

2020 | DATA USER'S GUIDE: COVID-19 SUMMER SUPPLEMENT PUBLIC USE FILE



Version Control Log

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| 09/23/2020 | 1.0 | Initial version published. |
| 12/12/2022 | 1.1 | Added two Errata Notes starting on page EN-1. |

ERRATA NOTES

These Errata Notes provide corrections to known erroneous or missing information included in the *Medicare Current Beneficiary Survey (MCBS) Data User's Guide: COVID-19 Summer 2020 Supplement Public Use File (PUF)*.

COVID-19 Summer 2020 Supplement PUF Arthritis Variable (HLV_ARTHRIT):

The following conditions were collapsed into a single arthritis indicator variable (HLV_ARTHRIT) in the MCBS COVID-19 Summer 2020 PUF: rheumatoid arthritis, osteoarthritis, and other types of arthritis. Two questionnaire errors caused a large number of respondents to incorrectly skip the osteoarthritis and other types of arthritis items in Fall 2019 and Fall 2020. As such, the frequency of arthritis reported using the HLV_ARTHRIT variable in the MCBS COVID-19 Summer 2020 PUF is likely to be underestimated.

COVID-19 Summer 2020 Supplement PUF Re-Release and Corrected Age Variable (DMV_AGECA):

Due to a coding error, the MCBS COVID-19 Summer 2020 PUF was updated and re-released in December 2022 with a correction to the age variable (DMV_AGECA). Exhibits 6.1.1 and 6.1.2 present estimates of the size of the 2019 ever enrolled Medicare population still alive, enrolled, and living in the community during Summer 2020, by race and age (as of December 31, 2019) and by sex in the corrected MCBS COVID-19 Summer 2020 PUF.

Exhibit 6.1.1: Estimated Number of Male Community Medicare Beneficiaries by Race and Age, in the MCBS COVID-19 Summer 2020 PUF*

| Race | Age as of 12/31/2019 | Weighted Count |
|--------------------|----------------------|----------------|
| White non-Hispanic | Under 65 years | 2,467,230 |
| | 65-74 years | 10,440,865 |
| | 75+ years | 6,326,547 |
| Black non-Hispanic | Under 65 years | 708,244 |
| | 65-74 years | 1,190,991 |
| | 75+ years | 465,947 |
| Hispanic | Under 65 years | 446,631 |
| | 65-74 years | 956,652 |
| | 75+ years | 543,676 |
| Other† | Under 65 years | 346,606 |
| | 65-74 years | 903,451 |
| | 75+ years | 511,410 |

SOURCE: MCBS COVID-19 Summer 2020 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 races, more than one race, and unknown race.

Exhibit 6.1.2: Estimated Number of Female Community Medicare Beneficiaries by Race and Age, in the MCBS COVID-19 Summer 2020 PUF*

| Race | Age as of 12/31/2019 | Weighted Count |
|--------------------|-----------------------------|-----------------------|
| White non-Hispanic | Under 65 years | 2,657,251 |
| | 65-74 years | 12,132,667 |
| | 75+ years | 8,431,035 |
| Black non-Hispanic | Under 65 years | 791,998 |
| | 65-74 years | 1,475,339 |
| | 75+ years | 944,233 |
| Hispanic | Under 65 years | 394,812 |
| | 65-74 years | 1,244,362 |
| | 75+ years | 908,347 |
| Other† | Under 65 years | 278,922 |
| | 65-74 years | 925,314 |
| | 75+ years | 602,426 |

SOURCE: MCBS COVID-19 Summer 2020 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 races, more than one race, and unknown race.

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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 |
| COVIDS | LDS Survey File COVID-19 Summer Supplement segment |
| DUA | Data Use Agreement |
| CPWSWGTS | COVID-19 PUF Summer 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).

On January 31, 2020, the Health and Human Services (HHS) Secretary determined that a Public Health Emergency (PHE) 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"); on April 21, 2020, the Secretary renewed, effective April 26, 2020, the determination that a PHE still existed. 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.¹ 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 in Summer 2020 to existing MCBS sampled beneficiaries who were continuously enrolled in Medicare from the beginning of 2020 and were alive, eligible for and enrolled in Medicare at the time of the interview in Summer 2020. The COVID-19 Summer 2020 Supplement was considered a test of the COVID-19 rapid response protocol. The test was conducted during the regular production cycle of Summer 2020 (Round 87). CMS also plans to administer a COVID-19 Fall 2020 Supplement during the regular production cycle of Fall 2020 (Round 88) and to continue asking these questions into 2021 as needed. Exhibit 1.1.1. shows the anticipated schedule of COVID-19 Supplements and PUF data releases known to date.

Data collected for MCBS sampled beneficiaries living in the community using the MCBS COVID-19 Summer 2020 Rapid Response Supplement and MCBS COVID-19 Fall 2020 Rapid Response Supplement will be made available as individual standalone COVID-19 PUFs and as part of the 2019 Survey File LDS.² The release of data collected via a MCBS COVID-19 Winter 2021 Rapid Response Supplement or any future COVID-19 Supplements will be determined at a later date.

¹ 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>.

² In Fall 2020, the MCBS also plans to administer a COVID-19 Supplement for beneficiaries living in a Facility. Data on MCBS sampled beneficiaries living in a Facility will be released as part of the 2020 Survey File LDS.

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

| Planned 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 Supplement | June – July 2020 | 2019 Survey File COVIDS Segment | Summer 2021 | COVID-19 Summer 2020 PUF | 3 rd Quarter 2020 |
| COVID-19 Fall 2020 Supplement | October- November 2020 | 2019 Survey File COVIDF Segment | Summer 2021 | COVID-19 Fall 2020 PUF | 1st Quarter 2021 (anticipated) |
| COVID-19 Winter 2021 Supplement | March- April 2021 (anticipated) | 2020 Survey File COVIDW Segment | Summer 2022 | To be decided | To be decided |
| Additional COVID-19 Supplements | To be decided as necessitated by the progression of the pandemic | | | | |

The content of the MCBS COVID-19 Summer 2020 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 Summer 2020 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 Summer 2020 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 Summer 2020 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 Summer 2020 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 Summer 2020 PUF. A new data user's guide will be released for each future COVID-19 PUF listed in Exhibit 1.1.1.

Readers interested in analyzing the MCBS COVID-19 Summer 2020 PUF should also reference the COVID-19 Summer 2020 Supplement questionnaire specifications at: <https://www.cms.gov/research-statistics-data-and-systemsresearchmcsquestionnaires/2020-supplemental-covid-19-questionnaires>.

For more information about the survey design and data collection methods of the COVID-19 Summer Supplement and the main MCBS survey, readers should reference the forthcoming *2019 Data User's Guide: Survey File* and *2019 MCBS Methodology Report* (to be released in 2021 with the 2019 Survey File LDS). For general information about the MCBS, analysts 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. OVERVIEW OF THE MCBS

2.1 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, in-person, 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. 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 conducted continuous data collection for over 25 years, completing more than one 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.

2.2 Overview of the MCBS COVID-19 Summer 2020 Rapid Response 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 first MCBS COVID-19 Summer 2020 Rapid Response Supplement (referred to as the COVID-19 Summer 2020 Supplement) in June and July 2020 by telephone with existing MCBS sample members residing in the community. 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 the consequences for social, emotional, and financial well-being. The MCBS COVID-19 Summer 2020 PUF combines data from this Supplement with demographic and health status data collected from MCBS respondents during prior interviews.

3. TECHNICAL AND PROGRAMMING INFORMATION

3.1 General Information

The MCBS COVID-19 Summer 2020 PUF includes data for 11,114 sampled beneficiaries who were interviewed for the MCBS in 2019 and interviewed for the COVID-19 Supplement in Summer 2020. The MCBS COVID-19 Summer 2020 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 2019 and continued to be enrolled through Summer 2020. See Section 7.1 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 Summer 2020 PUF. This COVID_ID serves to identify records in the MCBS COVID-19 Summer 2020 PUF only and cannot be used for linking to MCBS data files other than the COVID-19 PUF. 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 Summer 2020 PUF are in numeric or integer formats. Formats and values for each variable are available in the MCBS COVID-19 Summer 2020 PUF codebook.

Variable groups contain prefixes to help users identify these groups by topic area. Each variable's prefix in the MCBS COVID-19 Summer 2020 PUF ends with "V" to distinguish the variables from the main MCBS PUF variables. Exhibit 3.1.1 includes information about these variable prefixes and the locations of the corresponding variables in the Survey File LDS data segments (i.e., the 2019 Survey File LDS individual files).

Exhibit 3.1.1: MCBS COVID-19 Summer 2020 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 | 9 |
| ACV_ | Access to care during the pandemic | 121 |
| XCV_ | Personal experiences with COVID-19 | 45 |
| PKV_ | Preventive measures and knowledge about COVID-19 | 27 |
| EMV_ | Economic and mental effects of the pandemic | 9 |
| HLV_ | Non-COVID-19 health status | 27 |

3.2 Data File Information

Detailed information about variables in the MCBS COVID-19 Summer 2020 PUF can be found in the MCBS COVID-19 Summer 2020 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 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_AGECAAT reflect such recoding). Other variables were created by combining two variables, and their variable name indicates a recoded variable (e.g., HLV_ALZDEM).

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 Summer 2020 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 Summer 2020 PUF export file (e.g. COVIDPUF_1_2020S.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 F "C:\MCBS\DOWNLOAD\COVIDPUF_1_2020S.XPT";
PROC IMPORT LIBRARY=PUFLIB INFILE=F;
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.

3.3 Comparison to the LDS

The data collected from the COVID-19 Summer 2020 Supplement will be available to data users both in the MCBS COVID-19 Summer 2020 PUF and as part of the 2019 Survey File LDS files, which are available with a DUA.

The MCBS COVID-19 Summer 2020 PUF has been evaluated for disclosure risk to protect beneficiary confidentiality. The MCBS COVID-19 Summer 2020 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 Summer 2020 Supplement, the MCBS COVID-19 Summer 2020 PUF includes select socio-demographic, chronic condition, and use of inhaled tobacco products variables sourced from the 2019 Survey File LDS files. These additional variables were collected during the Fall 2019 (Round 85) interview, if applicable. The majority of beneficiaries included in the MCBS COVID-19 Summer 2020 PUF completed a Fall 2019 (Round 85) interview; however, a small number did not complete a Fall 2019 (Round 85) interview and therefore do not have data for the Fall 2019 (Round 85) variables.

The 2019 Survey File LDS will also include the data collected by the COVID-19 Summer 2020 Supplement as a standalone LDS segment, COVIDS. Unlike the MCBS COVID-19 Summer 2020 PUF, the COVIDS segment will include the beneficiary identifier, BASEID, which allows analysts to link the segment to other LDS segments containing data from the 2019 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 2019, and experiences with care.

The MCBS COVID-19 Summer 2020 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 3.3.2 compares socio-demographic variables and values available in the MCBS COVID-19 Summer 2020 PUF and the MCBS Survey File LDS. The MCBS Survey File LDS contains more detailed versions of the socio-

demographics in the MCBS COVID-19 Summer 2020 PUF as well as additional variables that do not have an equivalent in the MCBS PUF, noted below the exhibit.³

Exhibit 3.3.1: Comparison of Socio-demographic Variables and Values in the MCBS COVID-19 Summer 2020 PUF and MCBS Survey File LDS

| Socio-demographic Characteristic | MCBS COVID-19 Summer 2020 PUF Variables and Values | MCBS Survey File LDS Variables and Values |
|--|--|--|
| Gender | DMV_SEX (Gender): Male; Female | ROSTSEX (Gender): Male; Female |
| Age | DMV_AGECA (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 OTHLANG (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 |

³ 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 Summer 2020 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 | <p>D_RACE2 (Race of SP): Asian; African American; Native Hawaiian or Pacific Islander; White; American Indian or Alaska Native; More than one</p> <p>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 Alaskan Native</p> <p>HISPORIG (Is SP of Hispanic or Latino origin?): Yes; No</p> <p>HISPORMA: Mexican/Mex American/Chicano; HISPORPR: Puerto Rican; HISPORCU: Cuban; HISPOROT: Other Hispanic/Latino/Spanish origin</p> |
| 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, <65 years; Other 65-74 years; Other 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. |

4. SURVEY OVERVIEW

4.1 Design of the MCBS COVID-19 Summer 2020 Supplement

Although participation in the survey is limited to four years, data collection for the main MCBS survey 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 Summer 2020 Supplement was an out-of-cycle, standalone survey administered as a supplement to the main MCBS survey design. The COVID-19 Summer 2020 Supplement was administered by telephone from June to July 2020 to existing MCBS respondents who had completed an MCBS interview from August 2019 through December 2019, making the sampled beneficiary eligible to be included in the 2019 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 administered for beneficiaries living in a facility such as long-term care nursing homes or other institutions. The COVID-19 Summer 2020 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.

4.2 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.⁴ Each MCBS panel, an annual statistical sample of all Medicare enrollees, is interviewed up to three times per year over four consecutive years.⁵ 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 2019.⁶

The COVID-19 Summer 2020 Supplement was a cross-sectional survey conducted with existing MCBS sample members from the 2016, 2017, 2018, and 2019 panels. Exhibit 4.2.1 shows the distribution of each of the four panels included in the MCBS COVID-19 Summer 2020 PUF. Under the main MCBS sample design, the 2016 panel would have had their last interview in Winter 2020 (Round 86). However, in order to conduct the COVID-19 Summer 2020 Supplement with the 2019 Survey File population, the COVID-19 Supplement was administered to the 2016 panel in Summer 2020. Because the population for the COVID-19 Supplement

⁴ 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.

⁵ 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.

⁶ While beneficiaries included in the LDS releases represent both the ever enrolled and continuously enrolled Medicare population, the MCBS COVID-19 Summer 2020 PUF solely represents the population of beneficiaries who were ever enrolled in 2019 and were continuously enrolled through the time of the COVID-19 Summer 2020 Supplement.

includes existing MCBS sample members, 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 4.2.1: MCBS Composition of Panels in the MCBS COVID-19 Summer 2020 PUF

| Data Year | Number of Beneficiaries Selected |
|------------------|---|
| 2016 | 1,827 |
| 2017 | 2,386 |
| 2018 | 2,902 |
| 2019 | 3,999 |

4.3 Eligibility

To be eligible for the COVID-19 Summer 2020 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 Summer 2020 Supplement interview.

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

4.4 Interviewing and Training Procedures

CMS contracts with NORC at the University of Chicago (NORC) to administer the MCBS. 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 Summer 2020 Supplement was conducted by telephone from June 10 to July 15, 2020. Fielding of the Supplement overlapped with the MCBS Summer 2020 (Round 87) data collection which was conducted from May through August 2020.

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

4.4.1 Overview of Recruitment of Beneficiaries and Scheduling Procedures

An advance letter was sent to all eligible sample members informing them of the addition of the COVID-19 Supplement. 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 available to conduct the COVID-19 Supplement in Spanish. The average administration time for the COVID-19 Supplement was 15 minutes.

4.4.2 Computer-Assisted Web Interviewing (CAWI)

Due to the COVID-19 pandemic, the COVID-19 Summer 2020 Supplement was conducted by telephone. The COVID-19 Summer 2020 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.

4.4.3 Interviewer Training

All MCBS interviewers completed a remote training on topics specific to the COVID-19 Supplement prior to the start of COVID-19 Summer 2020 Supplement data collection.

4.4.4 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).

5. QUESTIONNAIRES

5.1 Overview

The COVID-19 Summer 2020 Supplement questionnaire consists of topics specific to the impact of the COVID-19 pandemic on Medicare beneficiaries' lives. Information from the 2019 MCBS was appended to the MCBS COVID-19 Summer 2020 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 4.1., the COVID-19 Summer 2020 Supplement was only administered to beneficiaries living in the community at the time of the interview.

The topics measured by the COVID-19 Summer 2020 Supplement are:

- Availability and Use of Telemedicine
- Access to Computers and Internet
- Forgone Health Care as a Result of the Pandemic
- Autoimmune Disease Prevalence
- COVID-19 Symptoms and Diagnosis
- Access to and Utilization of COVID-19 Testing
- COVID-19 Care
- Preventive Measures
- Sources of COVID-19 Information
- Knowledge of COVID-19 Public Health Guidance
- 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 Summer 2020 Supplement, here: <https://www.cms.gov/research-statistics-data-and-systemsresearchmcsquestionnaires/2020-supplemental-covid-19-questionnaires>

See Sections 5.2 and 5.3 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.⁷ To measure the impacts of this change in policy, the COVID-19 Summer 2020 Supplement includes questions on availability

⁷ "Medicare & Coronavirus" U.S. Centers for Medicare & Medicaid Services. Accessed on August 5, 2020. <https://www.medicare.gov/medicare-coronavirus>

of telemedicine services before and during the pandemic. These questions were adapted from items on the National Center for Health Statistics (NCHS) COVID-19 Research and Development Survey (RANDS).⁸

Access to Computers and Internet

To inform research questions pertaining to access to telemedicine services, the COVID-19 Summer 2020 Supplement also contains 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)⁹ and November 2019 Current Population Survey (CPS) Computer and Internet Use Supplement.¹⁰

Forgone Health Care as a Result of the Pandemic

The COVID-19 Summer 2020 Supplement contains 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 asks if any care was forgone, what type of care it was, and for each type of care forgone, the Supplement asks whether it was the beneficiary or provider who made the decision to forego care, and why the decision to forego 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-19.¹¹ 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 Summer 2020 Supplement asks two questions about autoimmune diseases. These items were adapted from the CDC's National 2009 H1N1 Flu Survey (NHFS).¹²

COVID-19 Symptoms and Diagnosis

The COVID-19 Summer 2020 Supplement includes a number of items relating to beneficiaries who had a probable or confirmed diagnosis of COVID-19. Topics include COVID-19 symptoms experienced since the start of the pandemic, suspected diagnosis of COVID-19, and confirmed diagnosis by a doctor or other health professional. These items were adapted from the NCHS RANDS survey.

Access to and Utilization of COVID-19 Testing

The COVID-19 Summer 2020 Supplement includes items relating to access to COVID-19 testing, utilization of testing, and test results (if applicable). The item on asking a doctor or medical professional for a COVID-19 test was adapted from the NCHS RANDS survey. The item on ever having been refused a test was sourced

⁸ "COVID-19 Research and Development Survey (RANDS)" National Center for Health Statistics. 2020. <https://www.cdc.gov/nchs/covid19/rands.htm>

⁹ "2020 American Community Survey" U.S. Census Bureau. Accessed May, 2020. <https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2020/quest20.pdf>

¹⁰ "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>

¹¹ "Certain Medical Conditions and Risk for Severe COVID-19 Illness" U.S. Centers for Disease Control and Prevention. 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

¹² "National 2009 H1N1 Flu Survey" U.S. Centers for Disease Control and Prevention. Accessed May, 2020. https://www.cdc.gov/nchs/nis/data_files_h1n1.htm

from the Washington Post-ABC News March 22-25, 2020 poll.¹³ The items on utilization of a test and results of the test were sourced from the NCHS RANDS survey and National Health Interview Survey.¹⁴

COVID-19 Care

For those who had a probable or confirmed diagnosis of COVID-19, the Summer Supplement includes items related to utilization of medical care and hospitalization for COVID-19. These items were adapted from the NCHS RANDS survey.

Preventive Measures

The COVID-19 Summer 2020 Supplement includes items on which preventive measures were taken to avoid exposure to the virus. The survey asks about 15 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 gatherings with groups of 10 or more people, and purchasing extra supplies such as food, cleaning supplies, and prescriptions. These items were adapted from the NCHS RANDS survey and other sources.¹⁵

Sources of COVID-19 Information

The COVID-19 Summer 2020 Supplement includes 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.¹⁶

Knowledge of COVID-19 Public Health Guidance

The COVID-19 Summer 2020 Supplement includes an item measuring knowledge of public health messaging about the virus. The survey asks 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. This item was sourced from the March 2020 AP-NORC Center Poll.

Ability to Access Basic Needs During the Pandemic

The COVID-19 Summer 2020 Supplement includes 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, and household supplies. These items were adapted from the NCHS RANDS survey.

Impact to Financial and Mental Health

The COVID-19 Summer 2020 Supplement includes 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.

¹³ "March 22-25, 2020 poll" Washington Post-ABC News. Accessed May, 2020. <https://www.washingtonpost.com/context/washington-post-abc-news-poll-march-22-25-2020/974c3312-5a40-4764-afb1-4bb6b86f1cf4/>

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

¹⁵ "How to Protect Yourself & Others" U.S. Centers for Disease Control. Accessed May, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>

¹⁶ "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

5.2 Additional Variables Included in the MCBS COVID-19 Summer 2020 PUF

In addition to the content described in the prior section on items administered as part of the COVID-19 Summer 2020 Supplement, the MCBS COVID-19 Summer 2020 PUF also includes variables sourced from the 2019 Survey File LDS that were collected during the main MCBS Fall 2019 (Round 85) interview. These variables include socio-demographics, chronic conditions, and use of inhaled tobacco products.

More information about these segments can be found in the *2018 Data User's Guide: Survey File* (currently available on the CMS website) and the forthcoming *2019 Data User's Guide: Survey File* (to be released in summer 2021 with the 2019 Survey File LDS).

6. SAMPLING

6.1 Medicare Population Covered by the MCBS COVID-19 Summer 2020 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 Summer 2020 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 Summer Supplement interview.

Exhibits 6.1.1 and 6.1.2 present estimates of the size of the 2019 ever enrolled Medicare population still alive and enrolled and residing in the community during Summer 2020, by race and age (as of December 31, 2019) and by sex in the MCBS COVID-19 Summer 2020 PUF. Exhibit 6.1.3 presents the aggregated estimates of the size of the 2019 ever enrolled Medicare population still alive and enrolled and residing in the community during Summer 2020, overall and by sex and race.

Exhibit 6.1.1: Estimated Number of Male Community Medicare Beneficiaries by Race and Age, in the MCBS COVID-19 Summer 2020 PUF*

| Race | Age as of 12/31/2019 | Weighted Count |
|--------------------|----------------------|----------------|
| White non-Hispanic | Under 65 years | 2,494,202 |
| | 65-74 years | 10,627,350 |
| | 75+ years | 6,113,089 |
| Black non-Hispanic | Under 65 years | 718,635 |
| | 65-74 years | 1,191,163 |
| | 75+ years | 455,383 |
| Hispanic | Under 65 years | 461,965 |
| | 65-74 years | 995,316 |
| | 75+ years | 489,677 |
| Other† | Under 65 years | 367,815 |
| | 65-74 years | 896,893 |
| | 75+ years | 496,759 |

SOURCE: MCBS COVID-19 Summer 2020 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 races, more than one race, and unknown race.

Exhibit 6.1.2: Estimated Number of Female Community Medicare Beneficiaries by Race and Age, in the MCBS COVID-19 Summer 2020 PUF*

| Race | Age as of 12/31/2019 | Weighted Count |
|--------------------|----------------------|----------------|
| White non-Hispanic | Under 65 years | 2,660,044 |
| | 65-74 years | 12,478,942 |
| | 75+ years | 8,081,968 |

| Race | Age as of 12/31/2019 | Weighted Count |
|--------------------|----------------------|----------------|
| Black non-Hispanic | Under 65 years | 785,408 |
| | 65-74 years | 1,482,506 |
| | 75+ years | 943,655 |
| Hispanic | Under 65 years | 422,862 |
| | 65-74 years | 1,281,108 |
| | 75+ years | 843,551 |
| Other† | Under 65 years | 284,084 |
| | 65-74 years | 939,606 |
| | 75+ years | 582,972 |

SOURCE: MCBS COVID-19 Summer 2020 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 races, more than one race, and unknown race.

Exhibit 6.1.3: Estimated Number of Community Medicare Beneficiaries by Sex and Race, in the MCBS COVID-19 Summer 2020 PUF*

| Group | Subgroup | Weighted Count |
|---------------|--------------------------|----------------|
| Overall Total | | 56,094,955 |
| Sex | Male Total | 25,308,249 |
| | Female Total | 30,786,706 |
| Race | White non-Hispanic Total | 42,455,595 |
| | Black non-Hispanic Total | 5,576,751 |
| | Hispanic Total | 4,494,480 |
| | Other Total† | 3,568,129 |

SOURCE: MCBS COVID-19 Summer 2020 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 races, more than one race, and unknown race.

6.2 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 Summer 2020 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>.

6.3 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 2001.¹⁷ 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.

6.4 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.¹⁸

¹⁷ 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.

¹⁸ 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>.

7. TECHNICAL NOTES ON USING THE DATA

7.1 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 Summer 2020 PUF includes preliminary full-sample cross-sectional weights derived from nonresponse-adjusted weights among the beneficiaries sampled for the COVID-19 Summer 2020 Supplement (CPWSWGT). 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 2019 and still alive, enrolled, and living in the community in Summer 2020. Note these weights are considered preliminary because 2019 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 in the 2019 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 Summer 2020 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 Summer 2020 PUF can be used to calculate standard errors of the sample-based estimates. These replicate cross-sectional weights are labeled CPWS001 through CPWS100 corresponding to the ever enrolled weight CPWSWGT.

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.

7.2 Item Non-Response

As in any other survey, some respondents could not, or would not, supply answers to some questions.¹⁹ 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.²⁰ The calculation of the study-wide response rates generally follows the guidelines specified in the American Association for Public Opinion Research (AAPOR) and

¹⁹ 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.

²⁰ 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.

OMB. For the population represented by the MCBS COVID-19 Summer 2020 PUF, the calculated overall response rate was 78.9 percent.

7.3 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.

7.4 Example Research Questions

Exhibit 7.4.1 presents example research questions that can be addressed by the MCBS COVID-19 Summer 2020 PUF. These research questions are intended to illustrate the types of analyses researchers can perform using the MCBS COVID-19 Summer 2020 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 Summer 2020 Supplement 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 Summer 2020 PUF.

Exhibit 7.4.1: Example Research Questions That Can be Answered Using the MCBS COVID-19 Summer 2020 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 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? |
| 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? |

7.5 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 Summer Supplement Public Use File, 2020.

Bibliography: The suggested citation for the *MCBS Data User's Guide: COVID-19 Summer 2020 Supplement Public Use File* should read:

SOURCE: Centers for Medicare & Medicaid Services. 2020 Medicare Current Beneficiary Survey Data User's Guide: COVID-19 Summer Supplement Public Use File. Retrieved from [ADD URL], 2020.

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 Summer Supplement Public Use File. Baltimore, MD: U.S. Department of Health and Human Services, 2020.

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APPENDICES

9. 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>).

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.²¹ 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 Summer 2020 Supplement: This data collection was a supplement to the MCBS annual data collection. The purpose of this supplement was to provide data to better understand beneficiaries' knowledge of the COVID-19 pandemic and understand potential Medicare program changes in response to the pandemic. The data were collected via telephone from persons who were eligible and enrolled in Medicare in 2019.

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.

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.

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.

²¹ "What you should know about COVID-19 to protect yourself and others." Centers for Disease Control and Prevention. Last modified April 15, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/downloads/2019-ncov-factsheet.pdf>.

- 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: Responses to race and ethnicity questions are self-reported by the respondent. Respondents who reported they were white and not of Hispanic origin were coded as white non-Hispanic; those who reported they were black/African-American and not of Hispanic origin were coded as black non-Hispanic; persons who reported they were Hispanic, Latino/Latina, or of Spanish origin, regardless of their race, were coded as Hispanic; persons who reported they were American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, or other race and not of Hispanic origin were coded as other race/ethnicity.

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 for consultations with health professionals.²²

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

²² "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 Summer 2020 PUF preliminary weights, which begin with the prefix "CPW." You should use the preliminary MCBS COVID-19 Summer 2020 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 7.1 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 CPWSWGT;
  repweight CPWS001 - CPWS100;
run;
```

Subgroup Analysis

```
proc surveyfreq data=<Analytic dataset> VARMETHOD = brr (fay=.30);
  table <Var name> * <Subgroup variable> / row chisq lrchisq;
  weight CPWSWGT;
  repweight CPWS001 - CPWS100;
run;
```

STATA Analysis Statements

Declare dataset as survey sample with replicate weights

```
svyset _n [pweight=CPWSWGT], brrweight(CPWS001 - CPWS100) 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 = ~CPWSWGT,
  repweights = "CPWS[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)
```