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Accountable Health Communities (AHC) Model Data File User Guide

DECEMBER 2024 | VERSION 1.0

Revision Log

Date	Changed by	Revisions	Version
December 2024	K. Schneider	Created initial document	1.0

Table of Contents

List of Tables

List of Figures

1.0 Overview

The Center for Medicare & Medicaid Innovation (CMS Innovation Center) launched the Accountable Health Communities (AHC) Model test in 2017. Providers and payers are increasingly addressing their patients' health-related social needs (HRSNs) to improve outcomes, reduce costs, and address health disparities. AHC was the Centers for Medicare & Medicaid Services' (CMS') first model test focused on evaluating HRSNs screening, referral, and navigation. CMS built it on emerging interventions in accountable care organizations (ACOs), Medicaid Managed Care, Medicaid health homes, and home and community-based services programs.

CMS uses the Chronic Conditions Warehouse (CCW) to develop and manage CMS research data resources. The CCW has complete (100%) Medicare enrollment and fee-for-service (FFS) claims data, obtained directly from CMS. The CCW also has CMS Medicaid enrollment and claims data files, available to researchers as the Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF). CCW obtained the final AHC data file from CMS. From this source data, the CCW team has prepared a data file to disseminate to researchers and certain government agencies that CMS has approved under a Data Use Agreement (DUA) to obtain AHC data for research purposes. The CCW AHC data file contains identifiable information. It is subject to the Privacy Act and other federal government rules and regulations (reference the Research Data Assistance Center [ResDAC] website for details on requesting Medicare or Medicaid data http://www.resdac.org/).

This guide provides researchers with information to clarify their work with the AHC data file. Appendix A lists abbreviations used in this document.

2.0 Background

In 2017, the Innovation Center launched the Accountable Health Communities (AHC) Model to assess whether identifying and addressing Medicare and Medicaid beneficiaries' health-related social needs (HRSNs) would reduce healthcare use and costs. The Innovation Center funded 32 entities,[1] referred to as bridge organizations, to convene a coalition of clinical delivery sites (CDSs) and community service providers (CSPs) to implement the AHC Model in communities nationwide.

The AHC Model's initial five-year performance period ended in April 2022; however, 18 bridge organizations received no-cost extensions (NCEs) to continue model activities for an additional three to 12 months. The model officially ended in April 2023. Appendix B documents the list of bridge organizations and their screening dates.

2.1 Health-Related Social Needs

Under the AHC Model, bridge organizations screened Medicare and Medicaid beneficiaries in CDSs for five core HRSNs, and up to eight supplemental HRSNs. Reference Appendix C for the individual items and scoring for each core and supplemental HRSN.

2.1.1 Core HRSNs

The five core HRSNs were food insecurity, housing instability, transportation needs, difficulties paying for utilities, and interpersonal violence. Beneficiaries were eligible to receive navigation services if they were community-dwelling (i.e., non-institutionalized), had at least one of the five core HRSNs, and had two or more self-reported emergency department (ED) visits within the 12 months prior to screening.

2.1.2 Supplemental HRSNs

In addition to the five core HRSNs, bridge organizations had the option to screen beneficiaries for one or more of eight supplemental HRSNs that did not affect eligibility for navigation services: disabilities, education, employment, family and community support, financial strain, mental health, physical activity, and substance use. Beneficiaries who screened positive for one or more supplemental HRSN, but no core HRSNs, were not eligible for navigation services in the AHC Model. Reference Appendix D for the number of bridge organizations that collected each supplemental HRSN and the number of positive screenings for each supplemental HRSN

[1] The Innovation Center funded 32 entities; four voluntarily terminated their participation in the AHC Model between 2017 and 2020.

2.2 AHC Model Tracks

Bridge organizations participated in one of two AHC Model tracks.

- The **assistance track** identified navigation-eligible Medicare and Medicaid beneficiaries and provided navigation services, which involved the development of an individualized action plan and guidance and support by navigators to help beneficiaries connect with CSPs that could address their HRSNs
    - The AHC Data System randomly assigned navigation-eligible beneficiaries to an intervention (70%) or control (30%) group.
        - Those in the intervention group received a community referral summary (a list of resources tailored to the beneficiary's HRSNs) and the bridge organization offered navigation services.
        - Those in the control group received a community referral summary but the bridge organization did not offer navigation services and did not follow them over time to determine whether there was resolution to their HRSNs.
- The **alignment track** expanded upon the assistance track intervention by also requiring an advisory board. Bridge organizations comprised their advisory boards with beneficiaries, healthcare partners, and community service organizations and charged them with identifying and addressing gaps in community services relative to community needs. Due to the community alignment aspect of the intervention, the alignment track did not have a control group. As such, all navigation-eligible beneficiaries in the alignment track received a community referral summary and the bridge organization offered them navigation services.

Tracks were at the level of the bridge organization. Beneficiaries were screened by CDSs and were aligned with the track of the associated bridge organization.

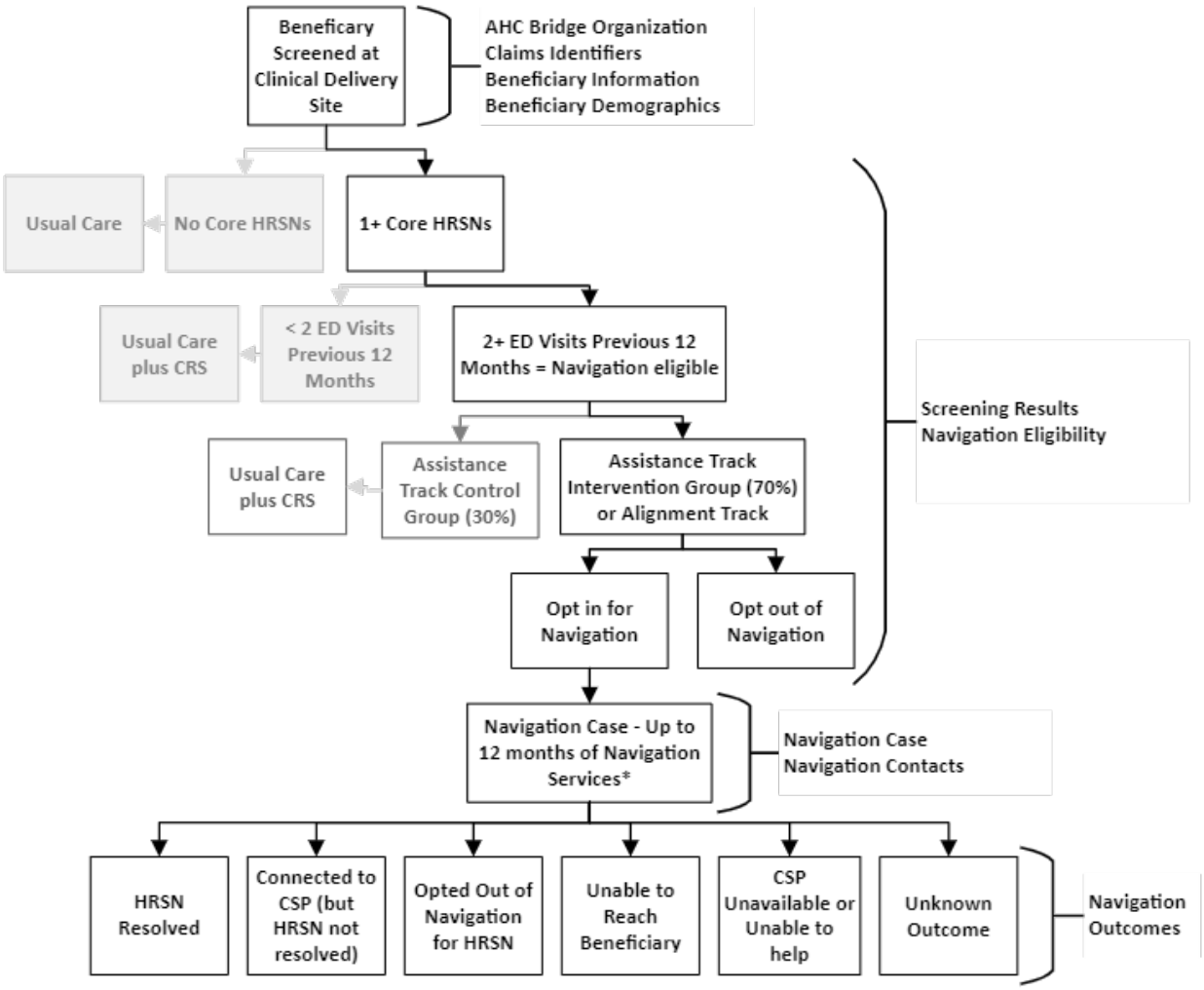
2.3 AHC Data System

As part of their participation in the AHC Model, the Innovation Center required bridge organizations to submit all screening and navigation data via the AHC Data System, a standardized data collection application in the CMS Enterprise Portal. The Innovation Center required bridge organizations to submit all data and corrections twice per month between May 2018 and May 2022, then once per month between June 2022 and April 2023. The Innovation Center transferred files from the AHC Data System to the CCW Virtual Research Data Center (VRDC) where the implementation and evaluation contractors accessed them. The CCW team based the AHC Research Identifiable File (RIF) on the final files available in May 2023, including all data corrections made by bridge organizations after the model ended.

2.4 AHC Screening and Navigation Process

Figure 1 shows the process for screening and navigation in the AHC Model. CDSs screened beneficiaries. The bridge organizations offered navigation services to beneficiaries who reported having one or more of core HRSNs (food insecurity, housing instability, transportation needs, difficulties paying for utilities, and interpersonal violence) and two or more ED visits in the 12 months prior to screening in the assistance track intervention group or the alignment track. If the beneficiary opted in for navigation services, the bridge organization opened a navigation case and the beneficiary received navigation services. Navigation services included developing a personalized action plan for addressing their HRSNs and navigator monthly contacts. The navigator monthly contacts were to provide guidance on addressing their HRSNs via CSPs and to determine if they had connected with CSPs or had resolved their HRSNs. Bridge organizations provided navigation services for up to 12 months. Toward the end of the model, the Innovation Center encouraged bridge organizations to provide at least three months of navigation services. The brackets in Figure 1 are related to the categories of variables listed in the AHC data dictionary on the CCW website; the corresponding codebook describes the variables contained in the AHC file.

Figure 1. AHC Model screening and navigation process overview



NOTE: CRS = community referral summary; CSP = community service provider
*Navigation services included the development of an individualized action plan and monthly contacts between the navigator and the beneficiary to discuss their HRSNs and whether they connected to a CSP and/or had their HRSNs resolved.

3.0 CCW AHC Data Files

CMS uses the CCW to develop and manage CMS research data resources. The CCW team obtained the AHC data file from CMS and disseminates it. The AHC RIF file includes all screening and navigation data submitted by 31 bridge organizations between May 2018 and April 2023.

The CCW BENE_ID allows for linkage to other CCW data products (e.g., Medicare enrollment and claims), while the state MSIS_ID variable allows for linkage to CCW T-MSIS/Medicaid data products.

Throughout this section, the CCW team writes SAS variable names in all capital letters.

3.1 AHC Data

The data file includes all Medicare and Medicaid beneficiaries screened for HRSNs as part of the AHC Model between 2018–2023.

The screening data includes results from the AHC screening tool (refer to Appendix C) for all beneficiaries screened, which indicates whether beneficiaries had any of the five core HRSNs and whether they reported two or more ED visits in the 12 months prior to screening. It also includes beneficiary demographic and supplemental HRSN data. The navigation data fields include whether navigation-eligible beneficiaries accepted navigation services, navigation events (i.e., frequency, and duration of navigator contacts with beneficiaries), and navigation outcomes (i.e., which needs the navigation resolved for a beneficiary).

There is one row in the data file per HRSN screening for a total of 1,799,982 rows. Beneficiaries had between one and 95 screenings; these are uniquely identified using the screening ID (SR_SCRNG_ID) field. There are 1,112,821 unique beneficiaries; these are identified using the AHC_BENE_ID. Note that if you plan to link to other CCW data files you would use the BENE_ID or MSIS_ID (reference 4.0 Linking with Other CCW Data Files). The data the following components.

- **AHC bridge organization** — variables start with "AHC" and include the bridge organization identifier (AHC_BRDG_ORG_ID), bridge organization state (AHC_BRDG_ORG_STATE_CD), and AHC Model track (AHC_TRK_CD)
- **Beneficiary identifier** — variables include the AHC beneficiary identifier (AHC_BENE_ID), encrypted Medicaid (MSIS_ID) and the corresponding submitting state for Medicaid enrollment (STATE_CD), and Medicare (BENE_ID) identifiers. Also included is the earliest reference year (MSIS_RFRNC_YR) associated with the MSIS_ID during the study period. Reference the Medicaid and Medicare Identifiers section below for information on how to link the AHC RIF to claims data in the CCW VRDC (using a combo of BENE_ID/MSIS_ID/STATE_CD variables to identify benes)
- **Beneficiary information** —variables that start with "BENE" such as state (BENE_STATE_CD), ZIP code (BENE_ZIP_CD), and insurance type (BENE_INSRNC_TYPE_CD)
- **Beneficiary demographic** — variables also start with "BENE_" and include beneficiary birth date (BENE_BIRTH_DT), age at screening (BENE_AGE_NUM), sex (BENE_GNDR_CD), race and ethnicity (BENE_RACE_ETHNCTY_CD), education (BENE_EDCTN_CD), income (BENE_INCM_RNG_CD), and preferred language (BENE_PREFRD_LANG_TXT)
- **Screening results** — variables start with "SR" and include the screening identifier (SR_SCRNG_ID), screening date (SR_SCRNG_DT), responses to each of the individual core HRSN items (e.g., SR_CORE_FOOD_1_CD and

SR_CORE_FOOD_2_CD for the food insecurity core HRSN), and responses to the individual supplemental HRSN items for beneficiaries in bridge organizations who chose to screen for one or more of the supplemental HRSNs (e.g., SR_SPLMTL_EMPLYMT_1_CD and SR_SPLMTL_EMPLYMT_OVRL_SCRN_IND for the employment supplemental HRSN). The ACH data file also includes "overall" indicators for whether the beneficiaries had each of the core HRSNs (e.g., SR_CORE_FOOD_OVRL_SCRNG_IND for the food insecurity core HRSN) and supplemental HRSNs (e.g., SR_SPLMTL_EMPLYMT_OVRL_SCRN_IND for the employment supplemental HRSN). Reference Appendix C for the individual items for each HRSN and how the bridge organizations calculate the HRSN indicators

- **Navigation eligibility** — variables also start with "SR" and include whether the beneficiary has at least one core HRSN (SR_HAS_CORE_HRSN_IND), a code to indicate the number of ED visits in the 12 months prior to screening (SR_ER_VISITS_CD), whether the beneficiary was eligible for navigation (based on having one or more core HRSNs and two or more ED visits; variable called SR_ELGBL_FOR_NVGTN_IND), beneficiary group assignment (intervention or control) for those eligible in the assistance track (SR_GRP_ASGNMT_IND), whether beneficiaries offered navigation opted in for navigation services (navigation eligible in the assistance track intervention group or navigation eligible in the alignment track) (SR_NVGTN_OPT_IN_OUT_IND), and the date the beneficiary opted in, or out of navigation services (SR_NVGTN_OPT_IN_OUT_DT)

- **Navigation case** — variables start with "NC" and include the navigation case identifier (NC_NVGTN_CASE_ID) for those who opted in for navigation, the navigation start (NC_NVGTN_CASE_STRT_DT) and termination (NC_NVGTN_CASE_TRMNTN_DT) dates, and whether the bridge organization completed the personalized action plan (NC_NVGTN_ACTN_PLAN_CMPLT_SW). CMS always requires the personalized action plan completion field, so if a beneficiary has a missing value, it does not necessarily mean the beneficiary did not work with the navigator to complete the personalized action plan. It is possible the navigator completed the personalized action plan and the AHC data system did not document it.

- **Navigation event** — variables start with "NE" and include the total number of contacts (NE_NVGTR_CNTCT_ATMPT_NUM) and the total number of successful contacts (NE_NVGTR_SUCSFL_CNTCT_NUM) during the navigation case period. It also includes the average duration of successful contacts between the navigator and the beneficiary (NE_NVGTR_AVG_CNTCT_MNTS_NUM). A successful contact is one where the navigator reached the beneficiary to discuss their HRSNs. An unsuccessful contact is one where the navigator could not reach the beneficiary. CMS did not require bridge organizations to report navigation events in the AHC Data System, so the navigation event variables may not capture all contacts for all beneficiaries navigated across all bridge organizations. Eighty-four percent of navigation cases have at least one contact (i.e., NE_NVGTR_CNTCT_ATMPT_NUM is not missing) and 76% have at least one successful contact (i.e., NE_NVGTR_SUCSFL_CNTCT_NUM is not zero or missing)

- **Navigated needs** — variables start with "NN" and include information for each core and supplemental HRSN for which a beneficiary received navigation services (e.g., NN_NVGTD_CORE_FOOD_SW for the food insecurity core, NN_NVGTD_SPLMTL_EMPLYMT_SW for the supplemental employment HRSN). Navigation outcome variables are mutually exclusive and include whether the beneficiary had at least one HRSN resolved (NN_CORE_1_RSLVD_SW) or connected with a CSP for at least one of their navigated HRSNs but had no HRSNs resolved (NN_CORE_1_CNCTED_TO_CSP_SW). Other navigation outcome variables include:
  - NN_CORE_ALL_RSLVD_SW — beneficiary had all their **core** HRSNs resolved
  - NN_CORE_ALL_CNCTED_TO_CSP_SW — beneficiary had a CSP connection for all their **core** HRSNs
  - NN_CORE_ALL_OPTOUT_NVGTN_SW — beneficiary opted out of navigation services for all their **core** HRSNs (after opting in for navigation services)
  - NN_CORE_ALL_OUTRCH_ATMPT_FAIL_SW — the navigator could not reach the beneficiary for any of their **core** HRSNs

- NN_CORE_ALL_CSP_UNAVLBL_SW — the navigator did not resolve any **core** HRSNs due to a CSP being unavailable or unable to help
- NN_CORE_ALL_OUTCM_UNK_SW — the outcomes were missing for all their **core** HRSNs

Navigation outcome variables are also available for each core HRSN (e.g., NN_CORE_FOOD_RSLVD_SW, NN_CORE_FOOD_CNCT_CSP_SW, NN_CORE_FOOD_OPTOUT_SW, NN_CORE_FOOD_CNTCT_FAIL_SW, NN_CORE_FOOD_CSP_UNAVBL_SW, and NN_CORE_FOOD_OUTCM_UNK_SW for the food insecurity core HRSN) and each supplemental for bridge organizations that chose to screen for one or more of the supplemental HRSNs (e.g., NN_SPLMTL_EMPLYMT_RSLVD_SW, NN_SPLMTL_EMPLYMT_CNCT_CSP_SW, NN_SPLMTL_EMPLYMT_OPTOUT_SW, NN_SPLMTL_EMPLYMT_CNTCT_FAIL_SW, NN_SPLMTL_EMPLYMT_CSP_UNAVBL_SW, and NN_SPLMTL_EMPLYMT_OUTCM_UNK_SW for the employment supplemental HRSN). Navigation outcomes are based on beneficiary self-reports to navigators.

3.2 Important Considerations

There are several important points to keep in mind when using the AHC RIF:

- A beneficiary was eligible for navigation if they reported one or more **core** HRSNs and two or more ED visits in the 12 months prior to screening. If a beneficiary had a supplemental HRSN but not a core HRSNs, they were not eligible for navigation services in the AHC Model

- The AHC Data System randomly assigned only assistance track (Track = 2) navigation-eligible beneficiaries (i.e., beneficiaries who reported one or more core HRSNs and two or more ED visits in the 12 months prior to screening) to control (30%) versus intervention (70%) groups
  - Those in the control group received a community referral summary only
  - Those in the intervention group (and all beneficiaries in the alignment track) received a community referral summary and bridge organizations offered them navigation services

- There is a small percentage of navigation-eligible screenings (3.3%) with beneficiaries who opted in for navigation services but are missing navigation-related data. More specifically, these beneficiaries have a “1” value for the navigation case opt in/out variable (SR_NVGTN_OPT_IN_OUT_IND) but have missing data for the navigation case (i.e., variables starting with “NC”), navigation events (i.e., variables starting with “NE”), and navigated needs (i.e., variables starting with “NN”) variables. It is possible these beneficiaries opted in, and a navigator never followed up with them

- There is a small percentage of navigation-eligible screenings (1.3%) for beneficiaries in the assistance track without a group (intervention or control) assignment. This is likely due to a technical issue with the AHC Data System that was subsequently resolved. These beneficiaries have a value of “1” for SR_ELGBL_FOR_NVGTN_IND, and a missing value for the group assignment variable (SR_GRP_ASGNMT_IND). Most of these beneficiaries also have a missing value for the navigation opt in/out flag (SR_NVGTN_OPT_IN_OUT_IND) indicating the navigator likely did not offer navigation services

- Navigation outcomes are mutually exclusive. For instance, a resolved HRSN does not necessarily mean a CSP provided services to the beneficiary before they resolved the HRSN. The AHC Data System was set up to capture either “Connected to CSP” or “HRSN resolved”

3.3 Frequently Asked Questions

Q: What does it mean to be "eligible for navigation" or “navigation eligible”?

A: CMS considers beneficiaries who report having at least one core HRSN and two or more ED visits in the 12 months prior to screening "eligible for navigation" or “navigation eligible.” Bridge organizations did not offer navigation services to assistance track control group beneficiaries with an "eligible" screening (i.e., 1+ core HRSNs and 2+ ED visits).

Q: What is meant by “navigation case”?

A: When navigation-eligible beneficiaries who opted in for navigation services, the bridge organization opened a “navigation case,” assigned a case ID (NC_NVGTN_CASE_ID) and provided navigation services for up to 12 months. Bridge organizations could only open one navigation case at a time.

Q: Is it possible for a beneficiary screening to link to more than one navigation case?

A: No, the model only allowed one navigation case to link to a screening, and the navigator opened only one navigation case at a time. If a beneficiary had a new screening and reported a new HRSN while they already had a navigation case open, the navigator could add the new HRSN to the open navigation case. It is also possible that a navigator could have learned about a new HRSN during their monthly outreach with the beneficiary. In those instances, the navigator could add the new HRSN to the open navigation case without a formal screening.

Q: Is it possible to compare navigation outcomes between the assistance track intervention and control groups?

A: Navigators did not collect navigation outcome data (i.e., variables starting with “NN”) for navigation-eligible beneficiaries in the assistance track control group. For those who received navigation services, navigators attempted to contact the beneficiary at least once per month to discuss beneficiaries' progress toward resolving their HRSNs. During that outreach, navigators asked beneficiaries if they had connected to a CSP and/or had their HRSNs resolved. Navigators enter this information outcome data into the AHC Data System. Doing something similar for those in the control group, would have provided services that navigators were instructed to limit to the those in the intervention group.

Q: How do I know if a beneficiary with a resolved HRSN was connected to a CSP?

A: Unfortunately, there is no way to determine if a beneficiary connected with a CSP prior to resolving their HRSNs. The navigation outcomes are mutually exclusive. If the data shows a beneficiary with a CSP connection, this means the navigator did *not* code them as having their HRSN resolved. The AHC Model evaluation reported, based on qualitative interviews with navigators and beneficiaries, that beneficiaries did not necessarily rely on CSPs to help resolve their HRSNs. More specifically, some navigators and beneficiaries reported that beneficiaries relied on family or friends to help resolve their HRSNs. The evaluation also reported, based on a survey of a subset of seven percent of navigation-eligible beneficiaries including assistance track control group beneficiaries, no difference in connection to a CSP or resolution of the HRSN between the intervention and control groups.

Q: **Were beneficiaries with one or more supplemental HRSNs, but no core HRSNs, eligible to receive navigation services?**

A: No. For the AHC Model, the bridge organization offered navigation services to beneficiaries with one or more **core** HRSNs and two or more ED visits in the assistance track intervention group or in the alignment track. The bridge organization did provide navigation services for supplemental HRSNs when the beneficiary also had one or more core HRSNs.

Q: If a bridge organization identifies multiple HRSNs in a screening, and the beneficiary opts in for navigation services, will the beneficiary receive navigation services for all HRSNs identified in the screening?

A: Beneficiaries could opt out of navigation services for any or all their HRSNs after having opted in for navigation services. For example, a beneficiary who screened positive for food, transportation, and utilities HRSNs (i.e., SR_CORE_FOOD_OVRL_SCRNG_IND, SR_CORE_TRNSPRTN_OVRL_SCRNG_IND, and SR_CORE_UTLTY_OVRL_SCRNG_IND are equal to 1) could decide to receive navigation services for the food and transportation HRSNs, but not the utilities HRSN (i.e., SR_CORE_FOOD_OVRL_SCRNG_IND and SR_CORE_TRNSPRTN_OVRL_SCRNG_IND are equal to 1, but SR_CORE_UTLTY_OVRL_SCRNG_IND is equal to 0). There is a small percentage of screenings where the beneficiary opted out of navigation services for all their HRSNs, after having opted in for navigation services overall.

Q: Does every beneficiary in the AHC RIF have a Medicaid or Medicare ID that users can link to claims data files in the CCW VRDC?

A: Most beneficiaries (94%) in the AHC RIF have a Medicaid and/or Medicare ID that researchers can use to link to claims data files in the CCW VRDC. The remaining beneficiaries had Medicare and/or Medicaid IDs or other identifying information that AHC Model algorithms could not associate with the Medicaid or Medicaid files in the CCW VRDC.

The AHC Bridge organizations obtained Medicaid beneficiary identifying information (e.g., Medicaid ID card, state, zip code, first and last name, date of birth) that the CMS AHC Model used to join to the CCW MSIS_ID in the Transformed Medicaid Statistical Information System (T-MSIS) Analytic Files (TAF) (or in the Medicaid Analytic eXtract (MAX) files for applicable states for 2015 – which is part of a 3-year look back period for the AHC Model). An MSIS_ID was not always obtained.

The AHC Bridge organizations obtained Medicare beneficiary identifying information (e.g., Medicare ID card [i.e. Health Insurance Claim Number or HIC, first and last name, date of birth) that the CMS AHC Model used to identify a CCW BENE_ID using an internal “crosswalk” process. A BENE_ID was not always obtained.

4.0 Linking with Other CCW Data Files

By design, the beneficiaries in the AHC Model are Medicare or Medicaid beneficiaries, and many dually enroll in both Medicare-Medicaid.

The AHC RIF includes encrypted Medicare (BENE_ID) and Medicaid (MSIS_ID) identifiers that researchers can link with Medicaid and Medicare eligibility and enrollment information as well as claims data to derive demographic characteristics, and expenditure and utilization outcomes for Medicaid, Medicare FFS, and Medicare Advantage (MA) beneficiaries the AHC Model screened. The beneficiary payer type field (BENE_INSRNC_TYPE_CD) in the AHC RIF indicates whether the beneficiary was enrolled in Medicare, Medicaid, or both.

The unique CCW beneficiary identifier (BENE_ID) provides a common link across all available data types, thus allowing data users to link the AHC data to beneficiary and claims data in the CW.

The unique CCW beneficiary identifier field is specific to the CCW and does not apply to any other identification system or data sources. CCW encrypts this identifier and all data files before delivering the data files to researchers.

4.1 Medicaid Data Linkage

Researchers can link the AHC RIF to Medicaid files such as TAF RIF in the CCW VRDC. Data users can link to T-MSIS files by matching MSIS_ID and STATE_CD in the AHC RIF with the MSIS_ID and State fields in the desired Medicaid file where MSIS_ID in the AHC RIF is the encrypted MSIS ID and STATE_CD is the two-character state abbreviation for the state of residence of the given beneficiary. In the AHC RIF, 65% of the records have an MSIS_ID.

4.2 Medicare Data Linkage

Researchers can link the AHC RIF to Medicare files such as Medicare FFS claims files and Medicare Advantage encounter data files in the CCW. The BENE_ID field in the AHC RIF is equivalent to the BENE_ID variable in Medicare FFS claims and Medicare enrollment files and data users can link the AHC Model screened beneficiaries to Medicare FFS claims and Medicare enrollment data. In the AHC RIF, 43.5% of records have a BENE_ID. The Data Dictionaries tab on the CCW website describes the variables in the FFS claims files; researchers may also reference the *CCW Medicare Administrative Data User Guide* on the CCW website.

The MA encounter data RIFs are available to researchers starting with 2015. Medicare Advantage Organizations (MAOs) are private managed care plans, such as health maintenance organizations (HMOs), preferred provider organizations (PPOs), private fee-for-service plans (PFFS), and special needs plans (SNPs) that provide Medicare Part A and Part B services. MAOs submit data to CMS that the CCW team uses to create the RIFs.

The CCW team adds key variables in the data files to help researchers join them together as appropriate (e.g., the unique CCW-assigned beneficiary identifier [BENE_ID], the claim identifier [CLM_ID], the claim line/record number [CLM_LINE_NUM]). The CCW team uses the last date on the claim, referred to as the CLM_THRU_DT, to partition the claims into calendar year files.

Researchers may wish to obtain Medicare FFS claims or encounter data for a population they identify within the AHC data files. If interested in claims for a beneficiary population, they should use the BENE_ID to perform this linkage. Remember that the AHC Model activities included in these data files, occurred over a period of several years (i.e., the data include screening dates in 2018 through 2022). Researchers may wish to examine claims or encounter data before, during, or after these screenings. Researchers should select the months and year(s) of the claims or encounter files to correspond with the desired pre/post period using the reference dates within the file (e.g., the first screening date and last screening date [variable called SR_SCRNG_DT] in the AHC data file – reference Appendix B).

5.0 Receiving CCW Data

This section describes the content and format of the CCW Medicare AHC data package that the CCW team makes available to researchers. The CCW team provides data files to the researcher in the following formats.

5.1 Within the CCW VRDC

The AHC file is available in the CCW VRDC SAS library called CMMI_AHC. This library contains the data file:

AHC.sas7bdat

The data set includes the full screening period May 2018–April 2023.

5.2 Physical Shipment of Data

Some researchers receive a physical data shipment from the CCW team. There are one or more folders on the physical media, each containing multiple files. The CCW team organizes the folders by request number as depicted below:

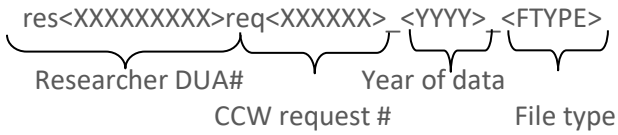
XXXXX (folder with your CCW data request number)
Extract file documentation

The researcher will find a folder named 2023 inside the request number folder that contains the AHC data file. If the data request contains additional types of data besides AHC, there could be additional folders.

The CCW team creates password protected executable files (self-decrypting archives [SDA]) that contain the AHC data file.

Inside the 2023 folder, there is a Read Me file and the AHC SDA (reference Table 1 and Table 2).

The naming convention for the SDA is as follows:



For example, if the DUA # was 000077777, the CCW request number was 012345, the year for AHC is 2023 and the file type is AHC.

The folders and data files would look like this:

12345
    2023
        READ_ME_FIRST_REQ12345_2023.txt
        res000077777_req012345_2023_AHC.exe

Table 1. Format and naming convention for the CCW files

File	File description
READ_ME_FIRST_REQ12345_2023.txt	This is a text file that describes the files contained in the output package. Filename example: READ_ME_FIRST_REQ12345_2023.txt
res000077777req012345_2023_AHC.exe	This is the SDA executable that researchers must run to decrypt and uncompress the AHC data files. In this example, 000077777 is the DUA number, 012345 is the request number, and 2023 is the year of the data. This executable includes v8 SAS read-in program, the .csv file, and .fts file containing the layout and record counts.

AHC SDA contents

File	File description
ahc_res<0000nnnnn>_req<0nnnnn>_2023.csv ahc_res<0000nnnnn>_req<0nnnnn>_2023.fts ahc_read_v8.sas	This set of files includes the AHC .csv (data) file, .fts (layout and record counts) file, and version 8 SAS read-in program.

In addition to the specific data files the researcher requested, the CCW team includes a decryption resource file in the package. Table 2 shows this file.

Table 2. CCW resources accompanying data files

File	Description
Decryption instructions.pdf	This document contains instructions for decrypting/uncompressing the data files.

The encryption technique for files extracted from the CCW uses Pretty Good Privacy (PGP) Command Line software. This method builds a compressed, encrypted, password protected file using a FIPS 140-1/140-2 approved AES256 cipher algorithm. The CCW team builds the SDA on the CCW production server, downloads it to a desktop PC, and burns it to a CD, DVD, or USB hard drive depending on the size of the files.

After the CCW team ships the data to the researcher, they send the password to decrypt the archive to the researcher via email. Each researcher request has a unique encryption. The CCW team never packages the password and the data media together. To decrypt the data files, the researcher accesses the email containing the decryption password. The data package contains detailed instructions for using this password.

6.0 Where to Get Assistance

Researchers interested in working with CCW data should contact ResDAC. They offer free assistance to researchers using Medicare and Medicaid data for research. The ResDAC website provides links to descriptions of the CMS data available, request procedures, supporting documentation, such as record layouts and SAS input statements, workshops on how to use Medicare and Medicaid data, and other helpful resources. Visit the ResDAC website at http://www.resdac.org for additional information.

ResDAC is a CMS contractor, and researchers should first submit requests to ResDAC for assistance in the application, obtaining, or using the CCW data. Researchers can reach ResDAC by phone at 1-888-973-7322, email at resdac@umn.edu, or online at http://www.resdac.org.

If a ResDAC technical advisor is unable to answer questions, the advisor directs the researcher to the appropriate person. If the researcher requires additional CMS data (data not available from the CCW) to meet research objectives, or has any questions about other data sources, the researcher should first visit the ResDAC website.

The CCW Help Desk staff provides assistance between 8:00 am to 5:00 pm ET, Monday through Friday (excluding most federal holidays). Contact the CCW Help Desk at ccwhelp@ccwdata.org or 1-866-766-1915.

Appendix A — List of Acronyms

Acronym	Definition
ACO	Accountable care organizations
AHC	Accountable Health Communities
BENE	Beneficiary
CCW	Chronic Conditions Warehouse
CDS	Clinical delivery site
CMMI	CMS Innovation Center
CMS	Centers for Medicare & Medicaid Services
CRS	Community referral summary
CSP	Community service provider
DUA	Data Use Agreement
ED	Emergency department
FFS	Fee-for-service
HRSN	Health-related social need
MA	Medicare Advantage
MAO	Medicare Advantage Organizations
MAX	Medicaid Analytic eXtract
NCE	No-cost extension
PGP	Pretty Good Privacy
ResDAC	Research Data Assistance Center
RIF	Research identifiable file
SDA	Self-decrypting archives
TAF	T-MSIS Analytic Files
T-MSIS	Transformed Medicaid Statistical Information System
VRDC	Virtual Research Data Center

Appendix B — Screening and Model Dates by Bridge Organization ID

CMS gave bridge organizations that ended model participation between April 2022 and January 2023 three months after their participation ended to make data corrections. CMS required bridge organizations that ended participation in April 2023 to submit all data corrections by April 2023. Reference Table 3 for the first and last screening dates (variable called SR_SCRNG_DT), no cost extension length and model end date by bridge organization identifier (variable called AHC_BRDG_ORG_ID).

Table 3. First and last screening dates, no-cost extension length, and model end date by bridge organization identifier

Bridge organization identifier	First screening date	Last screening date	No-cost extension length (months)	Model end date	Notes
B01	10/10/2018	1/28/2022	0	4/30/2022	
B02	11/19/2018	1/31/2022	0	4/30/2022	
B03	7/27/2018	1/31/2023	12	4/30/2023	
B04	9/24/2018	10/31/2021	5	9/30/2022	
B05	11/26/2018	1/27/2022	8	12/31/2022	
B06	6/4/2018	1/6/2023	12	4/30/2023	
B07	8/1/2018	1/31/2023	12	4/30/2023	
B08	5/3/2018	12/29/2022	12	4/30/2023	
B10	5/1/2018	4/29/2022	0	4/30/2022	
B11	10/8/2018	1/27/2022	0	4/30/2022	
B12	7/2/2018	9/12/2022	6	10/31/2022	
B13	7/31/2018	9/15/2020	0	11/1/2020	Voluntarily terminated in 2020
B14	11/5/2018	1/14/2023	12	4/30/2023	
B15	8/1/2018	4/30/2019	0	5/1/2019	Voluntarily terminated in 2019 before navigating any beneficiaries for 12 months
B16	7/25/2018	1/27/2023	12	4/30/2023	
B17	8/1/2018	8/19/2022	8	12/31/2022	
B18	9/12/2018	4/30/2022	0	4/30/2022	
B19	7/18/2018	11/5/2021	0	4/30/2022	
B20	9/29/2018	3/31/2022	2	6/30/2022	
B21	9/25/2018	6/28/2019	0	9/1/2019	Voluntarily terminated in 2019 before navigating any beneficiaries for 12 months
B22	9/28/2018	1/31/2022	2	6/30/2022	
B23	9/24/2018	6/1/2022	12	4/30/2023	
B24	9/24/2018	4/28/2022	0	4/30/2022	
B25	10/26/2018	4/20/2022	0	4/30/2022	
B26	10/29/2018	1/31/2023	12	4/30/2023	
B27	9/27/2018	1/30/2023	12	4/30/2023	
B28	10/1/2018	7/28/2022	12	4/30/2023	
B29	10/1/2018	1/31/2022	0	4/30/2022	
B30	8/15/2018	6/30/2022	8	12/31/2022	
B31	11/30/2018	11/1/2022	0	4/30/2023	
B32	10/18/2018	2/1/2022	12	4/30/2023	

NOTE: B09 voluntarily terminated before the AHC Model began.

Appendix C — AHC Health-Related Social Needs Screening Questions

This Appendix lists the individual items and scoring for each core and supplemental HRSN.

This tool is also available at: Standardized Screening for Health-Related Social Needs in Clinical Settings: The Accountable Health Communities Screening Tool - National Academy of Medicine (nam.edu)

And on the CMS website: The AHC Health-Related Social Needs Screening Tool (cms.gov)

C.1 Core HRSNs

C.1.1 Living Situation

The two questions in this domain identifies whether the patient has an HRSN related to housing stability and/or housing quality.

Question	Response options	HRSN identified
What is your living situation today?	I have a steady place to live.	
	I have a steady place to live today, but I am worried about losing it in the future	✓
	I do not have a steady place to live (I am temporarily staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station, or in a park).	✓
Question	**Response options**	**HRSN identified**
Think about the place you live. Do you have problems with any of the following?	Pests such as bugs, ants, or mice	✓
	Mold	✓
	Lead paint or pipes	✓
	Lack of heat	✓
	Oven or stove not working	✓
	Smoke detectors missing or not working	✓
	Water leaks	✓
	None of the above	

- **Scoring:** Patients have an HRSN in the living situation domain if they select any of the response options with a check mark for at least one of the two questions

C.1.2 Food

The two questions in this domain identifies whether the patient has an HRSN related to purchasing food. Both questions share the same response options.

Questions	Response options	HRSN identified
Within the past 12 months, you worried that your food would run out before you got money to buy more.	Often true	✓
	Sometimes true	✓
Within the past 12 months, the food you bought just didn't last, and you didn't have money to get more.	Never true	

- **Scoring**: CMS identifies the patients as having an HRSN in the food domain if they select any of the response options with a check mark for at least one of the two questions

C.1.3 Transportation

The question in this domain identifies whether the patient has an HRSN related to accessing reliable transportation.

Question	Response options	HRSN identified
In the past 12 months, has lack of reliable transportation kept you from medical appointments, meetings, work or from getting to things needed for daily living?	Yes	✓
	No	

- **Scoring:** CMS identifies the patients as having an HRSN in the transportation domain if they respond “Yes” to the question

C.1.4 Utilities

The question in this domain identifies whether the patient has an HRSN related to difficulty in paying utility bills.

Question	Response options	HRSN identified
In the past 12 months, has the electric, gas, oil, or water company threatened to shut off services in your home?	Yes	✓
	No	
	Already shut off	✓

- **Scoring**: CMS identifies the patients as having an HRSN in the utilities domain if they select any of the response options with a check mark

C.1.5 Safety

The four questions in this domain identifies whether the patient has an HRSN related to violence and/or elder or child abuse. All four questions share the same response options.

Questions	Response options	Scoring value
How often does anyone, including family and friends, physically hurt you?	Never	1
How often does anyone, including family and friends, insult or talk down to you?	Rarely	2
How often does anyone, including family and friends, threaten you with harm?	Sometimes	3
How often does anyone, including family and friends, scream or curse at you?	Fairly often	4
	Frequently	5

- **Scoring**: CMS scores each question from one to five, based on the response option. Add up the scoring value for all four questions. Totals will range from four to 20. A score of 11 or higher meets the threshold for identifying a safety need. Organizations should develop a protocol to immediately assess any safety needs for urgency and have referral resources on hand to address such urgent situations. For patients with scores between five and 10, screeners should follow their organization's usual care processes

C.2 Supplemental HRSNs

C.2.1 Financial Strain

The question in the financial strain domain identifies whether the patient has an HRSN related to their ability to pay for basic necessities.

Question	Response options	HRSN identified
How hard is it for you to pay for the very basics like food, housing, medical care, and heating? Would you say it is…	Very hard	✓
	Somewhat hard	✓
	Not hard at all	

- **Scoring**: CMS identifies the patients as having an HRSN in the financial strain domain if they select any of the response options with a check mark

C.2.2 Employment

The question in the employment domain identifies whether the patient has an HRSN related to obtaining and maintaining employment.

Question	Response options	HRSN identified
Do you want help finding or keeping work or a job?	Yes, help finding work	✓
	Yes, help keeping work	✓
	I do not need or want help	

- **Scoring**: CMS identifies the patients as having an HRSN in the employment domain if they select any of the response options with a check mark

C.2.3 Family and Community Support

The two questions in the family and community support domain identifies whether the patient has a need related to their ability to perform daily activities independently and whether they feel isolated or alone.

Question	Response options	HRSN identified
If for any reason you need help with day-to-day activities such as bathing, preparing meals, shopping, caring for children or dependents, managing finances, etc., do you get the help you need?	I don't need any help	
	I get all the help I need	
	I could use a little more help	✓
	I need a lot more help	✓
How often do you feel lonely or isolated from those around you?	Never	
	Rarely	
	Sometimes	
	Often	✓
	Always	✓

- **Scoring**: CMS identifies the patients as having an HRSN in the family and community support domain if they select any of the response options with a check mark for at least one of the two questions

C.2.4 Education

The two questions in the education domain identifies whether the patient has an HRSN related to schooling or training. Both questions share the same response options.

Questions	Response options	HRSN identified
Do you speak a language other than English at home?	Yes	✓
Do you want help with school or training? For example, starting or completing job training or getting a high school diploma, GED, or equivalent.	No	

- **Scoring**: CMS identifies the patients as having an HRSN in the education domain if they check “yes” as their answer to at least one of the two questions

C.2.5 Physical Activity

The two questions in the physical activity domain identifies whether the patient has an HRSN related to weekly exercise.

Questions	Response options	Scoring value
In the last 30 days, other than the activities you did for work, on average, how many days per week did you engage in moderate exercise (like walking fast, running, jogging, dancing, swimming, biking, or other similar activities)?	0	0
	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
On average, how many minutes did you usually spend exercising at this level on one of those days?	10	10
	20	20
	30	30
	40	40
	50	50
	60	60
	90	90
	120	120
	150 or greater	150 or greater

- **Scoring**: Whether CMS identifies the patients as having an HRSN in the physical activity domain depends on 1) the amount of exercise patients engage in each week, and 2) the individual's age. First, calculate [number of days selected] x [number of minutes selected] = [number of minutes of exercise per week]. Second, apply the applicable age threshold:
  - Under 6 years old: No matter the calculation, navigator may not have identified an HRSN
  - Age 6 to 17: Fewer than an average of 60 minutes per day indicates an HRSN
  - Age 18 or older: Fewer than 150 minutes per week indicates an HRSN

  Example: If a 57-year-old indicates that she exercises two days a week for 40 minutes, her score would be 80 minutes per week [2 days x 40 minutes = 80 minute per week]. Because she is over 18 and exercises fewer than 150 minutes per week, she has an identified HRSN for the Physical Activity domain

C.2.6 Substance Use

The four questions in the substance use domain identifies whether the patient has an HRSN related to alcohol, tobacco, and/or drug use.

Questions	Response options	HRSN identified
How many times in the past 12 months have you had five or more drinks in a day (males) or four or more drinks in a day (females)? One drink is 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof spirits.	Never	
	Once or twice	✓
How many times in the past 12 months, have you used tobacco products (like cigarettes, cigars, snuff, chew, electronic cigarette)?	Monthly	✓
How many times in the past 12 months, have you used prescription drugs for non-medical reasons?	Weekly	✓
How many times in the past 12 months, have you used illegal drugs?	Daily or almost daily	✓

- **Scoring**: CMS identifies the patients as having an HRSN in the substance use domain if they select any of the response options with a check mark for at least one of the four questions

C.2.7 Mental Health

The two questions in the mental health domain identifies whether the patient has an HRSN related to mental health challenges. Both questions share the same response options.

Questions	Response options	Scoring value
Little interest or pleasure in doing things?	Not at all	0
	Several days	1
Feeling down, depressed, or hopeless?	More than half the days	2
	Nearly every day	3
Stress means a situation in which a person feels tense, restless, nervous, or anxious or is unable to sleep at night because his or her mind is troubled all the time. Do you feel this kind of stress these days?	Not at all	
	A little bit	✓
	Somewhat	✓
	Quite a bit	✓
	Very much	✓

- **Scoring**: CMS scores each answer option for the first question from zero to three. Add up the scoring value for both parts of the first question. Score totals will range from zero to six. CMS identifies the patients as having an HRSN in the mental health domain if they have a combined score of three or higher for the first question, or if they select any response with a check mark for the second question

C.2.8 Disabilities

The two questions in the disability's domain identifies whether the patient has an HRSN related to a physical, mental, or emotional condition. Both questions share the same response options.

Questions	Response options	HRSN identified
Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions? (5 years old or older)	Yes	✓
Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping? (15 years old or older)	No	

- **Scoring**: CMS identifies the patients as having an HRSN in the disabilities domain if they respond "Yes" to at least one of the two questions

Appendix D — AHC Supplemental Health-Related Social Needs Screening Questions

Table 4 provides the number of bridge organizations that collected each supplemental HRSN and the number of positive screenings for each supplemental HRSN.

Table 4. Number of bridge organizations and number of positive screenings by supplemental HRSNs

Supplemental HRSN	Number of bridge organizations	Number of positive screenings	Bridge organization IDs
Disabilities	2	6,493	B02, B31
Education	3	1,845	B02, B15, B26
Employment	4	2,356	B02, B05, B15, B26
Family and community support	6	12,501	B02, B11 B19, B21, B26, B27
Financial strain	3	5,569	B02, B15, B26
Mental health	3	3,506	B02, B15, B26
Physical activity	2	1,728	B15, B21
Substance use	2	4,350	B12, B26