that enter the MCBS in the fall round of a data collection year. One panel is retired at the conclusion of each winter round, and a new panel is selected to replace it each fall round. Panels are identified by the data collection year (e.g., 2018 Panel) in which they were selected.

---

[23] "What you should know about COVID-19 to protect yourself and others." Centers for Disease Control and Prevention. Last modified June 1, 2020. https://www.cdc.gov/coronavirus/2019-ncov/downloads/2019-ncov-factsheet.pdf.

Long-term care facility: A facility that provides rehabilitative, restorative, and/or ongoing skilled nursing care to patients or residents in need of assistance with activities of daily living.

Medicare: Medicare is the federal health insurance program for people who are 65 or over, certain younger people with disabilities, and people with End-Stage Renal Disease (permanent kidney failure requiring dialysis or a transplant, sometimes called ESRD). The different parts of Medicare help cover specific services:

- Hospital Insurance (Part A): covers inpatient hospital stays, care in a skilled nursing facility, hospice care, and some home health care.

- Medical Insurance (Part B): covers certain doctors' services, outpatient care, medical supplies, and preventive services.

- Medicare Advantage (Part C): an alternative to coverage under traditional Medicare (Parts A and B), a health plan option similar to a Health Maintenance Organization (HMO) or Preferred Provider Organization (PPO) administered by private companies.

- Prescription Drug Coverage (Part D): additional, optional coverage for prescription drugs administered by private companies.

For more information, please visit the Medicare.gov website at https://www.medicare.gov/sign-up-change-plans/decide-how-to-get-medicare/whats-medicare/what-is-medicare.html.

Medicare Advantage (MA): Medicare Advantage Plans, sometimes called "Part C" or "MA Plans," are offered by private companies approved by Medicare. An MA provides, or arranges for the provision of, a comprehensive package of health care services to enrolled persons for a fixed capitation payment. The term "Medicare Advantage" includes all types of MAs that contract with Medicare, encompassing risk MAs, cost MAs, and health care prepayment plans (HCPPs).

Medicare beneficiary: See beneficiary.

Panel: See Incoming Panel sample.

Primary Sampling Unit (PSU): Primary sampling unit refers to sampling units that are selected in the first (primary) stage of a multi-stage sample ultimately aimed at selecting individual elements (Medicare beneficiaries in the case of MCBS). PSUs are made up of major geographic areas consisting of metropolitan areas or groups of rural counties.

Proxy: Beneficiaries who were too ill, or who could not complete the Community 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, 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. Proxy interviews are only used for the Community interview, as the Facility interview is conducted with a staff member located at the facility (see definition of "Facility component").

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 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 category includes other single races not of Hispanic origin (including American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander), two or more races, or unknown races.

Respondent: The person who answers questions for the MCBS; this person can be the beneficiary, a proxy, or a staff member located at a facility where the beneficiary resides.

Round: The MCBS data collection period. There are three distinct rounds each year; winter (January through April); summer (May through August); and fall (September through December).

Secondary Sampling Unit (SSU): SSUs are made up of census tracts or groups of tracts within the selected PSUs.

Telemedicine: The use of remote clinical services, such as videoconferencing or audio-only appointments for consultations with health professionals.[24]

Ultimate Sampling Unit (USU): USUs are Medicare beneficiaries selected from within the selected SSUs.

---

[24] "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.

Appendix B: Technical Appendix – Sample Code and Output

Please note that the code examples below use the MCBS COVID-19 Winter 2021 PUF preliminary weights, which begin with the prefix "CPW." You should use the preliminary MCBS COVID-19 Winter 2021 PUF weights only if you are using data from the COVID-19 PUF segment that has not been merged with data from any other segment. If you are analyzing data from the fall, winter, summer, or a combination of PUF segments, please see the discussion in Section 8.1 of this document about which weights should be used.

SAS Analysis Statements

Cross-tabulations

```
proc surveyfreq data=<Analytic dataset> VARMETHOD = brr (fay=.30);
        table <Var name>   / row  chisq lrchisq;
        weight CPWWWGT;
        repweight CPWW001 - CPWW100;
run;
```

Subgroup Analysis

```
proc surveyfreq data=<Analytic dataset> VARMETHOD = brr (fay=.30);
        table <Var name> *  <Subgroup variable> / row  chisq lrchisq;
        weight CPWWWGT;
        repweight CPWW001 - CPWW100;
run;
```

STATA Analysis Statements

Declare dataset as survey sample with replicate weights

```
svyset _n [pweight= CPWWWGT], brrweight(CPWW001 - CPWW100) fay(.3) vce(brr) singleunit(missing)
```

For categorical variables, use:

```
svy brr,  fay(.3) : tabulate <Var name> <Var name>
```

For subgroup analysis use:

```
svy brr, subpop(if <Subgroup>) fay(.3) : tabulate <Var name>, over(<Var name>)
```

R Analysis Statements

Declare MCBS survey design object with replicate weights

```
mcbs <- svrepdesign(
  weights = ~CPWWWGT,
  repweights = "CPWW[001-100]+",
  type = "Fay",
  rho = 0.3,
  data = <Source dataset>,
  combined.weights = TRUE
  )
```

For categorical variables, use:

```
svytable(~<Var name>,  design=mcbs)
```

For subgroup analysis use:

```
mcbs_subgrp <- subset(mcbs, <Subgroup criteria>)
svytable(~<Var name>,  design=mcbs_subgrp)
```