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SAMPLE 2019-2021 Cohort 22 MEDICARE ADVANTAGE ORGANIZATION

Performance Measurement Report

# **MEDICARE HEALTH**

# **OUTCOMES SURVEY**



CENTERS FOR MEDICARE & MEDICAID SERVICES

> HEALTH SERVICES ADVISORY GROUP

DEPARTMENT OF HEALTH & HUMAN SERVICES Centers for Medicare & Medicaid Services 7500 Security Boulevard Baltimore, Maryland 21244-1850

#### **CENTER FOR MEDICARE**

July 2022

Medicare Advantage Organizations,

The Centers for Medicare & Medicaid Services (CMS) is pleased to provide you with your Medicare Advantage Organization's (MAO) performance measurement results for 2019-2021 Cohort 22 of the Medicare Health Outcomes Survey (HOS). The 2019-2021 Cohort 22 Performance Measurement Report includes results from the Medicare HOS Version 3.0. The report presents performance measurement results for MAOs based on data from the Medicare HOS 2019 Cohort 22 Baseline and 2021 Cohort 22 Follow Up surveys describing changes in health status over time for people with Medicare. CMS encourages MAOs to examine their results for use in quality improvement activities.

The Performance Measurement Report is distributed to help MAOs understand and find their HOS results for key health indicators. Information on the HOS measures used in the Medicare Star Ratings, as well as additional resources to assist MAOs in their quality improvement efforts, is included in the report. The 2019-2021 Cohort 22 Performance Measurement Report also includes an Executive Summary, a Reader's Guide, HOS Highlights, as well as trend information over recent years for your individual MAO.

For more program information, you may submit inquiries to hos@hsag.com or contact Health Services Advisory Group (HSAG) through the HOS Information and Technical Support telephone line at (888) 880-0077, and you may visit the CMS HOS website at www.cms.gov/ Research-Statistics-Data-and-Systems/Research/HOS/index.html.

Sincerely,

Elizabeth Goldstein, PhD Director Division of Consumer Assessment & Plan Performance



# MEDICARE HEALTH OUTCOMES SURVEY SAMPLE MAO REPORT

The following is a **sample** version of the *Cohort 22* Performance Measurement Report made available to all Medicare Advantage Organizations (MAOs) participating in the *2019 Cohort 22 Baseline* and *2021 Cohort 22 Follow Up* Medicare Health Outcomes Surveys.

The figures, tables, and text in this document contain example MAO and state level data; however, all references to the *HOS Total* reflect **actual** data.

The Medicare HOS Information and Technical Support Telephone Line (1-888-880-0077), as well as the HOS email address (<u>hos@hsag.com</u>), are available to provide assistance with report questions and interpretation. A full description of the HOS program may be found at <u>www.hosonline.org</u>.

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This Medicare Health Outcomes Survey (HOS) 2019-2021 Cohort 22 Performance Measurement Report presents aggregate results for participating Medicare Advantage Organizations (MAOs), as well as specific results for MAO HXXXA based on data from the HOS 2019 Cohort 22 Baseline and 2021 Cohort 22 Follow Up surveys. This report includes data for consolidating contracts where applicable, and therefore includes results for HXXXA.

The HOS performance measurement results describe change in health status over time for people with Medicare. The *2019 Cohort 22 Baseline* included a random sample of 572,634 Medicare members, both the aged and disabled, enrolled in 473 MAOs. Of the eligible 562,990 individuals sampled, 39.3% (221,210) completed the baseline survey. A completed survey was defined as one that could be used to calculate a physical component summary (PCS) or mental component summary (MCS) score. Of the 221,210 respondents, 185,532 seniors (adults age 65 or older) returned a completed survey. During the two years between the baseline and follow up surveys, 19 participating MAOs discontinued offering managed care to Medicare members or consolidated with other MAOs. As a result of these changes, there remained 179,778 baseline respondents in 454 contract reporting units (MAOs). This group of 179,778 seniors comprises the *Cohort 22 Performance Measurement* analytic sample.

At the time of follow up, 118,101 members in the *Cohort 22 Performance Measurement* analytic sample were still enrolled in their original MAO. These members are referred to as the *Cohort 22 Performance Measurement* eligible sample since they were alive and eligible for remeasurement. After removing 550 members who were determined to be ineligible at follow up, 117,551 members remained. A total of 74,084 members returned a follow up survey with a calculable PCS or MCS score, yielding a follow up response rate of 63.0%. These 74,084 members comprise the *Cohort 22 Performance Measurement* respondent sample. Figure 1 on the following page depicts the distribution of the sample and the response rates for the national HOS sample and your MAO.

On the following pages of this Executive Summary, the results for MAO HXXXA, StateXX, and the HOS Total respondent sample across key indicators of member health status are found. The primary physical and mental health results are included, as well as trend results for the current and previous two cohorts. The Executive Summary also provides the distribution of member responses at baseline and follow up for general and comparative health, chronic medical conditions, healthy days, and obesity measures. More detailed information about the results is provided in the *Cohort 22 Performance Measurement* Results section of the report. For MAOs with a small number of respondents, caution should be exercised when drawing conclusions from the results throughout this follow up report.

State level statistics in figures and tables are *not applicable* (NA) for Regional Preferred Provider Organization (RPPO) and Private Fee-for-Service (PFFS) contracts. For reporting purposes, these types of plans are not included in any specific state results; however, they are included in the HOS Total results.

# Figure 1: Distribution of the Performance Measurement Sample and Response Rates for HOS Total and MAO HXXXA



<sup>&</sup>lt;sup>A</sup> Members with ineligible surveys at follow up met one of the following criteria: not enrolled in the MAO; bad address and phone number; bad address and mail-only protocol (*Russian only*); or language barrier.

<sup>&</sup>lt;sup>B</sup> Response Rate = [Respondent Sample/(Eligible Sample-Ineligible Surveys)] x 100%.

#### **HOS Performance Measurement Results**

The HOS national average, also referred to in this report as the HOS Total, is based on all MAOs that participated in the performance measurement. Outliers are those MAOs that performed significantly better or significantly worse than expected when compared to the national average. MAOs may be outliers on a measure of physical health, mental health, or both. The overall measure of change in physical health is calculated by combining death status and the PCS score. Change in mental health is calculated using the MCS score.

For the 2019-2021 Cohort 22 Performance Measurement, a statistical assessment of the case-mix adjusted results for mortality and PCS revealed 37 outlier MAOs. There were 12 outlier MAOs that performed "better than expected" and 25 outlier MAOs that performed "worse than expected" compared to the national average. For MCS, statistical assessment of the case-mix adjusted results revealed 22 outlier MAOs. There were 4 outlier MAOs that performed "better than expected" and 18 outlier MAOs that performed "worse than expected" and 18 outlier MAOs that performed "worse than expected" and 18 outlier MAOs that performed "worse than expected" compared to the national average. Additional performance measurement results and details are provided in Tables 1 and 2 below and in the *Cohort 22 Performance Measurement* Results section.

#### **Trends in Performance Measurement Results for MAO HXXXA**

Table 1 presents the trends in the physical health performance measurement results for your MAO. The current cohort results are provided, and when available, results for the past two cohorts are also shown for comparison. The Medicare Star Ratings measure for *Improving or Maintaining Physical Health* is derived from the combined "Percent Better+Same" result in Table 1. More information about this measure and the Medicare Star Ratings is found in the HOS and the Star Ratings section in this report.

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	Percent Better*	Percent Same*	Percent Worse*	Percent Better+Same*	Performance Results**	
2019-2021 Cohort 22	14.12%	48.67%	37.22%	62.78%	<b>\$</b>	
2018-2020 Cohort 21	17.18%	52.57%	30.25%	69.75%	<b>\$</b>	
2017-2019 Cohort 20	17.07%	51.60%	31.33%	68.67%	\$	

#### Table 1: Trends in Physical Health Results over Three Cohorts for MAO HXXXA

NA indicates that the MAO did not have results for the specified cohort.

\* The percent better, same, worse, or better+same refers to member health status within an MAO.

\*\* The statistical significance of each performance result for the MAO is indicated by one of the following symbols:

★ MAO performed significantly better than expected (higher than the national average)

➡ MAO performed significantly worse than expected (lower than the national average)

⇔ MAO performed as expected (the same as the national average)

Table 2 below presents the trends in the mental health performance measurement results for your MAO. Results for the current cohort are displayed, and when available, results for the past two cohorts are also shown. The Medicare Star Ratings measure for *Improving or Maintaining Mental Health* is the combined "Percent Better+Same" result in Table 2.

	Percent Better*	Percent Same*	Percent Worse*	Percent Better+Same*	Performance Results**	
2019-2021 Cohort 22	13.45%	67.48%	19.07%	80.93%	⇔	
2018-2020 Cohort 21	15.23%	63.68%	21.09%	78.91%	⇔	
2017-2019 Cohort 20	15.14%	67.70%	17.16%	82.84%	\$	

#### Table 2: Trends in Mental Health Results over Three Cohorts for MAO HXXXA

NA indicates that the MAO did not have results for the specified cohort.

\* The percent better, same, worse, or better+same refers to member health status within an MAO.

\*\* The statistical significance of each performance result for the MAO is indicated by one of the following symbols:

▲ MAO performed significantly better than expected (higher than the national average)

➡ MAO performed significantly worse than expected (lower than the national average)

⇔ MAO performed as expected (the same as the national average)

#### Health Status Summary for MAO HXXXA

The following health status indicators are displayed as a resource to assist MAOs in their quality improvement efforts by emphasizing areas where members may be doing poorly. Data from these measures are not included in the Medicare Star Ratings.

#### General Health and Comparative Health

Table 3 describes baseline and follow up results for the general and comparative health status of members in MAO HXXXA, StateXX, and the HOS Total. Populations with greater increases between baseline and follow up in the proportion of members who indicated that their *general health* was "Fair" or "Poor" or that their *physical* or *mental health compared to one year ago* was "Slightly worse" or "Much worse" may assume greater risk for mortality.<sup>1,2</sup>

# Table 3: 2019-2021 Cohort 22 Performance Measurement Distributions of Members with Worse Self-Rated General and Comparative Health Status for MAO HXXXA, StateXX, and HOS Total

	General Health Fair or Poor		Comparative Physical Slightly Worse or Much Worse		Comparative Mental Slightly Worse or Much Worse	
	Baseline	Follow Up	Baseline	Follow Up	Baseline	Follow Up
HXXXA	16.7%	22.7%	22.6%	30.7%	8.5%	13.2%
StateXX	20.7%	23.6%	21.6%	27.5%	8.8%	13.8%
HOS Total	21.6%	24.9%	22.6%	27.8%	9.9%	13.6%

#### Chronic Medical Conditions

Table 4 shows the percentage of members with multiple (i.e., two or more) chronic medical conditions at baseline and follow up for MAO HXXXA, StateXX, and the HOS Total. Research demonstrates that having a greater number of chronic conditions increases the risks of the following outcomes: mortality, poor functional status, unnecessary hospitalizations, adverse drug events, duplicative tests, and conflicting medical advice.<sup>3</sup> It may be useful to compare the relative differences in the results from baseline to follow up for MAO HXXXA, StateXX, and the HOS Total.

Multiple Chrome Medical Conditions for MAO HAAAA, StateAA, and HOS I that						
	Multiple Chroni	Multiple Chronic Medical Conditions <sup>§</sup>				
	Baseline	Follow Up				
HXXXA	68.4%	73.0%				
StateXX	72.9%	77.9%				
HOS Total	75.4%	77.8%				

# Table 4: 2019-2021 Cohort 22 Performance Measurement Distribution of Members with Multiple Chronic Medical Conditions<sup>§</sup> for MAO HXXXA, StateXX, and HOS Total

§ Multiple chronic medical conditions are defined as having two or more conditions.

#### Healthy Days Measures

Table 5 shows the percentages of members in MAO HXXXA, StateXX, and the HOS Total with 14 or more days of poor *physical health*, *mental health*, or *activity limitations in the past 30 days*. In general, 14 or more days of poor physical health, mental health, or activity limitations are considered indicative of poor well-being.<sup>4</sup> Healthy Days Measures serve as indicators of populations with greater risk for disease or injury. MAOs may use responses to Healthy Days Measures to identify members in poor health who may have undiagnosed conditions or are having difficulty managing stress or chronic diseases. It may be useful to compare the relative differences in the results for MAO HXXXA, StateXX, and the HOS Total.

# Table 5: 2019-2021 Cohort 22 Performance Measurement Distribution of Members with Worse Health for the Healthy Days Measures for MAO HXXXA, StateXX, and HOS Total

	14 or More Days of Poor Physical Health		14 or M of Poor Me	ore Days ntal Health	14 or More Days of Activity Limitations	
	Baseline	Follow Up	Baseline	Follow Up	Baseline	Follow Up
HXXXA	17.3%	16.9%	9.3%	9.1%	6.2%	8.3%
StateXX	16.0%	17.4%	9.3%	10.5%	8.6%	12.2%
HOS Total	16.3%	18.2%	9.0%	10.0%	10.8%	12.5%

#### **Clinical Measures**

Table 6 illustrates the distribution of underweight, overweight, and obese members across baseline and follow up for MAO HXXXA, StateXX, and the HOS Total. These Body Mass Index (BMI) categories are considered unhealthy and are associated with increased chronic diseases, and in the case of the underweight, increased mortality for the elderly. It may be useful to compare the proportion of members who are in these unhealthy BMI categories for MAO HXXXA, StateXX, and the HOS Total.

# Table 6: 2019-2021 Cohort 22 Performance Measurement Distribution of Members in Extreme Categories of the BMI Measures for MAO HXXXA, StateXX, and HOS Total

	Underweight (BMI < 18.5)		Overw (BMI 25	eight to 29.99)	Obese (BMI ≥ 30)	
	Baseline	Follow Up	Baseline	Follow Up	Baseline	Follow Up
HXXXA	2.3%	3.8%	30.0%	32.1%	33.1%	32.1%
StateXX	2.4%	2.4%	36.4%	35.0%	32.4%	32.0%
HOS Total	1.7%	2.3%	37.8%	36.7%	31.6%	30.2%

**Note:** BMI categories were modified beginning with the 2017 Cohort 20 Baseline Report. Underweight was changed from "<20" to "<18.5."

# **Reader's Guide**

The Reader's Guide is provided to assist MAOs in the use of information in their HOS Performance Measurement Report. This section will guide the reader in identifying key topics, such as the CMS Medicare Star Ratings, and will also answer general questions about the report and data. For further assistance, please refer to the Technical Assistance information below. Additionally, the HOS Highlights section of this report contains information about website content, webinars, and other HOS program updates.

### **Technical Assistance**

The Medicare HOS Information and Technical Support Telephone Line (1-888-880-0077) and Email Address (hos@hsag.com) are available to provide assistance with report questions and interpretation. The CMS HOS website provides general information about the HOS program (www.cms.gov/Research-Statistics-Data-and-Systems/Research/HOS/index.html). A full description of the HOS program is available at www.HOSonline.org.

#### How to Use the Information in this Report

This report is designed to assist MAOs in identifying opportunities to reduce health disparities and explore potential programmatic interventions aimed at maintaining or improving the overall health of their Medicare population. Health status indicators are displayed within demographic groups to emphasize where members are doing poorly. This detail is included to help plans identify potential areas for further investigation.

#### What information can I find in this Performance Measurement Report?

The results for key health indicators derived from the cohort of members at baseline and the two-year follow up are provided in this report. Please refer to the description of each report section below and to the Table of Contents for the specific section pages.

- **HOS Highlights:** introduces new and updated HOS program information, self-paced training webinars, and website resources for MAOs and other data users.
- HOS and the Star Ratings: discusses the HOS measures currently used by CMS for the Medicare Star Ratings. Three HOS measures are reported in both the HEDIS HOS Effectiveness of Care Report and the HOS Performance Measurement Report.
- *Cohort 22* Distribution of the Sample and Response Rates: summarizes the number of participating members and the response rates at the MAO and national levels.
- *Cohort 22 Performance Measurement* **Results:** provides detailed result tables for the primary physical and mental health outcomes measures and other health indicators. Data estimates are provided to the second decimal place for the change score measures (better, same, and worse results) as these estimates are used in the Medicare Star Ratings. This section also provides demographic tables with values highlighted in **red** to indicate sub-groups that are worse off at follow up compared to their baseline. Question numbers in the measure definitions are from the 2021 HOS 3.0 at follow up and may differ from those in the 2019 HOS 3.0 at baseline.

- **Appendix 1:** describes the program, the questions used in the calculation of PCS and MCS scores, and the case-mix adjusted outcomes for the performance measurement results.
- Appendix 2: includes information about the HOS Partners involved in the survey management, instrument design, sampling, administration, report production, and research activities.
- **References:** lists journal articles, technical reports, and website references that are provided throughout the report.

# Where can I find additional HOS Program information, such as sampling methodology, and timelines for the reporting and data distribution?

An overview of the HOS Program, the sampling schedule, and program timelines are available on the Program page of the HOS website at www.HOSonline.org. A table with MAO report and data distribution dates is provided on the Data page of the website.

#### Are HOS measures part of the CMS Medicare Star Ratings?

HOS measures are included in the Medicare Star Ratings, which CMS developed to provide consumer information about MAOs and to reward high-performing health plans. CMS displays MAO information in the Medicare Plan Finder (MPF) tool on the www.medicare.gov/plan-compare website and awards quality bonus payments to the high-performing health plans. For information about the Star Ratings, refer to the HOS and the Star Ratings section in this report.

#### How are the Performance Measurement Reports distributed?

All reports are distributed electronically to participating MAOs through the CMS Health Plan Management System (HPMS), which requires an HPMS User ID. Downloads of the MAO report include summary-level data in a CSV file that contains contract-level survey responses, demographic data, and the three HOS functional health display measures: *Improving or Maintaining Physical Health, Improving or Maintaining Mental Health*, and *Physical Functioning Activities of Daily Living (PFADL)*. Intermediate results of case-mix adjusted PCS and MCS change scores and MAO death results are included in the CSV file to assist MAOs in understanding the measure calculations. Please visit the following CMS site for information on how to establish access to HPMS: www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/HPMS/UserIDProcess.html. If assistance is required regarding HPMS access, contact CMS at hpms\_access@cms.hhs.gov.

#### When will MAOs receive member level data for Cohort 22 Performance Measurement?

The merged baseline and follow up member level data will be distributed to MAOs in the Summer of 2022. MAOs are notified via HPMS about the availability of their merged data and how to request it.

# What is the difference between the Performance Measurement report and the member level data file?

The Performance Measurement report provides analysis of the aggregate data gathered from MAO members and presents results and overall findings for the MAO sample. The member level data file provides the sample and survey data that were compiled for each individual surveyed in the MAO. After the HPMS memo is posted in the summer to announce availability of the report

and data, it is important for MAOs to obtain and review their reports through HPMS and to request their member level data through the HOS Technical Support Email.

# Where can I find overall survey results information for earlier HOS cohorts that can be compared to the information in this report?

The Survey Results section on the HOS website (www.HOSonline.org) provides a table depicting general status information at the national HOS level, including sample sizes, completed surveys, and response rates, for the baseline and follow up cohorts administered and reported to date. Scores for HOS measures that are part of Star Ratings may also be found in the HOS Star Ratings Validation tables on HPMS. Scores for other HOS measures that are not used in the Star Ratings can be found in the HOS Aggregate Score Analysis tables on HPMS. Participating MAOs may also access their earlier reports and table data through HPMS.

#### Where can I find the 2021 NCQA HEDIS<sup>®</sup> Measure results?

The 2021 National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS)<sup>C</sup> results are reported in the 2021 HEDIS HOS Effectiveness of Care Report (HEDIS HOS Report) that is distributed in HPMS as well as on the Star Ratings Validation tables in the HPMS HOS module. The HEDIS HOS measures that continue to be used in the Medicare Star Ratings are: *Improving Bladder Control, Monitoring Physical Activity,* and *Reducing the Risk of Falling.* Between 2012 and 2020, the Osteoporosis Testing in Older Women (OTO) measure was part of the Medicare Part C display measures on the CMS website. As of the 2021 HOS survey administration year, the OTO measure has been retired by the measure steward, NCQA. OTO data are no longer available, and all references to the measure have been removed. Information about the Medicare Star Ratings is also available in the HOS and the Star Ratings section of this report.

# Need More Help?

- MAOs are encouraged to direct their questions to the HOS Technical Support Team at Health Services Advisory Group (HSAG) at hos@hsag.com.
- Information about peer-reviewed articles, technical reports, and manuals related to the HOS is available on the Resources page of the HOS website (www.HOSonline.org). Consult the Home page for a listing of new reports and general updates.
- A glossary consisting of definitions relevant to the Medicare HOS may be accessed from the "Glossary" link at the bottom of site webpages.
- Participating MAOs contracted with a CMS approved survey vendor to administer the survey following the HOS protocol that is specified in the NCQA HEDIS 2019 and HEDIS Measurement Year (MY) 2020, Volume 6: Specifications for the Medicare Health Outcomes Survey manuals.<sup>5,6</sup> The most recent manuals (HEDIS 2016 Volume 6 HEDIS MY 2020) are available at no cost from the NCQA Store (https://store.ncqa.org/hedis-quality-measurement/hedis-specifications-for-the-medicare-health-outcomes-survey.html). Copies of older HEDIS publications may be obtained by calling NCQA Customer Support at 1-888-275-7585.

<sup>&</sup>lt;sup>C</sup> HEDIS is a registered trademark of the National Committee for Quality Assurance (NCQA).

# **HOS Highlights**

### Changes to the Aggregate Score Analysis tables in the Health Plan Management System (HPMS)

This year, the Aggregate Score Analysis tables have been modified and expanded. While in previous years there were only two tables, there are now three tables. The third table is titled "Other Health," and will be available in addition to the existing "Physical Health" and "Mental Health" tables. The Physical Health table includes: Physical Component Summary Score, Percent Reporting Health Now Compared to 1 Year Ago (Better/Same), Percent Reporting Problems with 2 or More ADLs, Percent Reporting 2 or More Chronic Diseases, Percent Reporting 14 or More Physically Unhealthy Days, and Percent Reporting Obesity with 30+ Body Mass Index (BMI). The Mental Health table includes: Mental Component Summary Score, Percent Reporting Depressive Symptoms, and Percent Reporting 14 or More Mentally Unhealthy Days. The Other Health table includes three new measures as well as the Percent Deceased Within 2 Years of Baseline Survey measure which was previously found on the Physical Health table. The three new measures are: Percent Reporting 14 or More Days with Activity Limitations due to Poor Health, Percent Reporting 7-8 Hours of Actual Sleep, and Percent Reporting Very Good Overall Sleep Quality. These measures have been added to provide MAOs with a wider snapshot of member health that may encourage new interventions aimed at improving these health outcomes.

# Enhancement to the CSV file accompanying the Performance Measurement Report

Beginning in 2013, the MAO summary-level CSV data file has included a range of aggregate information such as survey responses, demographic data, PCS and MCS scores, and PFADL scores were added in 2020. In 2021, the summary-level CSV file was expanded to include an indicator for Hispanic ethnicity as well as intermediate measures used to derive the final MAO-level outcomes (Alive and PCS better or same; MCS better or same; death). The additional measure data provided may help MAOs better interpret the calculation of the final MAO-level outcomes. Exact replication of the final MAO-level Alive and PCS better or same results may not be possible because MAOs do not have access to records of disenrolled members that are included in the case-mix adjustment for death, which is used for PCS results.

### Physical Functioning Activities of Daily Living (PFADL) Display Measure

The longitudinal PFADL change score measure is part of the 2023 display measures on both the CMS website and the 2023 Star Ratings Validation Tables in HPMS. CMS may consider the measure for the Star Ratings in the future.

The PFADL is a longitudinal change score measure derived from the HOS. It measures, at the MAO contract level, the change over two years in the physical functioning of members enrolled in MAO contracts and complements the measurement of physical health status. The PFADL change score can be interpreted as approximating the percent of function retained over two years by the average member in an MAO. The PFADL scale combines two VR-12 physical

functioning questions (limitations in moderate activities and climbing stairs) with the six activities of daily living (ADL) questions to create a Likert-type scale. PFADL scale scores are created from responses to the baseline and the two-year follow-up questions. A more detailed methodology used to create the PFADL change score measure is described on the Survey Results page of the HOS website (www.HOSonline.org).

#### **Implementation of HOS 3.0**

The 2021 survey administration used the HOS 3.0 that was implemented in 2015. The HOS 3.0 uses the Veterans RAND 12-Item Health Survey (VR-12) as the core physical and mental health outcomes measures, and the three HEDIS Effectiveness of Care measures are *Management of Urinary Incontinence in Older Adults, Physical Activity in Older Adults,* and *Fall Risk Management.* The HOS survey instruments are available on NCQA's website at www.ncqa.org/hedis/measures/hos.

### **HOS Website**

The HOS website is a resource that provides:

- Historical overview of the project
- Updates on project activities
- Reports of ongoing research efforts
- Access to public use files and supporting documentation
- Clearinghouse of electronic information about journal articles, bibliographies, and technical reports relating to the HOS
- Links to project partners

### **Semiannual HOS Newsletters**

The HOS Newsletters include information about HOS products, services, and timelines; program updates; self-paced training programs; and other relevant topics, such as sharing of best practices and highlights of recent research. HOS Newsletters are circulated semiannually via email, in winter and summer, to MAO contacts and users of HOS technical support. HOS Newsletters are also posted on the HOS website. If you would like to receive the HOS Newsletters, contact the HOS Information and Technical Support team at hos@hsag.com.

# **Participating MAOs**

The current MAO Performance Measurement Contract List can be downloaded from the Survey Results section on the Survey page of the HOS website (www.HOSonline.org).

# **CMS Approved Survey Vendors**

The Survey Vendors section under the Program page of the HOS website provides an annual list of CMS approved survey vendors. Survey vendors are required to reapply for approval each year. There were four survey vendors approved to administer the HOS in 2021.

### Frequently Asked Questions (FAQs)

The "FAQs" link at the bottom of site webpages (www.HOSonline.org) provides answers to frequently asked questions about the Medicare HOS. Examples are questions about where to find the current survey administration documents and HOS questionnaires, how MAOs may obtain their reports and data, and where to find quality improvement ideas. Information is also provided about the types of files available for researchers and how to obtain the files.

### **Self-Paced Training Webinars**

A series of basic to advanced self-paced training webinars are available on the HOS website. The webinars run approximately 30 minutes in length and may be accessed at any time at the convenience of the user. To access the webinars, go to the Trainings section under the Resources page on the HOS website (www.HOSonline.org).

- Introduction to the Medicare Health Outcomes Survey (HOS): A basic training session appropriate for MAOs that are new to the HOS or others seeking to obtain an overview of the HOS. In addition, the introductory training program provides some practical guidance about how to obtain HOS reports and data.
- Getting the Most from Your Medicare Health Outcomes Survey (HOS) Baseline Report: An intermediate training session that builds on the information from the basic tutorial described above. The training discusses maximizing the use of the HOS Baseline Report to provide information on the health of members and incorporating chronic care improvement programs (CCIPs) in quality improvement activities.
- Using Your Medicare Health Outcomes Survey (HOS) Data: An intermediate training session assisting MAOs with using their HOS data to identify priorities and assess the impact of interventions. It also demonstrates the advantages of linking HOS data with your own MAO data.
- Understanding the Medicare Health Outcomes Survey (HOS) Performance Results Used in the MA Plan Ratings: An advanced training session describing the methodology used in calculating the Performance Measurement Results. The tutorial discusses the primary health outcomes collected from the survey, the PCS and MCS scores, and how they are used to describe changes in the functional status of MAO members over a two-year period. It also discusses how the HOS results are used in the Medicare Advantage (MA) Plan Ratings, also called the Medicare Star Ratings.

### Veterans RAND 12-Item Health Survey (VR-12) Website

Information about the VR-36, VR-12, and VR-6D instruments is available on the Boston University School of Public Health website. The website offers details on development, applications, and references for the VR-12, which is the core health outcomes measure in the Medicare HOS and HOS-M. For information about the instruments and to request permission to use the documentation and scoring algorithms, go to: www.bu.edu/sph/about/departments/healthlaw-policy-and-management/research/vr-36-vr-12-and-vr-6d.

# HOS and the Star Ratings

#### **Medicare Star Ratings**

CMS developed the Medicare Star Ratings to help consumers compare health plans and the care and services they provide based on quality and performance, to make accurate data more transparent and standardized among plans, and to reward top-performing health plans. Consumers can use the Medicare Plan Finder (MPF) tool www.medicare.gov/plan-compare to search for health plans in their geographic area and compare cost estimates and coverage information. CMS rates the relative quality of service and care provided by MAOs based on a five-star rating scale that uses HOS measures combined with other measurement results. Up to 38 unique quality measures were included in the 2022 Medicare Part C and D Star Ratings. These measures include: providing preventive services, managing chronic illness, access to care, HEDIS measures, the Consumer Assessment of Healthcare Providers and Systems (CAHPS<sup>®</sup>) survey, and plan responsiveness.

The Medicare Part C Star Ratings include six contract level HOS measures: three measures of functional health and the three HEDIS Effectiveness of Care measures.

The functional health measures are reported in each MAO's annual HOS Performance Measurement Report. Two results are derived from the VR-12 portion of the HOS, which serves as the core source for the PCS and MCS scores. The final measures are based on the case-mix adjusted PCS and MCS change scores between baseline and follow up surveys, as well as death status, in the Performance Measurement Results section. The PFADL measure is derived from two physical functioning and six activities of daily living (ADL) questions.

- *Improving or Maintaining Physical Health* display measure is the "Physical Health Percent Better or Same" result
- *Improving or Maintaining Mental Health* display measure is the "Mental Health Percent Better or Same" result
- Physical Functioning Activities of Daily Living display measure is the PFADL result

Since 2021, the HEDIS Effectiveness of Care measures are reported in each MAO's annual HEDIS HOS Effectiveness of Care Report. These measures are calculated from questions about information and care members receive from their healthcare providers, using data for the baseline and follow up cohorts from the same measurement year (i.e., a round of data). Member responses are used to derive the HEDIS measures: Management of Urinary Incontinence in Older Adults, Physical Activity in Older Adults, and Fall Risk Management. CMS uses these measures for the Medicare Star Ratings. Further information is available in the HEDIS HOS Report.

- Improving Bladder Control measure is the Treatment of Urinary Incontinence rate
- Monitoring Physical Activity measure is the Advising Physical Activity rate
- Reducing the Risk of Falling measure is the Managing Fall Risk rate

#### 2022 and 2023 Medicare Part C Star Ratings

The HOS cohorts related to data collection, report dissemination, and CMS Medicare Part C Star Ratings results are provided in the Medicare HOS Survey Administration Timeline Table below. This information will guide MAOs in understanding the sources of data used for specific Medicare Star Ratings measures.

The 2022 Medicare Part C Star Ratings were posted on October 8, 2021. Data sources for the 2022 Star Ratings are highlighted yellow in the table below. For instance, the HOS 2018-2020 *Cohort 21 Merged Baseline* and *Follow Up* dataset was used for the two PCS and MCS functional health measures, and the combined 2020 *Cohort 23 Baseline* and 2020 *Cohort 21 Follow Up* dataset was used for the three HEDIS Effectiveness of Care measures.

The 2023 Medicare Part C Star Ratings will be posted in October 2022 and are highlighted green in the table below. The 2019-2021 Cohort 22 Merged Baseline and Follow Up dataset will be used for the two PCS and MCS functional health measures, and the combined 2021 Cohort 24 Baseline and 2021 Cohort 22 Follow Up dataset will be used for the three HEDIS Effectiveness of Care measures.

Additional information about the Medicare Star Ratings can be found on the CMS website at https://go.cms.gov/partcanddstarratings. For any questions related to Medicare Part C and D Star Ratings, you may send an email inquiry directly to PartCandDStarRatings@cms.hhs.gov. Please be sure to include your contract number(s) in the email.

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Year	Baseline Data Collected	Follow Up Data Collected	Baseline Reports	Follow Up Reports	2-yr PCS/MCS Change for Star Ratings	HEDIS Measures for Star Ratings <sup>*</sup>	Star Rating Year
2024	Cohort 27	Cohort 25	Cohort 26	Cohort 24	2020-2022 Cohort 23	2022 Cohort 25 Baseline & 2022 Cohort 23 Follow Up	2024
2023	Cohort 26	Cohort 24	Cohort 25	Cohort 23	2019-2021 Cohort 22	2021 Cohort 24 Baseline & 2021 Cohort 22 Follow Up	2023
2022	Cohort 25	Cohort 23	Cohort 24	Cohort 22	2018-2020 Cohort 21	2020 Cohort 23 Baseline & 2020 Cohort 21 Follow Up	2022
2021	Cohort 24	Cohort 22	Cohort 23	Cohort 21	2017-2019 Cohort 20	2019 Cohort 22 Baseline & 2019 Cohort 20 Follow Up	2021
2020	Cohort 23	Cohort 21	Cohort 22	Cohort 20	2016-2018 Cohort 19	2018 Cohort 21 Baseline & 2018 Cohort 19 Follow Up	2020

#### Medicare HOS Survey Administration and Star Ratings Timeline Table

\* The HEDIS Effectiveness of Care Measures collected by the HOS are calculated from the combined round of baseline and follow up data by reporting year: Management of Urinary Incontinence in Older Adults; Physical Activity in Older Adults; and Fall Risk Management.

#### **MAO Resources for Best Practices and the Star Ratings**

A study titled "Analysis of Key Drivers of Improving or Maintaining Medicare Health Outcomes Survey (HOS) Scores" is available on the HOS website at www.HOSonline.org.<sup>7</sup> The study describes how two-year mortality and two-year changes in the VR-12 items are associated with key HOS measures used in the Medicare Star Ratings. The HOS measures relate to maintaining and improving health and are derived from changes in the PCS and MCS scores. The results from this study clarify the properties of several CMS quality measures and identify which items most influence contract-level PCS and MCS scores.

A resource guide titled "Opportunities for Improving Medicare HOS Results through Practices in Quality Preventive Health Care for the Elderly" is available on the HOS website at www.HOSonline.org.<sup>8</sup> This guide is intended to help MAOs develop and apply strategies that address the HOS items used in the CMS Medicare Part C Star Ratings, including an overview of the HOS, national performance results on HOS items included in the Medicare Part C Star Ratings, best practices in promoting quality preventive health care for the elderly, and HOS resources available to MAOs. Section 1 discusses the prevalence of conditions measured by the HOS items and summarizes national HOS results to highlight opportunities for improvement and intervention strategies. Section 2 provides examples of interventions that some MAOs have used to promote patient/physician communication, screening services, or maintenance of functional status among their members.

A companion literature review titled "Functional Status in Older Adults: Intervention Strategies for Impacting Patient Outcomes" is available on the HOS website at www.HOSonline.org.<sup>9</sup> This literature review synthesizes selected articles about functional status outcomes in older adults and supplements the resource guide. The articles include outcomes that target assessments of health from well-established questionnaires spanning the physical to psychological. In addition, outcome measures include ADLs that capture functional limitations in MA recipients. The articles were selected because they describe interventions that could impact functional status outcomes in elderly populations.

All three documents are available on the HOS website at www.HOSonline.org. The study results may be found and downloaded from the Applications section of the Resources page.

# Cohort 22 Distribution of the Sample and Response Rates

The *Medicare HOS 2019 Cohort 22 Baseline* included a random sample of 572,634 members, including both the aged and disabled, from 473 MAOs. Of the eligible 562,990 individuals sampled, 39.3% (221,210) completed the baseline survey. A completed survey was defined as one that could be used to calculate a PCS or MCS score. Of those 221,210 respondents, 185,532 seniors (adults age 65 or older) returned a completed survey. During the two years between the *2019 Cohort 22 Baseline* survey and the *2021 Cohort 22 Follow Up* survey, 19 MAOs discontinued offering managed care to Medicare members or consolidated with other MAOs. As a result of these changes, 454 reporting units (MAOs), comprising 179,778 senior baseline respondents, remained in the HOS. For purposes of MAO comparisons, this group of 179,778 members comprises the *Cohort 22 Performance Measurement* analytic sample.

The performance measurement results are based on the analytic sample of 179,778 seniors (see Figure 2) and not the entire population sampled at baseline and follow up. At the national level, 16,762 (9.3%) members died between baseline and the two-year follow up. Another 44,915 (25.0%) members voluntarily disenrolled from their MAOs during the same two-year period. The remaining 118,101 (65.7%) seniors were still alive and still enrolled in their original MAO at the time of follow up. These members are referred to as the *Cohort 22 Performance Measurement* eligible sample. From the eligible sample, 550 members were determined to be ineligible at follow up.<sup>D</sup> Of the remaining 117,551 members, 43,467 did not respond and 74,084 returned a follow up survey that could be used to calculate a PCS or MCS score. These 74,084 seniors comprise the *Cohort 22 Performance Measurement* respondent sample, yielding a follow up response rate of 63.0%.<sup>E</sup>

Focusing on the 454 reporting units (MAOs) at follow up, the average number of respondents per MAO was 164, with a range of 1 to 599 respondents. Twenty-five percent of MAOs had 214 or more respondents, while 25% had 98 or less. Ten percent of the MAOs had 267 or more respondents, and 10% had 62 or fewer respondents. Based on the analytic criteria, the mean MAO level response rate at follow up was 61.2%, with a range of 25.0% to 100.0%. Twenty-five percent of MAOs had a response rate of 66.7% or greater, while 25% had a response rate of 56.2% or less. Ten percent of the MAOs had a response rate of 71.0% or higher, and 10% had a response rate of 51.6% or lower.

MAOs with a small number of respondents should exercise **caution** when drawing conclusions from the results as the sample size may be insufficient to allow meaningful interpretation.

<sup>&</sup>lt;sup>D</sup> Ineligible members at follow up met one of the following criteria: not enrolled in the MAO; bad address and phone number; bad address and mail-only protocol (*Russian only*); or language barrier.

<sup>&</sup>lt;sup>E</sup> The overall baseline and follow up response rates in the report are calculated after data processing and score calculation. Initial overall survey completion rates were calculated by NCQA following each data collection and used the criteria of at least 80% completion of survey items and all 6 ADL questions answered. These initial rates may be reported elsewhere and will differ from the overall response rates in this report.

# MAO HXXXA

This report includes data for consolidating contracts where applicable, and therefore includes results for HXXXA.

The original baseline sample size for MAO HXXXA was 1,159; however, 793 members were not included in the analytic sample because they did not complete the baseline survey, were not seniors, or were determined to be ineligible members at baseline.<sup>F</sup> Therefore, your MAO's analytic sample size is 366. Of the 366 members in your MAO's analytic sample, 97 voluntarily disenrolled from your MAO and 43 died between baseline and follow up. Of the 226 members sent a follow up survey, one was determined to be ineligible. Of the remaining 225 members, there were 84 who did not complete the survey and 141 who returned a completed follow up survey. This represented an overall follow up response rate of 62.7% for your MAO, as compared with the HOS follow up response rate of 63.0%.

On the following page, Figure 2 presents the Distribution of the Performance Measurement Sample and Response Rates for the HOS Total, as well as for MAO HXXXA.

<sup>&</sup>lt;sup>F</sup> Ineligible members at baseline met one of the following criteria: deceased; not enrolled in the MAO; bad address and phone number; bad address and mail-only protocol (*Chinese and Russian only*); language barrier; or were removed from sample due to age less than 18 years.

# Figure 2: Distribution of the Performance Measurement Sample and Response Rates for HOS Total and MAO HXXXA



<sup>&</sup>lt;sup>G</sup> Members with ineligible surveys at follow up met one of the following criteria: not enrolled in the MAO; bad address and phone number; bad address and mail-only protocol (*Russian only*); or language barrier.

<sup>&</sup>lt;sup>H</sup> Response Rate = [Respondent Sample/(Eligible Sample-Ineligible Surveys)] x 100%.

### **Cohort 22 Performance Measurement Results**

The HOS 2019-2021 Cohort 22 Performance Measurement results describe change in health status over time for members in MAO HXXXA. Health outcomes are assessed for a randomly selected set of members from each participating MAO contract over a two-year interval, with a baseline measure and a two-year follow up. In general, functional health status, as measured by the PCS score, is expected to decline over time in older age groups, while mental health status, as measured by the MCS score, may decline at a slower rate. The presence of one or more chronic medical conditions is associated with declines in both scores.<sup>10</sup> Though individual health status outcomes depend on individual medical care and personal circumstances, MAO performance may change over time, and is reported in the performance measurement results.

Case-mix variables of baseline demographics and health status as well as selected survey design variables are risk adjusted to make equitable health outcome comparisons across MAOs.<sup>5</sup> Risk-adjustment is a statistical technique that adjusts for variations in patient outcomes that stem from differences in existing patient characteristics rather than differences in performance between MAOs. The risk-adjusted outcomes are aggregated for the respondents in your MAO, and yield the MAO level performance measurement results.

The performance measurement analysis compares the percentages of members in the MAO who are better, the same, or worse than expected at the two-year follow up to the national averages for both physical and mental health. Death and PCS scores are combined into one overall measure of change in physical health, while mental health is measured by MCS scores alone. There are six main categories of actual health outcomes used in the performance measurement analysis:

- 1. Alive and physical health better
- 2. Alive and physical health the same
- 3. Dead or physical health worse
- 4. Mental health better
- 5. Mental health the same
- 6. Mental health worse

The member samples for the performance measurement analysis include the sample of baseline respondents, which is used to calculate the MAO death rate, and the sample of baseline respondents that completed the follow up survey, which is used to create the final adjusted change scores.

- Members who were age 65 or older and completed the HOS at baseline with a calculable PCS or MCS score were included in the analysis of the two-year death rate for MAOs that were still participating at follow-up.
- Members were included in the analysis of PCS and MCS change scores if they were age 65 or older at baseline, enrolled in their original MAO at the time of the follow up sampling, and completed the HOS baseline and follow up surveys with a calculable PCS or MCS change score.

Member level results were aggregated to derive the MAO and HOS national percentage values. The HOS national average is based on all MAOs that participated in performance measurement. Outliers are those MAOs that performed significantly better or significantly worse than expected when compared with the national average. MAOs may be outliers on a measure of physical health or on a measure of mental health. An MAO that differed from the HOS national average by less than  $\pm 2$  standard deviations over the two-year period (based on case-mix adjusted results) is performing the same as expected. An MAO that had a significantly *higher* proportion of members whose health remained stable or improved (Alive and PCS better or same; MCS better or same) over the two-year period is a positive outlier. An MAO that had a significantly *lower* proportion of members whose health improved or remained stable over the two-year period is a negative outlier. For detailed information on the calculation of performance measurement results, see Appendix 1.

### **Physical Health**

Performance measurement results for physical health combine risk-adjusted two-year mortality rates and changes in PCS scores for the primary physical health outcome (Alive and PCS better or same). Over the two-year follow up period, 15.28% of members at the national level had better physical health than expected, 52.14% were the same as expected, and 32.58% were worse than expected. The case-mix adjusted results for mortality and PCS revealed that at the national level, MAOs differed significantly on both the mortality and PCS measures. An overall *F* test showed that mortality differed significantly at the MAO level (p < 0.0001). "PCS better or same" differed significantly across all MAOs (p = 0.0147), as did "PCS better" (p < 0.0001).

Given that the physical health measures of both "Death" and "PCS better or same" differed significantly at the MAO level, an outlier analysis for the primary outcome (Alive and PCS better or same) was performed using *t*-tests. In the *Cohort 22 Performance Measurement* results, there were a total of 37 PCS outliers; 12 MAOs were identified as performing better than expected and 25 MAOs were identified as performing worse than expected, compared with the national average for physical health.

#### How Is Your MAO Doing?

On the next page, Table 7 depicts the Physical Health Performance Measurement results for MAO HXXXA, each MAO in the state, the state total, and HOS Total. The Medicare Star Ratings display measure for *Improving or Maintaining Physical Health* is derived from the combined "Percent Better+Same" result (67.42% for the HOS Total in the table).

In terms of <u>physical health</u>, your MAO performed as expected when compared to the HOS national average.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> If your MAO performed "as expected," it does not indicate your MAO performed well or performed poorly. It indicates your MAO's performance on this measure differed by less than 2 standard deviations from the HOS national average.

# Table 7: 2019-2021 Cohort 22 Physical Health Performance Measurement Results for MAOs in the state, StateXX and HOS Total

	Percent Better*	Percent Same*	Percent Worse*	Percent Better+Same*	Performance Results**
HXXXA	14.12%	48.67%	37.22%	62.78%	\$
HXXXB	16.52%	48.61%	34.87%	65.13%	\$
HXXXC	17.22%	50.39%	32.39%	67.61%	\$
HXXXD	15.19%	51.59%	33.23%	66.77%	<b>\$</b>
HXXXE	17.01%	50.11%	32.88%	67.12%	\$
StateXX	15.24%	50.96%	33.80%	66.20%	
HOS Total	15.28%	52.14%	32.58%	67.42%	

\* The percent better, same, worse, or better+same refers to member health status within an MAO.

\*\* The statistical significance of the performance result for the MAO is indicated by one of the following symbols:

★ MAO performed significantly better than expected (higher than the national average)

➡ MAO performed significantly worse than expected (lower than the national average)

⇔ MAO performed as expected (the same as the national average)

Data estimates are provided to the second decimal place for PCS and MCS change score measures as these estimates are used in the Medicare Star Ratings.

### **Mental Health**

Performance measurement results for mental health are based on risk-adjusted two-year changes in MCS scores for the primary mental health outcome (MCS better or same). Over the two-year follow up period for mental health (MCS) at the national level, 13.54% of members were better than expected, 68.19% were the same as expected, and 18.27% were worse than expected. The case-mix adjusted results for MCS reveal that at the national level MAOs differed significantly on this measure. An overall *F* test showed that "MCS better or same" differed significantly at the MAO level (p = 0.0069), as did "MCS better" (p < 0.0001).

Given that the primary mental health outcome measure (MCS better or same) differed significantly at the MAO level, outlier analysis for MCS was performed using *t*-tests. In the *Cohort 22 Performance Measurement* results, there were a total of 22 MCS outliers: 4 MAOs were identified as performing better than expected and 18 MAOs were identified as performing worse than expected compared with the national average for mental health.

The MCS may also be used as a screening tool for depression risk. Previous research suggested that individuals from a sample of the 1998 U.S. general population who have an MCS score of 42 or below are at increased risk for depression.<sup>10</sup> However, results from a Medicare population suggest an MCS score of 48 or below provides a reasonably predictive cut-off for depression risk in the elderly Medicare population.<sup>11</sup>

How Is Your MAO Doing?

On the next page, Table 8 depicts the Mental Health Performance Measurement results for MAO HXXXA, each MAO in the state, the state total, and HOS Total. The Medicare Star Ratings display measure for *Improving or Maintaining Mental Health* is derived from the combined "Percent Better+Same" result (81.73% for the HOS Total in the table).

In terms of <u>mental health</u>, your MAO performed as expected when compared to the HOS national average.<sup>J</sup>

<sup>&</sup>lt;sup>J</sup> If your MAO performed "as expected," it does not indicate your MAO performed well or performed poorly. It indicates your MAO's performance on this measure differed by less than 2 standard deviations from the HOS national average.

# Table 8: 2019-2021 Cohort 22 Mental Health Performance Measurement Results for MAOs in the state, StateXX and HOS Total

	Percent Better*	Percent Same*	Percent Worse*	Percent Better+Same*	Performance Results**
HXXXA	13.45%	67.48%	19.07%	80.93%	<b>\$</b>
HXXXB	14.27%	67.45%	18.28%	81.72%	<b>\$</b>
HXXXC	14.45%	66.60%	18.95%	81.05%	<b>\$</b>
HXXXD	12.47%	67.70%	19.83%	80.17%	<b>\$</b>
HXXXE	15.03%	67.53%	17.44%	82.56%	<b>\$</b>
StateXX	13.94%	67.64%	18.42%	81.58%	
HOS Total	13.54%	68.19%	18.27%	81.73%	

\* The percent better, same, worse, or better+same refers to member health status within an MAO.

\*\* The statistical significance of the performance result for the MAO is indicated by one of the following symbols:

★ MAO performed significantly better than expected (higher than the national average)

➡ MAO performed significantly worse than expected (lower than the national average)

A MAO performed as expected (the same as the national average)

Data estimates are provided to the second decimal place for PCS and MCS change score measures as these estimates are used in the Medicare Star Ratings.

#### **PFADL Change Score Measure**

The PFADL scale combines two VR-12 physical functioning questions (limitations in moderate activities and climbing stairs) with the six ADL questions to create a Likert-type scale, which ranges from 0-16. The PFADL scale has been used since the first *1998-2000 Cohort 1 Performance Measurement* as a baseline functional status covariate in the death models for calculation of Physical Health results, which combine risk-adjusted two-year mortality rates and changes in the PCS score. Responses from the six ADLs are also used by CMS in the annual frailty assessments for Program of All-Inclusive Care for the Elderly (PACE) organizations. For the longitudinal change score, PFADL scale scores are created from the baseline and the two-year follow up questions. The eligible sample used to assess the longitudinal PFADL change measure consists of all members aged 65 or older at HOS baseline measurement for whom baseline and follow-up PCS or MCS scores were available, and who had calculable baseline and follow-up PFADL scale scores.

The PFADL change score measure can be interpreted as approximating the percent of function retained by average MAO members over two years compared to a maximum decline. A realistic clinical goal for many seniors is health maintenance with minimal functional decline, rather than improvement. Predicted PFADL change scores are estimated from a regression model that case-mix adjusts for baseline function. The member level case-mix adjusted PFADL change scores are averaged across members to create contract level scores. Contract-level change scores are on a 0-100 scale, with 100 equivalent to all MA members retaining 100% of baseline function over two years and 0 corresponding to every member in the MA contract experiencing maximum decline. Contract level scores exceeding 100 are re-set to 100.

In contrast to HEDIS measures, the PFADL change score measure for an MAO contract is its mean change score rather than the proportion passing the measure. The PFADL change score has good reliability and is positively correlated with both PCS and MCS scores calculated from HOS. A more detailed methodology used to create the PFADL change score measure is described on the Survey Results page of the HOS website (www.HOSonline.org).

#### How Is Your MAO Doing?

Table 9 below depicts the PFADL change score measure results for MAO HXXXA, each MAO in the state, your state, and the HOS Total. Since the PFADL change score measure approximates the percent of function retained by average MAO members over two years, a higher score indicates little decline in function and therefore higher plan performance, while a lower score indicates greater functional decline and worse plan performance. The PFADL change score is posted as a display measure on the 2023 Star Ratings Validation Tables in HPMS.

#### Table 9: 2019-2021 Cohort 22 Performance Measurement PFADL Change Score Measure **Results for MAOs in the state, StateXX and HOS Total**

	PFADL Change Score*
HXXXA	94.29
HXXXB	97.39
HXXXC	93.38
HXXXD	93.93
HXXXE	95.97
StateXX	94.99
HOS Total	94.21

\* Contract-level change scores are on a 0-100 scale, with 100 equivalent to all MA members retaining 100% of baseline function over two years and 0 corresponding to every member in the MA contract experiencing maximum decline. Contract level scores exceeding 100 are re-set to 100. More detailed information on the scoring and case-mix adjustment of the PFADL change score is described on the Survey Results page of the HOS website (www.HOSonline.org).

Note: If no members reported for this measure, the result is not applicable (NA).

Table 10 depicts the mean PFADL scale at baseline and follow up, and the PFADL change score measure results for MAO HXXXA, your state, and the HOS Total. Baseline and Follow Up PFADL scales range from 0 - 16 and are used to derive the longitudinal PFADL change score measure.

 Table 10: 2019-2021 Cohort 22 Performance Measurement Mean PFADL Scale at Baseline and

 Follow Up and Change Score Measure Results for MAO HXXXA, StateXX and HOS Total

	Mean PFADL Scale at Baseline	Mean PFADL Scale at Follow Up	PFADL Change Score
HXXXA	13.45	13.10	94.29
StateXX	13.41	13.12	94.99
HOS Total	13.77	13.40	94.21

Note: If no members reported for these measures, the results are not applicable (NA).

Table 11 displays the means and percentile distributions of the PFADL change score measure results for your state, and the HOS Total. At the national level, the mean PFADL change score is 94.21, with a minimum of 63.91 and maximum of 100. The top 25% of MAOs had scores of 96.85 or greater, while 25% had scores of 92.51 or lower. Ten percent of MAOs had scores of 98.05 or higher, and 10% had scores of 89.29 or lower.

 Table 11: 2019-2021 Cohort 22 Performance Measurement PFADL Distribution of Change Score

 Measure Results for StateXX and HOS Total

	Mean	SD	P10	P25	Median	P75	<b>P90</b>	Min	Max
StateXX	94.99	1.65	93.38	93.93	94.29	95.97	97.39	93.38	97.39
HOS Total	94.21	4.18	89.29	92.51	95.11	96.85	98.05	63.91	100.0

Note: If no members reported for this measure, the result is *not applicable* (NA). If there was only one MAO in the state, the standard deviation (SD) for the state was *not calculated* (NC).

#### **Demographics**

Table 12 presents the distribution of members' age, gender, race, marital status, educational level, annual household income, and Medicaid status at baseline and follow up for your MAO and the HOS Total respondent sample.

	MAO	HXXXA	HOS Total		
	Baseline Follow Up		Baseline	Follow Up	
	N (%)	N (%)	N (%)	N (%)	
Age	(N=141)	(N=141)	(N=74,084)	(N=74,084)	
65-69	42 (29.8%)	18 (12.8%)	20,469 (27.6%)	10,118 (13.7%)	
70-74	42 (29.8%)	46 (32.6%)	21,496 (29.0%)	23,134 (31.2%)	
75-79	25 (17.7%)	41 (29.1%)	15,878 (21.4%)	18,317 (24.7%)	
80-84	15 (10.6%)	15 (10.6%)	9,647 (13.0%)	12,094 (16.3%)	
85+	17 (12.1%)	21 (14.9%)	6,594 ( 8.9%)	10,421 (14.1%)	
Gender	(N=141)	(N=141)	(N=74,084)	(N=74,084)	
Male	66 (46.8%)	66 (46.8%)	31,285 (42.2%)	31,282 (42.2%)	
Female	75 (53.2%)	75 (53.2%)	42,799 (57.8%)	42,802 (57.8%)	
Race	(N=141)	(N=141)	(N=74,084)	(N=74,084)	
White	115 (81.6%)	115 (81.6%)	58,938 (79.6%)	58,953 (79.6%)	
Black	13 ( 9.2%)	13 ( 9.2%)	7,222 ( 9.7%)	7,223 ( 9.7%)	
Other/Unknown	13 ( 9.2%)	13 ( 9.2%)	7,924 (10.7%)	7,908 (10.7%)	
Marital Status	(N=134)	(N=137)	(N=71,646)	(N=71,302)	
Married	76 (56.7%)	68 (49.6%)	38,526 (53.8%)	36,320 (50.9%)	
Widowed	26 (19.4%)	36 (26.3%)	15,425 (21.5%)	17,727 (24.9%)	
Divorced or Separated	20 (14.9%)	21 (15.3%)	12,975 (18.1%)	12,588 (17.7%)	
Never Married	12 ( 9.0%)	12 ( 8.8%)	4,720 ( 6.6%)	4,667 ( 6.5%)	
Education	(N=133)	(N=136)	(N=71,065)	(N=69,922)	
Did Not Graduate HS	15 (11.3%)	13 ( 9.6%)	11,010 (15.5%)	10,944 (15.7%)	
High School Graduate	37 (27.8%)	44 (32.4%)	20,940 (29.5%)	20,566 (29.4%)	
Some College	37 (27.8%)	34 (25.0%)	19,017 (26.8%)	18,699 (26.7%)	
4 Year Degree or Beyond	44 (33.1%)	45 (33.1%)	20,098 (28.3%)	19,713 (28.2%)	
Annual Household Income	(N=128)	(N=131)	(N=66,909)	(N=65,486)	
Less than \$10,000	7 ( 5.5%)	9 ( 6.9%)	7,566 (11.3%)	7,040 (10.8%)	
\$10,000-\$19,999	21 (16.4%)	23 (17.6%)	10,005 (15.0%)	9,916 (15.1%)	
\$20,000-\$29,999	15 (11.7%)	12 ( 9.2%)	8,684 (13.0%)	8,626 (13.2%)	
\$30,000-\$49,999	28 (21.9%)	28 (21.4%)	13,399 (20.0%)	13,059 (19.9%)	
\$50,000 or More	41 (32.0%)	47 (35.9%)	20,006 (29.9%)	19,716 (30.1%)	
Don't Know	16 (12.5%)	12 ( 9.2%)	7,249 (10.8%)	7,129 (10.9%)	
Medicaid Status	(N=141)	(N=141)	(N=74,084)	(N=74,084)	
Medicaid	25 (17.7%)	25 (17.7%)	15,957 (21.5%)	16,519 (22.3%)	
Non-Medicaid	116 (82.3%)	116 (82.3%)	58,127 (78.5%)	57,565 (77.7%)	

 Table 12: 2019-2021 Cohort 22 Performance Measurement Demographics for MAO

 HXXXA and HOS Total at Baseline and Follow Up

### **General Health and Comparative Health**

#### Definition of Measures

- General health status is a self-reported measure of health perception using ratings of "Excellent," "Very good," "Good," "Fair," or "Poor."<sup>12</sup> This measure is found in Question 1 of the HOS 3.0.
- Two measures of physical and mental health compared to one year ago use ratings of "Much better," "Slightly better," "About the same," "Slightly worse," or "Much worse." These measures are found in Questions 8 and 9.

General self-rated health status is a valid and reliable method for assessing health across different populations.<sup>2</sup> Individuals who indicate that their general health was "Fair" or "Poor," or that their physical or mental health compared to one year ago was "Slightly worse" or "Much worse," are known to be at increased risk for near future hospitalization, use of mental health services, and mortality.<sup>2,13,14</sup>

#### How Is Your MAO Doing?

Table 13 presents the distribution of members across *self-rated general health*, *physical health compared to one year ago*, and *mental health compared to one year ago* for MAO HXXXA and the HOS Total respondent sample at baseline and follow up.

Table 13: 2019-2021 Cohort 22 Performance Measurement Frequency of Self-Rated Generaland Comparative Health Responses for MAO HXXXA and HOS Total at Baseline andFollow Up

	MAO HXXXA		HOS Total		
	Baseline	Baseline Follow Up		Follow Up	
Self-Rated Health Status	N (%)	N (%)	N (%)	N (%)	
General Health					
Excellent to good*	115 (83.3%)	109 (77.3%)	57,460 (78.4%)	54,533 (75.1%)	
Fair or poor	23 (16.7%)	32 (22.7%)	15,814 (21.6%)	18,052 (24.9%)	
Comparative Health-Physical					
Much better to about the same**	103 (77.4%)	95 (69.3%)	55,646 (77.4%)	51,614 (72.2%)	
Slightly worse or much worse	30 (22.6%)	42 (30.7%)	16,291 (22.6%)	19,827 (27.8%)	
Comparative Health-Mental					
Much better to about the same**	118 (91.5%)	118 (86.8%)	64,044 (90.1%)	61,239 (86.4%)	
Slightly worse or much worse	11 ( 8.5%)	18 (13.2%)	7,044 ( 9.9%)	9,649 (13.6%)	

\* Categories for general health included "Excellent," "Very good," or "Good."

\*\* Categories for comparative health included "Much better," "Slightly better," or "About the same."

#### Depression

#### Definition of Measures

• The HOS includes two questions (Questions 39a and 39b) that serve as a screening measure for depression.<sup>K</sup> Each question is assigned points depending on the response given, from 0 ("Not at all") to 3 ("Nearly every day"). For this report, a Medicare member is considered to have a positive depression screen when he or she scores three points or greater on the combined total points of the two depression questions, when both questions are answered.

Individuals with a positive depression screen may be at risk for depressive disorders. Depression is under-diagnosed in the elderly Medicare population, and is a significant health problem that has been linked to poor health outcomes.<sup>11,15</sup> Older adults may suffer mental distress associated with limitations in daily activities, physical impairments, grief from loss of loved ones, changes in living situations, or untreated mental illness.<sup>16</sup> Additionally, depression is significantly associated with other psychological dysfunction, as well as the presence of common chronic medical conditions, such as diabetes.<sup>17,18</sup> As a result, older adults with depression are frequently misdiagnosed or do not receive proper treatment for their depressive symptoms.<sup>19</sup>

Depression screening tools, such as the one used in the HOS, have been developed for use in clinical settings to rapidly identify individuals at risk for major depression. Those with positive depression screens should be followed-up by more comprehensive diagnostic evaluations to identify whether or not they have major depression.<sup>20,21</sup> Evidence-based programs have been developed to improve mental health among older adults. Social supports through local area agencies may also be effective.<sup>16</sup>

#### How Is Your MAO Doing?

Table 14 depicts the percentage of members with a positive depression screen, and the distribution of responses to the two individual depression questions for MAO HXXXA, and the HOS Total respondent sample at baseline and follow up.

<sup>&</sup>lt;sup>K</sup> Beginning with the 2013 HOS 2.5, two depression screening questions from the Patient Health Questionnaire-2 (PHQ-2) replaced the questions that served as the depression screening measure in previous versions of the HOS. Due to the change in the depression screening methodology, estimates of the proportion with positive depression screens in this report are not comparable to estimates produced using the HOS versions 1.0 or 2.0.

	MAO HXXXA		HOS Total		
	Baseline	Follow Up	Baseline	Follow Up	
Depression Screening Questions	N (%)	N (%)	N (%)	N (%)	
Little interest or pleasure in doing things					
in past two weeks					
Not at all (0 pts)	100 (75.8%)	94 (70.1%)	52,614 (73.5%)	50,087 (70.1%)	
Several days (1 pt)	24 (18.2%)	31 (23.1%)	12,459 (17.4%)	13,744 (19.2%)	
More than half the days (2 pts)	4 ( 3.0%)	4 ( 3.0%)	3,724 ( 5.2%)	4,263 ( 6.0%)	
Nearly every day (3 pts)	4 ( 3.0%)	5(3.7%)	2,799 ( 3.9%)	3,327 ( 4.7%)	
Feeling down, depressed, or hopeless in					
past two weeks					
Not at all (0 pts)	101 (75.4%)	97 (75.2%)	56,230 (78.8%)	53,719 (75.9%)	
Several days (1 pt)	27 (20.1%)	25 (19.4%)	11,190 (15.7%)	12,479 (17.6%)	
More than half the days (2 pts)	4 ( 3.0%)	3 ( 2.3%)	2,452 ( 3.4%)	2,846 ( 4.0%)	
Nearly every day (3 pts)	2(1.5%)	4 ( 3.1%)	1,509 ( 2.1%)	1,764 (2.5%)	
Positive Depression Screen*	7 ( 5.3%)	10(7.8%)	6,197 ( 8.8%)	7,217 (10.3%)	

 Table 14: 2019-2021 Cohort 22 Performance Measurement Frequency of Positive Depression

 Screen Responses for MAO HXXXA and HOS Total at Baseline and Follow Up

\* A positive depression screen is defined as scoring 3 points or greater on the sum total of the two depression questions, when both questions are answered.
### Pain

#### Definition of Measures

• The HOS includes three questions to measure self-reported pain over the previous seven days. Question 36 asks how much pain interfered with day-to-day activities from 1 ("Not at all") to 5 ("Very much"), and Question 37 asks how often pain kept the member from socializing from 1 ("Never") to 5 ("Always"). Both Questions 36 and 37 have five possible categorical responses. Question 38 asks the member to rate his/her average pain, ranging from 0 ("No pain") to 10 ("Worst imaginable pain").<sup>L</sup>

Self-reported pain is common among seniors. Without proper pain management, opioid abuse<sup>22,23</sup> and alcohol abuse<sup>24</sup> are increasing among seniors as they attempt to control their pain. Several organizations have published recommendations on what should be done to improve the safety of opioid prescribing, including decreasing the risk of addiction and abuse.<sup>25</sup>

Pain screening is the initial step in establishing an appropriate pain management program for elderly members. In fact, The Joint Commission requires assessment and management of pain when clinically indicated for patients in accredited hospitals, clinics, and long-term care facilities to minimize the risks associated with treatment.<sup>25</sup> Physical activity and complementary medicine techniques may be helpful alternatives in relieving certain types of pain.<sup>26</sup>

#### How Is Your MAO Doing?

Table 15 shows the distribution of self-rated pain scores, grouped into categories, for MAO HXXXA and the HOS Total respondent sample at baseline and follow up.

	MAO	HXXXA	HOS Total		
	Baseline	Follow Up	Baseline	Follow Up	
Pain Score	N (%)	N (%)	N (%)	N (%)	
0	NA	39 (29.1%)	NA	17,718 (24.9%)	
1	35 (26.7%)	23 (17.2%)	20,820 (29.3%)	11,985 (16.8%)	
2-4	73 (55.7%)	46 (34.3%)	31,810 (44.8%)	22,499 (31.6%)	
5-7	18 (13.7%)	19 (14.2%)	13,165 (18.5%)	13,414 (18.8%)	
8-10	5 ( 3.8%)	7 ( 5.2%)	5,267 (7.4%)	5,555 (7.8%)	

# Table 15: 2019-2021 Cohort 22 Performance Measurement Frequency of Self-Rated Pain Score for MAO HXXXA and HOS Total at Baseline and Follow Up

Table 16 illustrates the relationship between the reported extent that pain interfered with day-today activities and the mean unadjusted PCS score for MAO HXXXA and the HOS Total respondent sample at baseline and follow up. If only one member reported in a category, the standard deviation (SD) was *not calculated* (NC) for the category in Table 16 or any applicable tables.

<sup>&</sup>lt;sup>L</sup> In 2021, the follow up responses for question 38 were changed from 1 ("No pain") to 0 ("No pain"). Due to the change, the "No pain" response is not comparable between the 2019 baseline and 2021 follow up responses.

Table 16: 2019-2021 Cohort 22 Performance Measurement Mean Unadjusted PCS Score at Baseline and Follow Up by Extent Pain Interfered with Day-to-Day Activities at Follow Up for MAO HXXXA and HOS Total

	MAO	HXXXA	HOS Total		
	Baseline	Follow Up	Baseline	Follow Up	
Extent Pain Interfered with Day-to-Day Activities	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Not at all	49.1 ( 6.2)	49.5 ( 6.9)	48.2 ( 8.7)	48.7 ( 8.2)	
A little bit	44.3 ( 9.3)	40.4 ( 9.3)	41.8 ( 9.9)	40.4 ( 9.0)	
Somewhat	37.9 (11.3)	34.3 ( 9.6)	35.4 (10.4)	32.4 ( 8.8)	
Quite a bit	27.1 ( 8.8)	26.5 (4.8)	29.4 (10.4)	25.6 ( 8.2)	
Very much	28.8 (19.0)	23.8 ( 6.1)	25.4 (10.7)	21.1 ( 8.7)	

Table 17 shows the relationship between the reported extent that pain interfered with socialization with others and the mean unadjusted MCS score for MAO HXXXA and the HOS Total respondent sample at baseline and follow up.

Table 17: 2019-2021 Cohort 22 Performance Measurement Mean Unadjusted MCS Score a	ıt
<b>Baseline and Follow Up by Extent Pain Interfered with Socializing with Others at Follow</b>	
Up for MAO HXXXA and HOS Total	

	MAO	HXXXA	HOS Total		
	Baseline	Follow Up	Baseline	Follow Up	
Extent Pain Interfered with Socializing with Others	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Never	57.1 (7.1)	57.6 ( 6.2)	57.3 ( 7.2)	57.3 ( 7.2)	
Rarely	50.7 ( 9.7)	50.3 (10.3)	53.3 ( 9.6)	51.8 ( 9.8)	
Sometimes	44.3 (12.3)	48.2 ( 9.9)	49.2 (11.1)	46.9 (10.7)	
Often	41.5 ( 7.4)	32.7 (7.4)	45.2 (12.7)	41.7 (12.2)	
Always	32.1 ( 2.4)	23.3 ( 6.9)	41.4 (14.3)	36.0 (13.9)	

# **Chronic Medical Conditions**

#### Definition of Measures

• Chronic medical conditions are multiple measures of the prevalence of chronic disease across the member lifespan. Chronic conditions are those that last a year or more, and require ongoing medical attention and/or limit ADLs. Fifteen measures are found in Questions 20-34.

For older adults, the presence of chronic medical conditions can reduce the quality of life, accelerate a decline in functioning, and lead to conflicting medical advice when care is not coordinated.<sup>3</sup> The increased cost associated with chronic disease is an important factor driving overall Medicare spending.<sup>27</sup> This cost is further exacerbated by the proportion of multiple chronic conditions in the population, which accounts for over three-fourths of those 65 and over.<sup>28</sup> An important feature of the Medicare HOS is the ability to report and quantify self-reported chronic conditions in the MA population.

#### How Is Your MAO Doing?

Table 18 shows the prevalence of 15 chronic medical conditions for MAO HXXXA and the HOS Total respondent sample. Depression was added to the list of chronic medical conditions in the 2013 HOS 2.5. The chronic medical conditions are quantified in the HOS when members positively respond to the question, "Has a doctor ever told you that you had (the specified condition)?"

	MAO	HXXXA	HOS Total		
	Baseline	Follow Up	Baseline	Follow Up	
Medical Conditions	N (%)	N (%)	N (%)	N (%)	
Hypertension	87 (64.9%)	92 (68.1%)	47,491 (65.7%)	48,219 (67.1%)	
Arthritis - Hip or Knee	48 (36.1%)	46 (33.8%)	31,204 (43.3%)	32,514 (45.4%)	
Arthritis - Hand or Wrist	41 (30.8%)	42 (30.9%)	25,684 (35.7%)	26,714 (37.3%)	
Diabetes	31 (22.8%)	28 (20.7%)	18,471 (25.6%)	19,105 (26.6%)	
Sciatica	29 (21.5%)	25 (18.8%)	18,315 (25.5%)	18,507 (25.9%)	
Other Heart Conditions	32 (24.1%)	38 (28.1%)	14,677 (20.4%)	16,148 (22.6%)	
Osteoporosis	29 (21.6%)	31 (23.1%)	14,804 (20.6%)	15,994 (22.4%)	
Pulmonary Disease	27 (20.1%)	28 (20.6%)	11,990 (16.6%)	12,882 (17.9%)	
Depression	26 (19.1%)	27 (20.1%)	12,089 (16.8%)	12,450 (17.5%)	
Any Cancer (except skin cancer)	17 (12.6%)	22 (16.7%)	10,316 (14.9%)	11,136 (16.5%)	
Coronary Artery Disease	12 ( 9.0%)	19 (14.3%)	8,273 (11.5%)	8,997 (12.6%)	
Congestive Heart Failure	12 ( 9.0%)	16 (11.9%)	4,819 ( 6.7%)	6,015 ( 8.4%)	
Myocardial Infarction	8 ( 6.1%)	12 ( 8.9%)	5,209 (7.2%)	5,681 (7.9%)	
Stroke	6(4.5%)	7 ( 5.1%)	4,355 ( 6.0%)	4,991 (7.0%)	
Gastrointestinal Disease	5 ( 3.7%)	1(0.7%)	3,420 ( 4.7%)	3,672 ( 5.1%)	

# Table 18: 2019-2021 Cohort 22 Performance Measurement Prevalence of Chronic Medical Conditions for MAO HXXXA and HOS Total at Baseline and Follow Up

A longitudinal study using HOS data concluded that multiple conditions at baseline and the twoyear follow up were associated with worse health in terms of ADLs and Health Related Quality of Life (HRQOL), and are important outcomes for intervention to improve long-term health.<sup>29</sup>

An earlier study of HOS members found that members with multiple chronic conditions and risk for depression had the largest mental health decline over the two-year follow up period. In this study, people with multiple chronic conditions had greater risks for mortality, poor functional status, unnecessary hospitalizations, adverse drug events, duplicative tests, and conflicting medical advice.<sup>30</sup> According to the Centers for Disease Control and Prevention (CDC), around 50% of older adults have at least two chronic medical conditions, which can increase the risk of depression.<sup>19</sup>

Table 19 presents the frequencies of members who reported none, one, two, three, or four or more chronic medical conditions at baseline and follow up for your MAO and the HOS Total respondent sample.

 Table 19: 2019-2021 Cohort 22 Performance Measurement Number of Chronic Medical

 Conditions for MAO HXXXA and HOS Total at Baseline and Follow Up

	MAO	HXXXA	HOS Total		
	Baseline	Follow Up	Baseline	Follow Up	
Number of Conditions	N (%)	N (%)	N (%) N (%)		
None	10(7.4%)	10(7.3%)	6,037 ( 8.3%)	5,394 (7.4%)	
1 Condition	33 (24.3%)	27 (19.7%)	11,878 (16.3%)	10,692 (14.8%)	
2 Conditions	26 (19.1%)	27 (19.7%)	13,881 (19.1%)	13,193 (18.2%)	
3 Conditions	20 (14.7%)	22 (16.1%)	12,717 (17.5%)	12,885 (17.8%)	
4 or More Conditions	47 (34.6%)	51 (37.2%)	28,232 (38.8%)	30,251 (41.8%)	

In Table 20, the means and standard deviations (SD) for unadjusted PCS and MCS scores at follow up are presented, grouped by the number of chronic medical conditions reported, for your MAO and the HOS Total respondent sample.

# Table 20: 2019-2021 Cohort 22 Performance Measurement Mean Unadjusted PCS and MCSScores at Follow Up by Number of Chronic Medical Conditions at Follow Up for MAOHXXXA and HOS Total

	Mean (SD)	Unadjusted PCS	Mean (SD) Unadjusted MCS		
	MAO HXXXA	HOS Total	MAO HXXXA HOS Total		
Number of Conditions†	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
None	50.3 ( 8.1)	49.6 ( 8.1)	55.2 (10.3)	57.3 ( 6.8)	
1 Condition	45.9 (7.6)	47.6 ( 9.1)	58.6 ( 5.0)	56.6 (7.5)	
2 Conditions	46.7 ( 9.2)	44.5 (10.2)	56.6 ( 6.0)	55.9 ( 8.3)	
3 Conditions	42.2 (10.3)	41.2 (10.9)	53.1 (11.4)	54.9 ( 9.3)	
4 or More Conditions	34.4 (10.6)	33.9 (11.6)	49.8 (12.0)	50.7 (11.9)	

<sup>†</sup> If no members reported for a category, the result is *not applicable* (NA). If only one member reported in a category, the standard deviation (SD) was *not calculated* (NC).

# **Activities of Daily Living**

#### Definition of Measures

- ADLs refer to a set of common daily tasks that are necessary for personal self-care and independent living.<sup>31</sup> ADLs include bathing, dressing, eating, getting in or out of chairs, walking, and using the toilet. These measures are found in Question 10. Impairment with ADLs is defined as members who reported either difficulty or inability to perform the specific ADL ("Yes, I have difficulty" or "I am unable to do this activity").
- Instrumental Activities of Daily Living (IADLs) assess independent living skills that are more complex than ADLs.<sup>32,33</sup> IADLs include preparing meals, managing money, and taking medications. These measures are in Question 11. For IADLs, impairment is defined as members who reported difficulty performing the specific IADL ("Yes, I have difficulty").

Six ADLs are included in the HOS to examine reported difficulty with the performance of daily tasks. The HOS also includes three IADLs that examine reported difficulty with the performance of tasks of independence. The ability to perform ADLs is predictive of current disease status and mortality risk,<sup>34,35</sup> while IADLs recognize earlier changes in functioning, and can indicate the need for intervention or further medical work-up.<sup>33</sup>

#### How Is Your MAO Doing?

Table 21 shows the numbers and percentages of members with impairment in each of the six ADLs and three IADLs for your MAO and the HOS Total respondent sample at baseline and follow up.

	MAO	HXXXA	HOS Total	
	Baseline	Follow Up	Baseline	Follow Up
Impairment Type	N (%)	N (%)	N (%)	N (%)
Activities of Daily Living				
Walking	34 (25.6%)	40 (29.2%)	19,805 (27.6%)	23,239 (32.6%)
Getting in/out of chairs	21 (16.0%)	27 (19.6%)	12,755 (17.7%)	15,474 (21.7%)
Bathing	14 (10.7%)	16 (11.6%)	7,578 (10.5%)	9,496 (13.3%)
Dressing	12(9.1%)	9(6.6%)	6,097 ( 8.5%)	7,485 (10.5%)
Using the toilet	11 ( 8.3%)	10(7.3%)	4,037 ( 5.6%)	5,406 (7.6%)
Eating	4 ( 3.1%)	2(1.5%)	2,329 ( 3.2%)	3,177 ( 4.4%)
Instrumental Activities of Daily Living*				
Preparing meals	9(7.3%)	8 ( 6.6%)	5,693 ( 8.5%)	6,968 (10.7%)
Managing money	3 ( 2.3%)	5 ( 3.8%)	2,592 ( 3.7%)	2,731 ( 4.0%)
Taking medications as prescribed	5 ( 3.9%)	9 ( 6.8%)	2,334 ( 3.4%)	2,951 ( 4.3%)

Table 21: 20	19-2021 С	ohort 22 P	Performance .	Measurement	Prevalence o	of Impaired A	<b>DLs</b>
and IADLs f	or MAO I	HXXXA aı	nd HOS Tot	al at Baseline	and Follow U	U <b>p</b>	

\* Respondents who indicated "I don't do this activity" to IADL questions were removed from the denominator.

Table 22 presents the frequencies of ADL and IADL impairments at baseline and follow up for your MAO and the HOS Total respondent sample. Regular assessment of functional status is recommended for improving the effectiveness of care, especially for older adults prior to hospital discharge and those living with dementia.<sup>35</sup>

Table 22: 2019-2021 Cohort 22 Performance Measurement Number of ADL and IAD	L
Impairments for MAO HXXXA and HOS Total at Baseline and Follow Up	

	MAO	MAO HXXXA HOS Total		Total
	Baseline	Follow Up	Baseline	Follow Up
Number of Impairments	N (%)	N (%)	N (%)	N (%)
Activities of Daily Living				
None	94 (70.7%)	91 (65.9%)	49,247 (68.1%)	45,240 (62.9%)
1 ADL Impairment	17 (12.8%)	19 (13.8%)	9,499 (13.1%)	10,416 (14.5%)
2 ADL Impairments	8 ( 6.0%)	17 (12.3%)	6,094 ( 8.4%)	6,902 ( 9.6%)
3 or More ADL Impairments	14 (10.5%)	11 ( 8.0%)	7,467 (10.3%)	9,398 (13.1%)
Instrumental Activities of Daily Living*				
None	120 (90.9%)	123 (90.4%)	63,601 (88.8%)	61,217 (86.6%)
1 IADL Impairment	7 ( 5.3%)	7 ( 5.1%)	6,048 ( 8.4%)	7,121 (10.1%)
2 IADL Impairments	5 ( 3.8%)	3 ( 2.2%)	1,408 ( 2.0%)	1,623 ( 2.3%)
3 IADL Impairments	0	3 ( 2.2%)	585 ( 0.8%)	761 (1.1%)

\* Respondents who indicated "I don't do this activity" to IADL questions were removed from the denominator.

Table 23 presents means and SDs for unadjusted PCS and MCS scores by the number of ADL and IADL impairments at follow up for your MAO and the HOS Total respondent sample. Multiple impairments are associated with substantially lower PCS and MCS scores for the HOS respondents.

Table 23: 2019-2021 Cohort 22 Performance Measurement Mean Unadjusted PCS and MCS
Scores at Follow Up by Number of ADL and IADL Impairments at Follow Up for MAO
HXXXA and HOS Total

	Mean (SD) Un	adjusted PCS	Mean (SD) Unadjusted MCS	
Impairment Type†	MAO HXXXA	HOS Total	MAO HXXXA	HOS Total
Activities of Daily Living				
None	46.3 ( 8.1)	46.5 ( 8.6)	56.9 ( 6.9)	56.2 (7.8)
1 ADL Impairment	36.4 ( 9.5)	34.3 (9.3)	52.0 ( 9.9)	53.5 (10.3)
2 ADL Impairments	28.9 ( 8.0)	29.6 ( 8.6)	50.2 (13.7)	50.8 (11.3)
3 or More ADL Impairments	25.9 ( 6.4)	24.6 ( 8.7)	37.8 (11.5)	44.0 (13.2)
Instrumental Activities of Daily Living*				
None	42.5 (10.6)	42.6 (11.0)	55.2 ( 8.8)	55.3 ( 8.8)
1 IADL Impairment	30.0 ( 8.1)	26.9 (10.1)	43.9 (17.3)	46.2 (12.2)
2 IADL Impairments	27.0 ( 8.4)	27.2 ( 9.3)	38.2 ( 9.6)	40.4 (12.0)
3 IADL Impairments	24.7 (2.6)	26.7 ( 8.6)	35.8 (9.5)	37.4 (12.0)

<sup>†</sup> If no members reported for a category, the result is *not applicable* (NA). If only one member reported in a category, the standard deviation (SD) was *not calculated* (NC).

\* Respondents who indicated "I don't do this activity" to IADL questions were removed from the denominator.

# **Healthy Days Measures**

#### Definition of Measures

- Physically unhealthy days is a self-reported measure of the number of days during the past 30 days when physical health was not good. The measure is found in Question 12.
- Mentally unhealthy days is a self-reported measure of the number of days during the past 30 days when mental health was not good. The measure is found in Question 13.
- Days with activity limitations is a self-reported measure of the number of days during the past 30 days when poor physical or mental health kept the member from usual activities. The measure is found in Question 14.

Healthy Days Measures provide key information on the functional status of vulnerable subpopulations, and are used to assess the HRQOL<sup>36</sup> across the U.S. As sentinel indicators of present and future disease and injury risk, MAOs may use Healthy Days Measures to identify vulnerable sub-populations for effective preventative care and disease management. According to the CDC, "In recent years, several organizations have found these Healthy Days Measures useful at the national, state, and community levels for (1) identifying health disparities, (2) tracking population trends, and (3) building broad coalitions around a measure of population health compatible with the World Health Organization's definition of health."<sup>37</sup> The CDC HRQOL program considers 14 or more unhealthy days in the past 30 days an indicator of poor well-being.<sup>4</sup>

#### How Is Your MAO Doing?

Table 24 provides the frequency distributions of Healthy Days Measures for your MAO and HOS Total respondent sample.

	MAO HXXXA		HOS Total	
	Baseline	Follow Up	Baseline	Follow Up
Healthy Days Measures	N (%)	N (%)	N (%)	N (%)
Physically Unhealthy Days	(N=127)	(N=130)	(N=69,969)	(N=69,666)
None	72 (56.7%)	70 (53.8%)	40,346 (57.7%)	39,964 (57.4%)
1-13	33 (26.0%)	38 (29.2%)	18,228 (26.1%)	16,995 (24.4%)
14-30	22 (17.3%)	22 (16.9%)	11,395 (16.3%)	12,707 (18.2%)
Mentally Unhealthy Days	(N=129)	(N=132)	(N=70,274)	(N=70,077)
None	80 (62.0%)	90 (68.2%)	50,078 (71.3%)	47,667 (68.0%)
1-13	37 (28.7%)	30 (22.7%)	13,884 (19.8%)	15,378 (21.9%)
14-30	12 ( 9.3%)	12 ( 9.1%)	6,312 ( 9.0%)	7,032 (10.0%)
Days with Activity Limitations	(N=129)	(N=133)	(N=70,440)	(N=70,042)
None	100 (77.5%)	97 (72.9%)	51,704 (73.4%)	50,484 (72.1%)
1-13	21 (16.3%)	25 (18.8%)	11,153 (15.8%)	10,823 (15.5%)
14-30	8 ( 6.2%)	11 ( 8.3%)	7,583 (10.8%)	8,735 (12.5%)

# Table 24: 2019-2021 Cohort 22 Performance Measurement Distribution of Healthy Days Measures for MAO HXXXA and HOS Total at Baseline and Follow Up

Table 25 presents the mean unadjusted MCS scores at baseline and follow up for your MAO and the HOS Total respondent sample by the number of mentally unhealthy days at follow up.

Table 25: 2019-2021 Cohort 22 Performance Measurement Mean Unadjusted MCS Scoresat Baseline and Follow Up by Number of Mentally Unhealthy Days at Follow Up for MAOHXXXA and HOS Total

	MAO HXXXA		HOS Total		
	Baseline MCS Follow Up MCS		Baseline MCS	Follow Up MCS	
Mentally Unhealthy Days	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
None	57.2 (7.3)	58.4 ( 6.3)	57.5 (7.2)	58.0 ( 6.7)	
1-13	50.7 ( 8.7)	49.3 ( 9.0)	51.2 ( 9.5)	49.0 ( 8.3)	
14-30	36.9 (10.2)	36.5 (7.2)	42.9 (12.7)	36.4 (10.8)	

Figure 3 presents the results of the Healthy Days Measures as the mean number of unhealthy days in the previous 30 days for each of the three measures that were reported by members at follow up for your MAO and the HOS Total respondent sample.





Healthy Days Measures

# **Body Mass Index**

#### Definition of Measures

• Self-reported height and weight values are used to calculate BMI,<sup>M</sup> a measure that correlates with the amount of body fat in adult men and women. BMI is derived from Questions 54 and 55.<sup>N</sup>

A BMI of 30 or higher is considered obese and increases risk for several chronic conditions including: hypertension, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea, and some cancers.<sup>38</sup> Being overweight (BMI 25-29.99) or obese has also been shown to accelerate the aging process.<sup>39</sup> Physical activity, diet, age, gender, ethnicity, and educational status are known to influence the risk for obesity.<sup>40</sup> For instance, females are at higher risk of developing morbid obesity than males. The prevalence of obesity among older adults has risen significantly over the past 30 years.<sup>41</sup> A BMI under 18.5 is considered underweight. Rapid weight loss often indicates an underlying disease and can accelerate the loss of muscle mass, which naturally occurs with the aging process.<sup>42</sup>

A study using the HOS 2006-2008 Cohort 9 Merged Baseline and Follow Up data explored the prevalence of obesity in MA members age 65 or older.<sup>43</sup> In this study, most of the reported health conditions were significantly more prevalent among obese than normal weight members, in particular, high blood pressure (75.8% of obese vs. 53.9% of normal weight), diabetes (34.8% vs. 12.7%), and arthritis of the hip or knee (55.3% vs. 31.3%). Exceptions were osteoporosis and stroke. Osteoporosis was significantly less prevalent among the obese (16.1% vs. 26.9%). The prevalence of stroke increased only slightly with BMI (7.9% vs. 7.3%). The results also indicated that obese members had substantially greater limitations with ADLs than normal weight members.<sup>43</sup>

#### How Is Your MAO Doing?

Table 26 shows the distribution of BMI categories by gender, including underweight (BMI less than 18.5), normal weight (BMI of 18.5-24.99), overweight (BMI of 25-29.99), and obese (BMI of 30 or more) for MAO HXXXA and the HOS Total respondent sample.

<sup>&</sup>lt;sup>M</sup> BMI is calculated as: BMI = [weight in pounds / (height in inches)<sup>2</sup>] x 703, which uses the member's self-reported height and weight to produce the standard measure of  $kg/m^2$  units.

<sup>&</sup>lt;sup>N</sup> Beginning in 2012, questions for weight and height changed from categorical responses to open ended responses.

	MAO HXXXA		HOS	Total
	Baseline	Follow Up	Baseline	Follow Up
BMI Category	N (%)	N (%)	N (%)	N (%)
Male				
Underweight (<18.5)	1(1.6%)	0	300 ( 1.0%)	452 (1.5%)
Normal (18.5-24.99)	22 (34.9%)	23 (37.1%)	7,354 (25.2%)	8,180 (28.0%)
Overweight (25-29.99)	22 (34.9%)	22 (35.5%)	12,821 (44.0%)	12,455 (42.7%)
Obese (≥30)	18 (28.6%)	17 (27.4%)	8,651 (29.7%)	8,093 (27.7%)
Female				
Underweight (<18.5)	2(3.0%)	5(7.2%)	876 ( 2.2%)	1,096 ( 2.8%)
Normal (18.5-24.99)	23 (34.3%)	19 (27.5%)	12,432 (31.6%)	12,940 (33.0%)
Overweight (25-29.99)	17 (25.4%)	20 (29.0%)	13,035 (33.2%)	12,646 (32.2%)
Obese (≥30)	25 (37.3%)	25 (36.2%)	12,941 (32.9%)	12,540 (32.0%)

Table 26: 2019-2021	Cohort 22 Performance Measurement Distribution of BMI Categories
by Gender for MAO	HXXXA and HOS Total at Baseline and Follow Up

**Note:** BMI categories were modified beginning with the 2017 Cohort 20 Baseline Report. Underweight was changed from "<20" to "<18.5" and normal weight was changed from "20 to 24.99" to "18.5 to 24.99."

# **Sleep Measures**

#### Definition of Measures

- Sleep duration is a self-reported measure of the average number of hours of actual sleep at night during the past month. The measure is found in Question 52.
- Sleep quality is a self-reported measure that rates the overall sleep quality during the past month. The measure is found in Question 53.

Two sleep questions added in the 2015 HOS 3.0 were drawn from the Pittsburgh Sleep Quality Index (PSQI). The questions focus on "habitual" (i.e., past month) sleep duration and quality to capture more chronic sleep disturbances. The PSQI has a high test-retest reliability and good validity in patients with insomnia.<sup>44</sup>

Over half of older adults suffer from symptoms of insomnia, a common problem related to aging.<sup>45</sup> Sleep disorders in the elderly can be caused by many factors, including medication, diseases, poor sleeping habits, and age-related changes in circadian sleep/wake regulation. Sleep can be evaluated in different ways and there is substantial evidence linking insufficient sleep duration and poor sleep quality to mental and physical health morbidity and mortality.<sup>46</sup> Conversely, improved sleep may support patient engagement and adherence.<sup>47</sup>

Sleep disorders, including chronic insomnia, obstructive sleep apnea, and restless legs syndrome, are highly prevalent among older adults, often comorbid with other age-related health conditions, and portend poorer treatment and other health outcomes.<sup>48,49</sup> However, sleep disorders remain underdiagnosed in primary care settings for many reasons,<sup>50</sup> and patient surveys show that only a small number of patients discuss sleep problems with their doctors.<sup>51,52</sup> Therefore, it is recommended that providers routinely identify and evaluate sleep symptoms of disordered sleep and offer appropriate management.<sup>53</sup>

#### How Is Your MAO Doing?

Table 27 provides frequency distributions of sleep duration ("Less than 5," "5–6," "7–8," and "9 or more hours") and sleep quality ("Very good," "Fairly good," "Fairly bad," and "Very bad") for MAO HXXXA and the HOS Total at Baseline and Follow Up.

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	MAO	MAO HXXXA Baseline Follow Up		Total		
	Baseline			Follow Up		
Sleep Questions	N (%)	N (%)	N (%)	N (%)		
Hours of actual sleep						
Less than 5 hours	9 ( 6.8%)	12 ( 8.8%)	4,928 ( 6.9%)	5,269 (7.4%)		
5-6 hours	47 (35.3%)	47 (34.3%)	26,683 (37.5%)	26,984 (37.9%)		
7-8 hours	67 (50.4%)	73 (53.3%)	35,887 (50.5%)	34,846 (48.9%)		
9 or more hours	10(7.5%)	5 ( 3.6%)	3,608 ( 5.1%)	4,142 ( 5.8%)		
Overall sleep quality						
Very good	39 (29.1%)	33 (23.9%)	17,699 (24.8%)	16,651 (23.3%)		
Fairly good	74 (55.2%)	80 (58.0%)	43,271 (60.6%)	43,729 (61.2%)		
Fairly bad	17 (12.7%)	21 (15.2%)	8,839 (12.4%)	9,435 (13.2%)		
Very bad	4 ( 3.0%)	4 ( 2.9%)	1,613 ( 2.3%)	1,659 (2.3%)		

 Table 27: 2019-2021 Cohort 22 Performance Measurement Distributions of Sleep Duration

 and Quality for MAO HXXXA and HOS Total at Baseline and Follow Up

# Health Status by Baseline Demographic Groups for MAO HXXXA

Evidence from several studies suggests the differences in health among Medicare eligible members by age, gender, racial, and socioeconomic groups.<sup>54,55,56,57,58,59,60</sup> The following tables show differences in health status by demographic categories, including potential disparities within your MAO, and illustrate changes from baseline to follow up measurement. Groups are defined by the sub-categories for a demographic characteristic (e.g., the 65-69 age group or White race).

Table 28: 2019-2021 Cohort 22 Performance Measurement Distribution of Mean
Unadjusted PCS and MCS Scores* at Baseline and Follow Up by Baseline Demographic
Group for MAO HXXXA

	Unadjusted PCS		Unadjusted MCS		
	Baseline	Follow Up	Baseline	Follow Up	
Baseline Demographic	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
MAO HXXXA Total	42.8 (11.3)	41.1 (11.2)	53.6 (9.9)	54.0 (10.2)	
Age					
65-69	46.7 (9.2)	44.9 (9.8)	51.6 (10.9)	54.7 (7.7)	
70-74	44.2 (10.0)	42.9 (9.3)	56.2 (7.8)	57.0 (9.0)	
75-79	41.4 (13.8)	40.8 (13.4)	54.1 (8.2)	51.5 (10.8)	
80-84	36.5 (11.9)	33.8 (12.4)	53.4 (12.0)	51.1 (14.6)	
85+	37.1 (10.3)	34.6 (8.9)	51.5 (11.5)	50.9 (11.7)	
Gender					
Male	45.1 (10.0)	42.7 (10.4)	54.3 (8.5)	55.9 (8.1)	
Female	40.7 (12.0)	39.8 (11.7)	52.9 (11.0)	52.3 (11.5)	
Race					
White	42.9 (10.8)	41.1 (11.3)	53.6 (10.1)	54.3 (9.6)	
Black	40.3 (14.6)	37.8 (10.9)	52.4 (10.2)	51.5 (17.2)	
Other/Unknown	44.0 (12.2)	44.9 (10.3)	54.6 (8.4)	53.8 (5.8)	
Marital Status					
Married	45.4 (10.2)	44.2 (10.6)	55.8 (6.9)	56.3 (7.3)	
Widowed	37.2 (11.8)	34.2 (11.0)	49.8 (12.3)	49.0 (13.6)	
Divorced or Separated	43.4 (10.8)	40.7 (10.3)	51.7 (12.8)	52.6 (10.7)	
Never Married	42.7 (9.6)	42.9 (8.9)	48.3 (11.6)	54.1 (7.1)	
Education					
Did Not Graduate HS	36.1 (11.5)	32.1 (10.4)	49.3 (11.6)	48.3 (13.4)	
High School Graduate	39.2 (12.0)	38.3 (10.0)	50.5 (11.9)	52.2 (11.5)	
Some College	44.8 (11.3)	43.1 (12.0)	56.0 (7.1)	56.0 (8.1)	
4 Year Degree or Beyond	46.9 (8.1)	45.5 (9.5)	54.8 (9.0)	55.9 (6.7)	
Annual Household Income					
Less than \$10,000	35.5 (11.0)	36.3 (9.2)	46.5 (12.5)	43.7 (13.2)	
\$10,000-\$19,999	35.9 (11.1)	32.2 (10.4)	48.9 (14.5)	52.5 (11.6)	
\$20,000-\$29,999	42.8 (12.2)	40.6 (10.1)	51.9 (10.3)	57.7 (7.0)	
\$30,000-\$49,999	44.5 (8.8)	43.1 (10.1)	54.4 (7.8)	53.7 (9.8)	
\$50,000 or More	47.2 (8.9)	46.1 (9.6)	57.6 (6.4)	57.3 (6.4)	
Don't Know	41.9 (13.9)	41.9 (13.3)	51.8 (10.0)	49.2 (11.2)	
Medicaid Status					
Medicaid	35.1 (12.4)	34.7 (10.4)	48.7 (12.1)	48.4 (13.8)	
Non-Medicaid	44.4 (10.3)	42.5 (10.9)	54.6 (9.1)	55.2 (8.9)	

\* Mean unadjusted PCS and MCS scores are the raw scores used to determine the final adjusted change scores in the *Cohort 21 Performance Measurement* Results section. Members are displayed according to their baseline demographic group.

	General Health Status		<b>Comparative Health-Physical</b>		Comparative Health-Mental	
	Poor or Fair		Slightly Worse	or Much Worse	Slightly Worse or Much Worse	
	Baseline	Follow Up*	Baseline	Follow Up*	Baseline	Follow Up*
Baseline Demographic	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
MAO HXXXA Total	23 (16.7%)	32 (22.7%)	30 (22.6%)	42 (30.7%)	11 ( 8.5%)	18 (13.2%)
Age						
65-69	6 (14.3%)	6 (14.3%)	7 (17.5%)	9 (22.0%)	3 ( 7.5%)	6 (14.6%)
70-74	7 (16.7%)	5 (11.9%)	7 (17.5%)	13 (31.7%)	2(5.3%)	1 ( 2.5%)
75-79	7 (28.0%)	9 (36.0%)	7 (29.2%)	5 (21.7%)	2(8.3%)	3 (12.5%)
80-84	1(7.7%)	5 (33.3%)	4 (28.6%)	6 (40.0%)	2 (15.4%)	3 (20.0%)
85+	2 (12.5%)	7 (41.2%)	5 (33.3%)	9 (52.9%)	2 (14.3%)	5 (31.3%)
Gender						
Male	11 (16.7%)	15 (22.7%)	16 (25.8%)	18 (28.6%)	4 ( 6.5%)	6 ( 9.5%)
Female	12 (16.7%)	17 (22.7%)	14 (19.7%)	24 (32.4%)	7 (10.4%)	12 (16.4%)
Race						
White	17 (15.2%)	26 (22.6%)	26 (23.9%)	38 (34.2%)	10(9.4%)	14 (12.6%)
Black	3 (23.1%)	4 (30.8%)	2 (18.2%)	2 (15.4%)	1 (10.0%)	1 ( 8.3%)
Other/Unknown	3 (23.1%)	2 (15.4%)	2 (15.4%)	2 (15.4%)	0	3 (23.1%)
Marital Status						
Married	11 (14.5%)	13 (17.1%)	12 (16.2%)	21 (28.4%)	4 ( 5.6%)	9 (12.2%)
Widowed	5 (20.0%)	9 (34.6%)	8 (33.3%)	12 (46.2%)	4 (17.4%)	4 (16.0%)
Divorced or Separated	4 (21.1%)	6 (30.0%)	5 (26.3%)	5 (26.3%)	1 ( 5.3%)	3 (15.8%)
Never Married	2 (16.7%)	2 (16.7%)	3 (25.0%)	3 (25.0%)	2 (16.7%)	1 ( 8.3%)
Education				5 (1 5 <b>2</b> 5 ()		
Did Not Graduate HS	5 (35.7%)	8 (53.3%)	2 (13.3%)	6 (46.2%)	I (7.1%)	3 (23.1%)
High School Graduate	10 (27.8%)	11 (29.7%)	12 (33.3%)	8 (21.6%)	6 (16.7%)	5 (13.5%)
Some College	3 ( 8.3%)	7 (18.9%)	6 (17.6%)	11 (29.7%)	1(3.1%)	2(5.4%)
4 Year Degree or Beyond	4 ( 9.1%)	5 (11.4%)	9 (20.9%)	17 (39.5%)	3(7.1%)	8 (19.0%)
Annual Household Income	2 (22 20()	4 (57 10()	1 (16 70()	2(42.00())	1 (16 70()	2(29,60)
Less than \$10,000	2(33.3%)	4 (57.1%)	I (16./%)	3 (42.9%)	1(16.7%)	2 (28.6%)
\$10,000-\$19,999	6 (30.0%)	/ (33.3%)	7 (35.0%)	6 (28.6%) 5 (22.2%)	3(16.7%)	3 (15.0%)
\$20,000-\$29,999	3 (20.0%)	4 (26.7%)	5 (33.3%)	5 (33.3%)	I ( 6./%)	I ( 6./%)
\$30,000-\$49,999	3(11.1%)	6 (21.4%)	5 (18.5%)	9 (33.3%)	0	6 (22.2%)
\$50,000 or More	4 ( 9.8%)	5 (12.2%)	6 (15.4%)	14 (35.9%)	2(5.3%)	2 ( 5.1%)
Don't Know	4 (25.0%)	4 (25.0%)	4 (25.0%)	3 (18.8%)	3 (18.8%)	3 (18.8%)
Medicaid Status	7 (20, 40())	12 (48.00/)	7 (20, 40/)	9 (22 00()	2(12,001)	5 (20, 80/)
	/ (30.4%)	12 (48.0%)	/ (30.4%)	8 (32.0%)	3(13.0%)	5 (20.8%)
Non-Medicaid	16 (13.9%)	20 (17.2%)	23 (20.9%)	34 (30.4%)	8 (7.5%)	13 (11.6%)

 Table 29: 2019-2021 Cohort 22 Performance Measurement Distribution of Self-Rated General Health Status, and Physical and

 Mental Health Status Compared to One Year Ago at Baseline and Follow Up by Baseline Demographic Group for MAO HXXXA

\* Percentages for demographic groups in the follow up column(s) highlighted in **red** are greater by ten percentage points or more compared to the baseline columns. Estimates highlighted in **red** indicate groups that were worse off at follow up compared to baseline. Members are displayed according to their baseline demographic group.

Table 30: 2019-2021 Cohort 22 Performance Measurement Distribution of PositiveDepression Screens at Baseline and Follow Up by Baseline Demographic Group for MAOHXXXA

	Positive Depression Screen			
	Baseline	Follow Up*		
Baseline Demographic	N (%)	N (%)		
MAO HXXXA Total	7 ( 5.3%)	10(7.8%)		
Age				
65-69	2 ( 5.0%)	1 ( 2.4%)		
70-74	1 ( 2.5%)	1 ( 2.6%)		
75-79	2 ( 8.0%)	2 ( 9.1%)		
80-84	2 (14.3%)	4 (28.6%)		
85+	0	2 (15.4%)		
Gender				
Male	1 ( 1.6%)	0		
Female	6 ( 8.6%)	10 (14.9%)		
Race				
White	6 ( 5.6%)	7 ( 6.6%)		
Black	1 ( 9.1%)	3 (30.0%)		
Other/Unknown	0	0		
Marital Status				
Married	2 ( 2.7%)	1 ( 1.3%)		
Widowed	2(8.3%)	6 (27.3%)		
Divorced or Separated	2 (10.5%)	2 (11.8%)		
Never Married	1 ( 9.1%)	0		
Education				
Did Not Graduate HS	2 (15.4%)	3 (23.1%)		
High School Graduate	4 (11.1%)	2(6.1%)		
Some College	0	3 ( 9.1%)		
4 Year Degree or Beyond	1 ( 2.3%)	1 ( 2.3%)		
Annual Household Income				
Less than \$10,000	1 (16.7%)	3 (60.0%)		
\$10,000-\$19,999	2 ( 9.5%)	1 ( 5.6%)		
\$20,000-\$29,999	0	0		
\$30,000-\$49,999	1 ( 3.7%)	2 ( 8.0%)		
\$50,000 or More	1 ( 2.5%)	1 ( 2.5%)		
Don't Know	2 (14.3%)	1 ( 7.7%)		
Medicaid Status				
Medicaid	2 ( 9.5%)	5 (29.4%)		
Non-Medicaid	5 ( 4.5%)	5 ( 4.5%)		

\* Percentages for demographic groups in the follow up column highlighted in **red** are greater by ten percentage points or more compared to the baseline column. Estimates highlighted in **red** indicate groups that were worse off at follow up compared to baseline. Members are displayed according to their baseline demographic group.

	Multiple Chronic Medical Conditions <sup>®</sup>			
	Baseline	Follow Up*		
Baseline Demographic	N (%)	N (%)		
MAO HXXXA Total	93 (68.4%)	100 (73.0%)		
Age				
65-69	25 (61.0%)	25 (59.5%)		
70-74	26 (65.0%)	27 (67.5%)		
75-79	17 (68.0%)	19 (79.2%)		
80-84	13 (86.7%)	15 ( 100%)		
85+	12 (80.0%)	14 (87.5%)		
Gender				
Male	33 (51.6%)	41 (63.1%)		
Female	60 (83.3%)	59 (81.9%)		
Race				
White	74 (66.7%)	82 (72.6%)		
Black	9 (75.0%)	8 (72.7%)		
Other/Unknown	10 (76.9%)	10 (76.9%)		
Marital Status				
Married	48 (64.0%)	55 (72.4%)		
Widowed	24 (92.3%)	21 (87.5%)		
Divorced or Separated	13 (68.4%)	14 (73.7%)		
Never Married	6 (50.0%)	5 (45.5%)		
Education				
Did Not Graduate HS	13 (86.7%)	11 (84.6%)		
High School Graduate	29 (80.6%)	32 (88.9%)		
Some College	24 (66.7%)	27 (75.0%)		
4 Year Degree or Beyond	25 (56.8%)	26 (59.1%)		
Annual Household Income	- ( 100-1)	- / / 00-/ 1		
Less than \$10,000	7 ( 100%)	7 (100%)		
\$10,000-\$19,999	19 (90.5%)	15 (78.9%)		
\$20,000-\$29,999	10 (66.7%)	11 (73.3%)		
\$30,000-\$49,999	16 (59.3%)	19 (70.4%)		
\$50,000 or More	20 (50.0%)	24 (58.5%)		
Don't Know	13 (81.3%)	13 (86.7%)		
Medicaid Status				
Medicaid	20 (87.0%)	19 (86.4%)		
Non-Medicaid	73 (64.6%)	81 (70.4%)		

Table 31: 2019-2021 Cohort 22 Performance Measurement Distribution of Multiple Chronic Conditions<sup>§</sup> at Baseline and Follow Up by Baseline Demographic Group for MAO HXXXA

\* Percentages for demographic groups in the follow up column highlighted in **red** are greater by ten percentage points or more compared to the baseline column. Estimates highlighted in **red** indicate groups that were worse off at follow up compared to baseline. Members are displayed according to their baseline demographic group.

<sup>s</sup> Multiple chronic medical conditions are defined as having two or more conditions (maximum of 15).

Table 32: 2019-2021 Cohort 22 Performance Measurement Distribution of Multiple ADL Impairments<sup>§</sup> at Baseline and Follow Up by Baseline Demographic Group for MAO HXXXA

	Multiple ADL Impairments <sup>s</sup>			
	Baseline	Follow Up*		
Baseline Demographic	N (%)	N (%)		
MAO HXXXA Total	22 (16.5%)	28 (20.3%)		
Age				
65-69	3 ( 7.5%)	3 ( 7.3%)		
70-74	4 (10.0%)	4 ( 9.8%)		
75-79	4 (16.7%)	6 (25.0%)		
80-84	5 (35.7%)	6 (40.0%)		
85+	6 (40.0%)	9 (52.9%)		
Gender				
Male	6(9.7%)	8 (12.7%)		
Female	16 (22.5%)	20 (26.7%)		
Race				
White	19 (17.4%)	22 (19.6%)		
Black	1 ( 9.1%)	4 (30.8%)		
Other/Unknown	2 (15.4%)	2 (15.4%)		
Marital Status				
Married	8 (10.8%)	9 (12.0%)		
Widowed	8 (33.3%)	12 (46.2%)		
Divorced or Separated	5 (26.3%)	4 (21.1%)		
Never Married	0	0		
Education		<b>F</b> ( <b>F</b> 0, 00())		
Did Not Graduate HS	6 (40.0%)	7 (50.0%)		
High School Graduate	6 (16.7%)	6 (16.2%)		
Some College	4 (11.8%)	6 (16.2%)		
4 Year Degree or Beyond	5 (11.6%)	7 (16.3%)		
Annual Household Income	2 (22 20)	2 (12 02())		
Less than \$10,000	2(33.3%)	3 (42.9%)		
\$10,000-\$19,999	5 (25.0%)	7 (33.3%)		
\$20,000-\$29,999	3 (20.0%)	1 ( 6.7%)		
\$30,000-\$49,999	5 (18.5%)	4 (14.8%)		
\$50,000 or More	4 (10.3%)	6 (15.0%)		
Don't Know	1 ( 6.3%)	3 (18.8%)		
Medicaid Status	C (QC 10)	10 (40.00())		
Medicaid	6 (26.1%)	10 (40.0%)		
Non-Medicaid	16 (14.5%)	18 (15.9%)		

\* Percentages for demographic groups in the follow up column highlighted in **red** are greater by ten percentage points or more compared to the baseline column. Estimates highlighted in **red** indicate groups that were worse off at follow up compared to baseline. Members are displayed according to their baseline demographic group. <sup>§</sup> Multiple ADL impairments are defined as having two or more impairments. Table 33: 2019-2021 Cohort 22 Performance Measurement Mean Number of Unhealthy Physical, Mental, and Activity Limitation Days by Baseline Demographic Group for MAO HXXXA

	Physically UnhealthyMentally UnhealthyNumber of DaysNumber of Days		Activity Limitations			
			Number	of Days	Number of Days	
	Baseline	Follow Up*	Baseline	Follow Up*	Baseline	Follow Up*
Baseline Demographic	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
MAO HXXXA Total	5.8 (9.7)	5.7 (9.2)	3.5 (7.2)	3.0 (6.5)	2.4 (5.7)	<b>3.0</b> (6.7)
Age						
65-69	6.0 (10.0)	3.4 (6.7)	4.2 (7.6)	2.8 (6.2)	2.1 (4.8)	1.8 (3.7)
70-74	4.5 (9.2)	3.2 (6.3)	2.7 (6.0)	1.3 (3.4)	1.5 (3.1)	<b>2.1</b> (5.9)
75-79	7.4 (11.7)	7.3 (10.9)	2.3 (6.5)	<b>3.8</b> (6.2)	3.7 (8.8)	4.1 (9.1)
80-84	5.8 (8.4)	<b>8.8</b> (11.3)	4.6 (8.8)	<b>6.3</b> (10.4)	4.0 (7.6)	<b>5.4</b> (8.7)
85+	6.3 (8.8)	<b>12.9</b> (12.3)	4.6 (8.6)	3.2 (7.8)	2.5 (5.1)	<b>4.1</b> (8.4)
Gender						
Male	5.6 (9.6)	5.1 (8.9)	2.5 (6.6)	1.4 (3.3)	1.9 (5.2)	2.5 (6.5)
Female	5.9 (9.9)	6.2 (9.6)	4.3 (7.6)	4.4 (8.0)	2.9 (6.2)	3.4 (6.9)
Race						
White	5.5 (9.2)	5.9 (9.5)	3.3 (7.0)	3.0 (6.7)	2.6 (6.0)	2.7 (6.4)
Black	8.5 (12.5)	4.4 (8.8)	6.0 (9.9)	2.5 (6.3)	2.3 (5.2)	2.3 (5.2)
Other/Unknown	6.0 (11.4)	4.7 (7.2)	2.6 (5.8)	2.8 (4.7)	1.7 (3.4)	<b>5.8</b> (9.6)
Marital Status						
Married	5.0 (9.6)	4.9 (8.6)	1.4 (2.7)	1.7 (4.2)	2.1 (6.0)	2.1 (6.0)
Widowed	7.6 (10.9)	12.1 (11.9)	8.3 (10.7)	6.4 (9.6)	3.9 (6.9)	<b>6</b> .1 (10.1)
Divorced or Separated	7.8 (10.0)	1.3 (2.0)	4.6 (9.6)	4.7 (8.6)	2.2 (4.5)	3.1 (4.3)
Never Married	6.1 (9.2)	4.6 (9.1)	6.8 (10.1)	1.5 (2.6)	2.3 (4.1)	1.3 (3.1)
Education						
Did Not Graduate HS	10.9 (11.7)	9.7 (10.1)	6.9 (10.5)	7.9 (11.4)	5.0 (8.0)	7.8 (11.1)
High School Graduate	6.7 (10.1)	<b>8.0</b> (10.5)	5.0 (9.5)	4.3 (8.0)	2.2 (4.4)	3.3 (6.9)
Some College	5.0 (9.6)	4.9 (8.9)	1.8 (3.1)	1.6 (4.7)	2.4 (6.6)	1.8 (4.1)
4 Year Degree or Beyond	4.5 (8.7)	3.8 (8.0)	2.7 (5.8)	1.8 (3.4)	2.0 (5.3)	2.3 (6.6)
Annual Household Income	150(100)	12.0 (12.0)	140 (15 6)	10 5 (10 5)	5.0 (10.2)	
Less than \$10,000	15.0 (13.8)	12.0 (13.0)	14.2 (15.6)	12.5 (12.5)	5.8 (10.2)	8.0 (11.5)
\$10,000-\$19,999	6.7 (10.5)	8.2 (9.8)	7.1 (10.8)	5.6 (9.7)	3.2 (5.0)	5.9 (10.0)
\$20,000-\$29,999	7.5 (10.6)	3.3 (4.0)	5.4 (6.9)	1.5 (2.9)	3.1 (5.6)	2.8 (4.0)
\$30,000-\$49,999	3.7 (6.8)	<b>5.9</b> (9.9)	2.3 (5.6)	2.7 (5.7)	1.2 (3.4)	<b>1.9</b> (4.5)
\$50,000 or More	4.6 (9.0)	3.9 (8.9)	0.7 (1.6)	1.1 (4.1)	1.9 (5.7)	2.2 (6.8)
Don't Know	4.6 (8.9)	<b>6.6</b> (10.1)	2.2 (4.2)	3.4 (4.8)	1.7 (4.5)	<b>1.9</b> (3.6)
Medicaid Status						
Medicaid	7.4 (9.8)	8.3 (9.9)	7.8 (10.6)	5.5 (7.6)	3.6 (6.6)	4.9 (7.9)
Non-Medicaid	5.5 (9.7)	5.3 (9.1)	2.7 (6.1)	2.5 (6.2)	2.2 (5.6)	2.6 (6.4)

\* Means for demographic groups in the follow up column(s) highlighted in **red** are greater by ten percent or more compared to the baseline columns. Estimates highlighted in **red** indicate groups that were worse off at follow up compared to baseline. Members are displayed according to their baseline demographic group.

	Underweight	(<18.5 BMI)	Obese (≥	30 BMI)
	Baseline	Follow Up*	Baseline	Follow Up*
Baseline Demographic	N (%)	N (%)	N (%)	N (%)
MAO HXXXA Total	3 ( 2.3%)	5 ( 3.8%)	43 (33.1%)	42 (32.1%)
Age				
65-69	0	0	13 (31.7%)	17 (41.5%)
70-74	1 ( 2.6%)	0	19 (50.0%)	20 (50.0%)
75-79	1 ( 4.5%)	2 (10.0%)	3 (13.6%)	2 (10.0%)
80-84	1 ( 6.7%)	2 (13.3%)	6 (40.0%)	2 (13.3%)
85+	0	1 ( 6.7%)	2 (14.3%)	1 ( 6.7%)
Gender				
Male	1 ( 1.6%)	0	18 (28.6%)	17 (27.4%)
Female	2(3.0%)	5(7.2%)	25 (37.3%)	25 (36.2%)
Race				
White	2(1.9%)	5(4.7%)	36 (33.6%)	33 (30.8%)
Black	1 (10.0%)	0	4 (40.0%)	6 (54.5%)
Other/Unknown	0	0	3 (23.1%)	3 (23.1%)
Marital Status				
Married	1(1.4%)	3 ( 4.2%)	18 (24.7%)	19 (26.4%)
Widowed	1 ( 4.3%)	1(4.2%)	8 (34.8%)	9 (37.5%)
Divorced or Separated	0	1 ( 5.9%)	8 (42.1%)	7 (41.2%)
Never Married	1 ( 8.3%)	0	6 (50.0%)	4 (36.4%)
Education				
Did Not Graduate HS	1 ( 7.7%)	1 ( 8.3%)	3 (23.1%)	3 (25.0%)
High School Graduate	1 ( 3.0%)	0	9 (27.3%)	8 (23.5%)
Some College	1 ( 2.8%)	3 ( 8.6%)	15 (41.7%)	14 (40.0%)
4 Year Degree or Beyond	0	1 (2.4%)	13 (29.5%)	13 (31.0%)
Annual Household Income				
Less than \$10,000	1 (16.7%)	0	2 (33.3%)	1 (14.3%)
\$10,000-\$19,999	0	0	7 (35.0%)	7 (36.8%)
\$20,000-\$29,999	1 ( 6.7%)	1(7.1%)	7 (46.7%)	7 (50.0%)
\$30,000-\$49,999	0	3 (11.5%)	8 (30.8%)	7 (26.9%)
\$50,000 or More	0	0	12 (30.8%)	13 (35.1%)
Don't Know	1 ( 6.7%)	1 ( 6.7%)	4 (26.7%)	3 (20.0%)
Medicaid Status				
Medicaid	1 ( 4.8%)	0	8 (38.1%)	8 (36.4%)
Non-Medicaid	2(1.8%)	5 ( 4.6%)	35 (32.1%)	34 (31.2%)

 Table 34: 2019-2021 Cohort 22 Performance Measurement Distribution of BMI Categories

 by Baseline Demographic Group for MAO HXXXA

\* Percentages for demographic groups in the follow up column(s) highlighted in **red** are greater by ten percentage points or more compared to the baseline columns. Estimates highlighted in **red** indicate groups that were worse off at follow up compared to baseline. Members are displayed according to their baseline demographic group.

# Appendix 1

# **Program Background**

This section introduces the Medicare HOS, survey administration, and the calculation of outcomes for the performance measurement. A complete description of the HOS program, the program timeline, previous survey results, and supporting documents are available on the HOS website at www.HOSonline.org.

CMS is committed to monitoring the quality of care provided by MAOs. The HOS results continue to be an important part of the CMS quality improvement activities, ensuring that medical care paid for under the Medicare program meets professionally recognized standards of health care. Section 722 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) mandates collecting, analyzing, and reporting health outcomes information. This legislation also specifies that data collected on quality, outcomes, and member satisfaction to facilitate consumer choice and program administration must use the same types of data that were collected prior to November 1, 2003. Collected since 1998, the Medicare HOS is the first patient-reported outcomes measure in Medicare managed care, and therefore remains a critical part of assessing MAO quality. In addition, CMS includes the HOS results as one component of their performance assessment program.

The goal of the Medicare HOS program is to gather valid and reliable clinically meaningful data for uses such as: targeting quality improvement activities and resources; monitoring health plan performance; rewarding top-performing health plans; helping people with Medicare make informed health care choices; and advancing the science of functional health outcomes measurement. This Performance Measurement Report is part of a larger CMS effort to increase the health care industry's capacity to improve the health status of its Medicare population. The results are intended to help MAOs identify areas for potential improvement. The HOS Performance Measurement Report is made available to all participating MAOs after each annual follow up cohort data collection is completed.

# 2019-2021 Medicare Advantage Organization Participation

MAOs with Medicare contracts in effect on or before January 1, 2018, and a minimum enrollment of 500 members were required to report the Baseline HOS in 2019. Note that Baseline HOS was optional for Institutional Special Needs Plans (I-SNPs):

- All MAOs, including all coordinated care plans, local and regional preferred provider organizations (PPO), Private Fee-for-Service (PFFS) and Medical Savings Account (MSA) contracts
- Section 1876 cost contracts, even if closed for enrollment
- Employer/union only contracts
- Medicare-Medicaid Plans (MMP)

MAOs that administered the HOS Baseline Survey in 2019 were required to administer the HOS Follow-Up Survey in 2021. In the event of a consolidation, merger, or novation, the surviving contract had to report Follow Up HOS for all members of all contracts involved. All eligible members of these contracts were resurveyed and the results were reported as one under the surviving contract. For a contract conversion, the contract had to report if its new organization type was required to report. Refer to the list of participating MAO contracts available in the Survey Results section on the Survey page of the HOS website (www.HOSonline.org).

All PACE organizations with Medicare contracts in effect on or before January 1, 2020, and with a minimum enrollment of 30 members as of October 1, 2020, were required by CMS to administer the HOS-Modified (HOS-M) in 2021.

MAOs sponsoring Fully Integrated Dual Eligible (FIDE) Special Needs Plans (SNPs) within Medicare contracts in effect on or before January 1, 2020, and with a minimum enrollment of 50 members could elect to report HOS or HOS-M at the plan benefit package (PBP) level for a frailty assessment under the Affordable Care Act. The assessment determined eligibility for a frailty adjustment payment, similar to the payments provided to PACE programs, for FIDE SNPs with similar average level of frailty to PACE. For the 2021 survey year, plans were permitted to choose whether their assessments would be calculated based on ADLs reported in the HOS or on a separate sample of members who completed the HOS-M. Voluntary reporting for frailty assessment at the FIDE SNP level is in addition to standard HOS requirements for quality reporting at the contract level.

#### Cohort 22 Baseline Sampling

- MAOs with fewer than 500 members were not required to report HOS.
- For MAOs with populations of 500 to 1,200 members, all eligible members were included in the sample.
- For MAOs with more than 1,200 members, a simple random sample of 1,200 members was selected.
- Members were defined as eligible if they were 18 years or older on the date the sample was drawn. The six months enrollment requirement was waived beginning in 2009, and members with End Stage Renal Disease (ESRD) were no longer excluded from the sampling beginning in 2010. Since 2019, MAOs could also request a survey sample larger than 1,200. Oversampling was expressed as a whole percentage of the standard sample size. Since 2019, I-SNPs are excluded at the PBP level from the HOS Baseline Survey.

#### Cohort 22 Follow Up Sampling

- Members were eligible for remeasurement if they had sufficient data to derive PCS or MCS scores at baseline and were enrolled in their original contract when the follow-up sample was drawn.
- Members were excluded from follow up if they were no longer enrolled in their original MAO when the follow-up sample was drawn or died after the baseline survey. Although deceased members were excluded from the sample, CMS includes deceased baseline respondents when calculating the HOS performance measurement results.<sup>5</sup>

#### Survey Administration

- MAOs contracted with a CMS approved survey vendor to administer the surveys following the protocols specified in the HEDIS 2019 and HEDIS MY 2020, Volume 6: Specifications for the Medicare Health Outcomes Survey manuals. The manuals detailed the methods for mail, telephone, and mixed methods of data collection.
- The mail component of the surveys used prenotification letters, a standardized questionnaire, survey letters, and reminder/thank you postcards. Sample respondents completed the HOS in English, Spanish, Chinese, or Russian language versions of the mail survey. While no surveys were completed in Russian for *Cohort 22 Baseline* or *Follow Up*, the Russian language option became available in 2019.
- Survey vendors attempted telephone follow up in English, Spanish, or Chinese (with at least six attempts) in those instances when members failed to respond after the second mail survey or returned an incomplete mail survey, in order to obtain responses for missing items. The Chinese language telephone protocol was added to the HOS in 2020. A standardized version of an Electronic Telephone Interviewing System script was used to collect telephone interview data for the survey.
- Survey vendors performed initial data cleaning and follow up with survey respondents, as necessary.

Additional information about *Cohort 22* sampling and survey administration can be found in the NCQA HEDIS 2019 and HEDIS MY 2020 Volume 6 manuals.<sup>5,6</sup>

# **HOS Data Collection Tools**

The core HOS health status items were collected with the same instrument for the 2019 Cohort 22 Baseline and 2021 Cohort 22 Follow Up. Since 2006, the HOS has incorporated the Veterans RAND 12-Item Health Survey (VR-12).

#### Medicare HOS 3.0 Instruments

The 2019 and 2021 survey administrations used the HOS 3.0 that was implemented in 2015. The HOS 3.0 evaluates the HRQOL of MA members by measuring their physical and mental health status using the VR-12.<sup>61</sup> The HOS contains questions about socio-demographics, ADLs, IADLs, chronic medical conditions, self-rated health, number of unhealthy days in the past 30 days, depression risk, cognitive functioning, memory, pain, living arrangements, and self-reported height and weight used for calculation of BMI. Three HEDIS Effectiveness of Care measures are included to evaluate management of urinary incontinence, physical activity, and fall risk management. Questions regarding race, ethnicity, sex, primary language, and disability status comply with standards established by Section 4302 of the Affordable Care Act. The HOS 3.0 includes changes to questions about leakage of urine, sleep duration and quality, and primary language spoken in the home. In a formatting change, the survey uses a two column layout for each page. The HOS survey instruments are available on NCQA's website at www.ncqa.org/hedis/measures/hos.

The VR-12 was derived from the Veterans RAND 36-Item Health Survey (VR-36).<sup>62,63,64</sup> The VR-12 is a generic, multipurpose health survey, which consists of the 12 most important items from the VR-36 for construction of the physical and mental health summary scores (Q1-Q7) and two items that assess change in physical and emotional health compared with one year ago (Q8 and Q9) that are not used in the calculation of the summary scores. The shorter instrument was adopted to reduce response burden

and survey costs, while maintaining comparability of HOS results over time. The body of literature supports the shorter survey as a reliable and valid substitute for the 36-item health survey. In addition, conversion formulas have been developed and validated for comparison of the VR-12 with the earlier 36-item survey.<sup>65</sup>

In comparison with the earlier 36-item survey, two modifications were made in the VR-12. The first modification was an increase in the number of response choices for the items used for role limitations due to physical problems (Q3a and Q3b) and role limitations due to emotional problems (Q4a and Q4b) from a two-point choice of "Yes" or "No" to a five-point Likert scale ("No, none of the time," "Yes, a little of the time," "Yes, some of the time," "Yes, most of the time," and "Yes, all of the time"). The role-physical questions assess whether respondents' physical health limits them in the kind of work or other usual activities they perform, while the role-emotional questions assess whether emotional problems have caused respondents to accomplish less in their work or other usual activities. The second modification was that two questions were used to assess health change, one focusing on physical health (Q8) and one on emotional problems (Q9), in contrast to the one general change item in the 36-item survey.<sup>66,67</sup>

The VR-12 measures the same eight health domains as the 36-item health survey: 1) Physical Functioning, 2) Role-Physical, 3) Role-Emotional, 4) Bodily Pain, 5) Social Functioning, 6) Mental Health, 7) Vitality, and 8) General Health. Each domain aggregates one or two items and all eight domains are used to calculate the two summary measures, as illustrated in the VR-12 mapping model that follows in Figure 4.



#### Figure 4: Mapping of HOS VR-12 to 8 Health Domains and 2 Summary Measures

Note: Domains contributing the most to each summary measure are indicated by a solid line. Domains contributing to a lesser degree are indicated by a broken line; however, all domains contribute to some extent to the scoring of both summary measures (PCS and MCS).

#### Physical and Mental Component Summary Scores

The baseline and follow up PCS and MCS scores were calculated from the VR-12 using the Modified Regression Estimate (MRE) for scoring and for imputation of missing data.<sup>61</sup> These are the unadjusted scores that will be used to create the final adjusted change scores that are discussed in the Calculation of Outcomes below.

First, for those members with complete responses across the VR-12, the following steps<sup>68</sup> were taken to calculate the scores:

- Step One: New variables were created for each response level choice with one level omitted. Using the 59 total response categories across the VR-12 questions, 47 indicator variables were created.
- Step Two: Aggregate PCS and MCS scores were created separately from a regression equation that weighted each of the 47 indicator variables. The weights were derived from the Veterans SF-36 PCS and MCS Scales using the 1999 Large Health Survey of Veteran Enrollees.<sup>69</sup>
- Step Three: A constant was added to each of the estimates obtained from Step Two. The scores were then standardized using normative values from a 1990 U.S. general population. Therefore a mean score of 50 represents the national average, a 10-point difference above and below the mean score is one standard deviation, and with few exceptions, the scores have a range of 0 through 100 (higher being better).

Second, the PCS and MCS scores were imputed using the MRE when member data was missing across any of the VR-12 items. Using the MRE algorithm, PCS and MCS scores can be calculated in as many as 90% of the cases in which one or more VR-12 responses are missing.<sup>70</sup> Depending on the pattern of missing item responses for a member, a different set of regression weights was required to compute that individual's PCS and/or MCS scores.<sup>68</sup> For each combination of missing data, the members' data were merged with the stored regression weights and the PCS or MCS scores were computed and then standardized using the normative values from MRE Step Three.

Member PCS and MCS results were mode adjusted for the impact of telephone administration compared to the reference mode of mail administration. Comparisons across the VR-12 of matched HOS and Veterans Administration surveys for the same respondents showed that PCS and MCS scores were, on average, 1.9 and 4.5 points greater respectively for telephone compared with mail administered surveys.<sup>71</sup> Therefore, for telephone surveys, 1.9 points were subtracted from the PCS score and 4.5 points were subtracted from the MCS score.

For the physical health summary measure, very high scores indicate no physical limitations, disabilities, or decline in well-being; high energy level; and a rating of health as "excellent." For the mental health summary measure, very high scores indicate frequent positive affect, absence of psychological distress, and no limitations in usual social and role activities due to emotional problems.

### **Data Evaluation and Processing**

The entire HOS data file was reviewed to verify the presence of unique member records. Additional reviews of the data are performed using the complete HOS data file, as well as subsets of the data (e.g., mode of administration, survey vendor, and survey language).

- Data consistency checks are performed to identify:
  - Out of range dates and response values
  - o Duplicate Beneficiary Link Keys and Medicare Beneficiary Identifier (MBI) numbers

- o Data shifts in value assignment
- o Inconsistencies in data distributions of survey response values among survey vendors
- Discrepancies in the percent complete and survey disposition codes
- Inconsistent assignment of survey variables (such as survey disposition, round number, and survey language)
- o Patterns of missing responses across MAO data
- Response consistency checks between related items are performed to validate the integrity of the data.
- Date variables are converted to a SAS<sup>®O</sup> date format to facilitate the calculation of duration of enrollment and age, which are then stored in the data file.
- For the performance measurement, baseline and follow up data are evaluated and merged, and additional variables are calculated or obtained from other CMS data sources.

### **Calculation of Outcomes**

The 2019-2021 Cohort 22 Performance Measurement Report incorporates results from the 2019 HOS 3.0 for the baseline and the 2021 HOS 3.0 for the follow up survey administrations. The outcomes of the performance measurement analysis were death, change in physical health as measured by the PCS score, and change in mental health as measured by the MCS score. For the HOS results, death and PCS outcomes were combined into one overall measure of change in physical health. Thus, there are two primary outcomes: (1) Alive and PCS better or same (vs. PCS worse or death), and (2) MCS better or same (vs. MCS worse). These outcomes are designated as the primary outcomes of interest since health maintenance, rather than improvement, is a realistic clinical goal for many seniors.

The final adjusted physical and mental health measures are based on the case-mix adjusted PCS and MCS change scores derived from the baseline and follow up surveys, as well as death status. Multivariate logistic regression models were used for case-mix adjustment, and to calculate expected outcomes for each member. Case-mix adjustments were used so that all MAOs were as comparable as possible in terms of socio-demographic characteristics (age, gender, race, etc.), chronic conditions, baseline health status, and other design variables. Further details about the HOS variables (e.g., race and ethnicity) are included in the PM Data Users Guide (DUG) that is provided to MAOs with their requested data or refer to the online document available on the Data Users Guides page of the HOS website at www.HOSonline.org.

For expected outcomes, the probability of being better or worse was calculated using statistical models that take into account the demographic and socioeconomic variables and other covariates. The expected outcomes were death, "PCS better or same," and "MCS better or same." For calculating expected outcomes, separate case-mix models were warranted for death, PCS scores, and MCS scores.

A series of 12 different models (six death models, three PCS models and three MCS models) were applied, since not all members had data for all of the independent variables that could be used to calculate an expected score. In other words, each expected outcome for a member was based on those variables for which the member had data. For example, if a member had all of the required independent variables for Model A (the model containing the highest number of independent variables), then their expected score was calculated using that model. If not, then Model B (the model containing the second highest number of independent variables) was used if all of the required independent variables for this

<sup>&</sup>lt;sup>o</sup> SAS<sup>®</sup> is a registered trademark of SAS Institute Inc., Cary, NC.

model were available, and so on. One model was used to calculate an expected outcome for each member.

#### Death Models

All members age 65 or older, who completed the HOS at baseline with a PCS or MCS score, and whose MAO participated in the HOS at follow up were included in the analysis of death outcomes (i.e., analytic sample).

Models used to predict the probability of death for each member included variables to control for baseline differences in demographic and socioeconomic characteristics, chronic medical conditions, and functional status. Demographic and socioeconomic variables included age, gender, race, education, marital status, annual household income, home ownership, Medicaid status, and eligibility for Supplemental Security Income (SSI). The CMS reason for Medicare entitlement field, which has categories of disability, is used as a proxy for SSI eligibility. Chronic medical conditions were measured with a checklist of 14 conditions and four indicators of current cancer treatment. Conditions were grouped into four categories that were strong, moderate, weak, and negative predictors of death, for models in which the individual chronic medical condition data were incomplete. Additional variables considered for the models included the baseline item about general health compared to others, the six ADL items, the individual VR-12 response items, and the baseline PCS and MCS scores. For example, functional status was measured using a combined VR-12 physical functioning/ADL scale, the individual VR-12 response item about general health compared to others. Baseline PCS and MCS were used when VR-12 response items were incomplete (see Table A1 in this Appendix for detailed information about covariates used in each of the six death models).

#### PCS and MCS Models

Members age 65 or older, who completed the HOS at baseline and follow up, for whom PCS and/or MCS scores could be computed at both time points, and who remained in their original MAO at the time of follow up sampling were included in the analysis of PCS and MCS outcomes (i.e., respondent sample).

There are two major steps in the scoring for the PCS and MCS outcomes. The first step is to calculate the unadjusted PCS and MCS scores from the VR-12 set of questions that are embedded in the HOS 3.0 questionnaire. The second step is to calculate the adjusted change scores for the HOS Performance Measurement analysis. Models used to predict expected change in PCS and MCS scores (e.g., PCS better or same) used a set of exogenous demographic and socioeconomic variables at baseline, such as age, gender, race, education, marital status, annual household income, home ownership, Medicaid status, and SSI (see Table A2 in this Appendix for detailed information about the three PCS models and three MCS models). Because each member served as his or her own control for the PCS and MCS analysis, substantial case-mix was already reflected in the baseline PCS or MCS scores. Sensitivity analyses determined that further adjustment for chronic medical conditions at baseline was not warranted, because errors in disease reporting were correlated with functioning.

The "Medicare HOS Performance Measurement Coefficient Tables" display coefficients from the series of 12 multivariate logistic regression models (six death models, three PCS models, and three MCS models) that were used to case-mix adjust HOS outcomes and to calculate expected outcomes for each member. The tables are available from the Survey Results page on the HOS website at www.HOSonline.org.

#### Calculation of MAO-Level Results

Calculation of the overall MAO-level results was completed by creating an actual death indicator for each member in the MAO analytic sample who died during the two-year follow up (actual death=1) and who survived (actual death=0). The actual physical and mental health indicators were also created for each member in the MAO respondent sample, to indicate whether the PCS score and MCS score were better, the same, or worse at the two-year follow up. The PCS score is considered to be the same if it changed by less than 5.66 points (plus or minus) between baseline and follow up survey administrations. A change greater than 5.66 points (plus or minus) is outside of the 95% confidence interval for an individual member, as estimated from the standard deviation and reliability of the PCS score. The MCS score is considered to be the same if it changed by less than 6.72 points (plus or minus). For the MAO level, the mean actual death rate (Ad), mean actual "PCS better or same" rate (A<sub>psb</sub>) and mean actual "MCS better or same" rate (A<sub>msb</sub>) were then summarized for the MAO. The mean actual "Alive and PCS better or same" rate is (1-Ad)\*A<sub>psb</sub>.

An expected death rate, an expected PCS better or same rate, and an expected MCS better or same rate were calculated for each member within the MAO respondent sample using logistic regression models for the case-mix adjustment. To summarize data for the outcome "Alive and PCS better or same," the mean expected death rate ( $E_d$ ) was calculated, along with the mean expected "PCS better or same" rate ( $E_{psb}$ ). The mean expected "Alive and PCS better or same" rate for the MAO is (1- $E_d$ )\* $E_{psb}$ . For the MAO level, data were summarized for the mean expected "MCS better or same" rate ( $E_{msb}$ ). Expected outcomes for "PCS better" and "MCS better" were also needed to calculate the percentage of members who were better, the same, or worse on each measure. The percentage of members who were worse at follow up is calculated as 1 minus the percentage who were better or the same. Member-level actual and expected results are then aggregated, and the resulting scores are used to derive the MAO-level Improving or Maintaining Physical Health (PCS better or same) and Improving or Maintaining Mental Health (MCS better or same) measures that are reported in the Medicare Part C Star Ratings.

HOS outcomes were analyzed by calculating the national averages, and the differences between actual and expected MAO level results for death, PCS, and MCS over two years. For example, the difference between actual and expected results indicates the percentage points by which the MAO's actual "Alive and PCS better or same" rate was higher (for a positive difference) or lower (for a negative difference) than expected results. A *t* statistic, expressing the significance of the MAO differences from the average national results, was calculated by dividing the MAO deviation by the standard error. A *t* statistic plus or minus 2.0 or larger was considered significant, as long as an overall *F* test indicated that the MAOs difference of interest (discussed below). An adjusted MAO percentage of "Alive and PCS better or same" also was calculated by combining the overall (national) results and the MAO deviation score, using a logit transformation. Similar logic was used to calculate adjusted MAO percentages for "Alive and PCS better," "MCS better or same," and "MCS better."

#### Tests of Significance for MAO-Level Differences

For physical health (mortality and PCS) over the two-year follow up period, overall *F* tests are conducted to determine if mortality, "PCS better or same" and "PCS better" are significantly different at the MAO level. If both "Death" and "PCS better or same," which when combined are specified *a priori* as the primary physical health outcome of "Alive and PCS better or same," differ significantly at the MAO level, an outlier analysis for PCS is warranted. The PCS outlier analysis is performed using a *t*-*test* at the MAO level. MAOs with a *t* statistic  $\geq 2.0$  are designated as a better than expected outlier for the physical health measure, while MAOs with a *t* statistic  $\leq -2.0$  are identified as a worse than expected

outlier, compared to the national average. If the *F* test for "Death" or "PCS better or same" is not significant, the *t-tests* are not warranted and all MAOs are designated as the same, when compared to the national average. The "Alive and PCS better or same" measure is the combined Physical Health Percent Better+Same result in Table 7 in the *Cohort 22 Performance Measurement* Results section and is used as the Medicare Star Ratings measure for *Improving or Maintaining Physical Health*.

For the two-year follow up period for mental health (MCS), an overall *F* test is conducted to determine if "MCS better or same" and "MCS better" are significantly different at the MAO level. If "MCS better or same," which is specified *a priori* as the primary mental health outcome, differs significantly at the MAO level, an outlier analysis for MCS is warranted. The MCS outlier analysis is also performed using a *t-test* at the MAO level. MAOs with a *t* statistic  $\geq 2.0$  are designated as a better than expected outlier for the mental health measure, while MAOs with a *t* statistic  $\leq -2.0$  are identified as a worse than expected outlier, compared to the national average. If the *F* test for "MCS better or same" is not significant, the *t-tests* are not warranted and all MAOs are designated as the same, when compared to the national average. The "MCS better or same" measure is the combined Mental Health Percent Better+Same result in Table 8 in the *Cohort 22 Performance Measurement* Results section and is used as the Medicare Star Ratings measure for *Improving or Maintaining Mental Health*.

Please note: The information presented here will permit an MAO to closely approximate its expected PCS better or same (without death) and expected MCS better or same results. However, exact replication of the final MAO-level Alive and PCS better or same results may not be possible since MAOs do not have access to records of disenrolled members that are included in the case-mix adjustment for death, which is used for the PCS results.

# **Table A1: Covariates Used in Estimation of Expected Mortality**

	Death Model					
Death Model Covariates	Α	В	С	D	Е	F
Demographic and Socioeconomic Variables at Baseline						
Age (linear), Age 75+, Age 85+	√	√	$\checkmark$	√	$\checkmark$	√
Gender	√	√	√	√	√	√
Age and Gender interaction	√	√	$\checkmark$	√	$\checkmark$	$\checkmark$
HOS Race/Ethnicity (Asian, Black/African-American, Hispanic, Native American, Pacific Islander, Multiracial)	$\checkmark$	$\checkmark$				
CMS Race/Ethnicity (Asian, Black/African-American, Hispanic, Native American, Other, Unknown)			$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Receive Medicaid or do not receive Medicaid	$\checkmark$	$\checkmark$	$\checkmark$	~	$\checkmark$	√
Eligible or not for Supplemental Security Income (SSI) due to disability	$\checkmark$	$\checkmark$	$\checkmark$	~	$\checkmark$	√
Home owner or non-home owner	$\checkmark$	√				
High school graduate or not high school graduate	$\checkmark$	$\checkmark$				
Married or not married (single, divorced, widowed, separated)	$\checkmark$	$\checkmark$				
Annual household income less than \$20,000 or annual household income of \$20,000 or greater	$\checkmark$	√				
Chronic Medical Conditions at Baseline						
Presence or absence of each of 14 chronic medical conditions: hypertension, myocardial infarction, angina/coronary artery disease, congestive heart failure, other heart conditions, stroke, pulmonary disease, gastrointestinal disorders, arthritis of hip or knee, arthritis of hand or wrist, sciatica, diabetes, depression, any cancer other than skin cancer	$\checkmark$					
Treatment or non-treatment for 4 cancer types: colon/rectal, lung, breast, prostate	$\checkmark$					
<ul> <li>Mean of regression coefficients in 4 condition groups with varying relationships to death:</li> <li>1. Strong relationship (congestive heart failure, any cancer, lung cancer)</li> <li>2. Moderate relationship (pulmonary disease, stroke, diabetes, colon/rectal cancer)</li> <li>3. Weak relationship (breast cancer, myocardial infarction, hypertension, angina/coronary artery disease, other heart conditions)</li> <li>4. Negative relationship (depression, gastrointestinal disorders, arthritis [both types], sciatica, prostate cancer)</li> </ul>		v	V	V		
Baseline Functional Status						
Physical Functioning/Activities of Daily Living Scale	$\checkmark$	$\checkmark$	$\checkmark$			
General Health item (health is excellent, very good, good, fair, poor)	√	√	√			
Physical Functioning item (limitations in moderate activities)	$\checkmark$	$\checkmark$	$\checkmark$			
Physical Functioning item (limitations climbing several flights of stairs)	$\checkmark$	$\checkmark$	$\checkmark$			
Role-Physical item (accomplished less than would like)	$\checkmark$	$\checkmark$	$\checkmark$			
Role-Physical item (limited in the kind of work or other activities)	$\checkmark$	$\checkmark$	$\checkmark$			
Role-Emotional item (accomplished less than would like)	$\checkmark$	$\checkmark$	$\checkmark$			
Role-Emotional item (didn't do work or other activities as carefully)	$\checkmark$	$\checkmark$	$\checkmark$			
Bodily Pain item (pain interfered with normal work)	$\checkmark$	$\checkmark$	$\checkmark$			
Mental Health item (felt calm and peaceful)	$\checkmark$	$\checkmark$	$\checkmark$			
Vitality item (had a lot of energy)	$\checkmark$	$\checkmark$	$\checkmark$			
Mental Health item (felt downhearted and blue)	$\checkmark$	$\checkmark$	$\checkmark$			
Social Functioning item (health interfered with social activities)	$\checkmark$	$\checkmark$	$\checkmark$			
One-item measure of General Health compared to others	$\checkmark$	$\checkmark$	$\checkmark$			
Baseline PCS and MCS				$\checkmark$	$\checkmark$	

# Table A2: Covariates Used in Estimation of Change in PCS and MCS Scores

		PCS Model			MCS Model		
PCS/MCS Model Covariates at Baseline	Α	B	С	Α	B	С	
Age (linear), Age 75+, Age 85+	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Gender	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Age and Gender interaction	$\checkmark$	$\checkmark$	$\checkmark$	~	$\checkmark$	$\checkmark$	
HOS Race/Ethnicity (Asian, Black/African-American, Hispanic, Native American, Pacific Islander, Multiracial)	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$		
CMS Race/Ethnicity (Asian, Black/African-American, Hispanic, Native American, Other, Unknown)			$\checkmark$			$\checkmark$	
Receive Medicaid or do not receive Medicaid	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Eligible or not for Supplemental Security Income (SSI) due to disability	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Home owner or non-home owner	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$		
High school graduate or not high school graduate	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$		
Married or not married (single, divorced, widowed, separated)	$\checkmark$	$\checkmark$		$\checkmark$	$\checkmark$		
Annual household income less than \$20,000 or annual household income of \$20,000 or greater	V			$\checkmark$			

# Appendix 2

### **HOS Partners**

#### CENTERS FOR MEDICARE & MEDICAID SERVICES (CMS)

Address: 7500 Security Boulevard Baltimore, MD 21244-1850

HOS websites: www.cms.gov/Research-Statistics-Data-and-Systems/ Research/HOS/index.html

www.HOSonline.org

HOS Email: hos@cms.hhs.gov The Health Outcomes Survey (HOS) Team at the Centers for Medicare & Medicaid Services (CMS) is responsible for leadership, oversight, coordination, and successful implementation of the national Medicare Health Outcomes Survey Program.

The HOS team directs and coordinates the work of various program partners. The survey implementation and operations contractors include the National Committee for Quality Assurance (NCQA), Research Triangle Institute (RTI) International, and the Center for the Assessment of Pharmaceutical Practices (CAPP), formerly Health Outcomes Technologies Program (HOT), of the Boston University School of Public Health. The data analysis, dissemination, education, and applied research contractor is Health Services Advisory Group (HSAG).

#### CENTER FOR THE ASSESSMENT OF PHARMACEUTICAL PRACTICES (CAPP), FORMERLY HEALTH OUTCOMES TECHNOLOGIES PROGRAM (HOT)

Health Policy & Management Department, Boston University School of Public Health

Address: 715 Albany Street (T-3W) Boston, MA. 02118

Phone: (617) 414-1418 Fax: (617) 638-5374

CAPP website: www.bu.edu

Survey website: www.bu.edu/sph/about/ departments/health-law-policyand-management/research/vr-36vr-12-and-vr-6d CAPP at the Boston University (BU) School of Public Health was launched in 1998. The principal goals of CAPP are to advance the use of patient-centered assessments of health to improve health outcomes and to advance research efforts in the areas of health outcomes, cost-effectiveness analysis, technology assessment, disease management, pharmaceutical administration, and health care policy. CAPP has integrated patient-centered measures with extensive pharmaceutical and health services databases. CAPP has led several major projects in the U.S. Department of Veterans Affairs (VA) involving the development of the Veterans RAND 36-Item Health Survey (VR-36), which is modified from the MOS SF-36 to provide greater precision and reliability than the original version. Well over 2 million administrations of the VR-36 have occurred in the VA since 1996. A shorter version of the VR-36, the Veterans RAND 12-Item Health Survey (VR-12), has also been developed by CAPP and administered to over 3.0 million users both inside and outside the VA. These assessments have contributed to the outcomes management system in the VA. The VR-12 is the principal outcome in HOS.

The work of the CAPP program is driven by an increased demand for new patient-based assessment tools and methodologies that can be used for clinical management and for monitoring the quality, efficiency, and effectiveness of patient care.

CAPP's staff have been engaged in several collaborative projects for the HOS, including comparisons of health outcomes between the HOS and the VA. The purpose of this study was to examine the differences in the outcomes of care for the HOS compared with the VA. Analyses included psychometric comparisons of a 36-item Health Survey between HOS and VA, and an examination of the differences of the disease burden of patients seen in the HOS systems of care compared with those veterans seen within the VA. A recent study examined the quality of care using medication data from the Medicare Part D data base merged with VR-12 outcomes from the HOS survey. The group has also developed imputation programs for the HOS to deal with missing values using the MOS SF-36 Version 1.0, the VR-36, and the VR-12, as well as risk adjustment models.

#### HEALTH SERVICES ADVISORY GROUP, INC. (HSAG)

Address: 3133 East Camelback Road Suite 140 Phoenix, AZ 85016

Phone: (602) 801-6600 Fax: (602) 801-6051

Website: www.hsag.com

HOS Information and Technical Support Telephone Line: (888) 880-0077

HOS Information and Technical Support Email: hos@hsag.com Originally established in 1979, HSAG has advanced to become a multi-state Quality Innovation Network-QIO (QIN-QIO), External Quality Review Organization (EQRO), and End-Stage Renal Disease (ESRD) Network.

As the QIN-QIO for Arizona and California, HSAG collaborates with patients, families, caregivers, hospitals, nursing homes, home health agencies, physician offices, and other stakeholders in order to improve healthcare. QIN-QIOs work with communities and providers on strategic initiatives and projects to implement improvements in the quality of care available throughout the spectrum of care. QIN-QIO projects drive quality by providing technical assistance, convening learning and action networks for sharing best practices, and collecting and analyzing data for improvement.

HSAG has more than 30 years of experience performing external quality review (EQR) activities, and provides EQRlike services in 18 states. HSAG works collaboratively with the state Medicaid agencies for which it performs EQR services to help improve the quality of care provided to Medicaid recipients. Moreover, HSAG collaborates with each state's staff to develop state quality improvement plans and to design initiatives that will result in measurable outcomes.

In its role as an ESRD Network, HSAG provides quality improvement, data management, grievance investigation, technical assistance, and patient and professional education services for providers and patients in multiple states. The goal of the ESRD Network is to efficiently and effectively increase the quality of care and quality of life for ESRD patients.

HSAG is an NCQA HEDIS<sup>®</sup> Certified Survey Vendor and NCQA Licensed Organization.

HSAG has been CMS' data analysis, dissemination, education, and applied research contractor for the Medicare HOS program since 1998.

#### NATIONAL COMMITTEE FOR QUALITY ASSURANCE (NCQA)

Address: 1100 13<sup>th</sup> Street, NW Third Floor Washington, DC 20005

Phone: (202) 955-3500 Fax: (202) 955-3599

Email: HOS@ncqa.org

Website: www.ncqa.org NCQA has served as the CMS contractor for implementing the Healthcare Effectiveness Data and Information Set (HEDIS<sup>®</sup>) Medicare HOS since the survey's inception in 1997. In this capacity, NCQA:

- Manages the data collection and transmittal of the HOS data.
- Evaluates and trains CMS-approved HOS survey vendors and conducts ongoing quality oversight of the survey process.
- Develops, evaluates, and refines quality measures for the HOS.
- Publishes the *HEDIS Volume 6: Specifications for the Medicare Health Outcomes Survey*, which contains the technical specifications for the measure and survey protocol.
- Provides CMS, Medicare Advantage Organizations (MAOs), and interested parties with technical assistance, and materials related to the HOS measures.

NCQA is a private, non-profit organization dedicated to improving health care quality. NCQA's website (www.ncqa.org) contains information to help consumers, employers, and others make more informed health care choices.

NCQA accredits and certifies a wide range of health care organizations, recognizes clinicians and clinician groups in key areas of performance, and manages the evolution of HEDIS, the tool the nation's MAOs use to measure and report on their performance. There are 86 HEDIS measures, which provide purchasers and consumers with the information they need to reliably compare the performance of managed care plans.

HEDIS is a registered trademark of the National Committee for Quality Assurance (NCQA).

# **RESEARCH TRIANGLE INSTITUTE** (**RTI**) **INTERNATIONAL**

Social Policy, Health & Economics Research (SPHERE)

Main Office Address: 3040 Cornwallis Road PO Box 12194 Research Triangle Park, NC 27709

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Website: www.rti.org RTI International is an independent, nonprofit research institute based in Research Triangle Park, North Carolina. Established in 1958 as the Research Triangle Institute, RTI has a distinguished history of scientific achievement in the areas of health and pharmaceuticals, education and training, surveys and statistics, advanced technology, international development, economic and social policy, energy and the environment, and laboratory testing and chemical analysis. RTI's staff of more than 5,500 supports projects in more than 75 countries.

The organization was founded by a joint action of the University of North Carolina at Chapel Hill, Duke University, and North Carolina State University as the first scientific organization in the Research Triangle Park (RTP), North Carolina. RTI today comprises four research units, of which the largest encompasses statistics, health and social policy and survey research.

RTI staff have extraordinary depth of expertise in collecting, assessing, and reporting policy-oriented information and conducting health services research in many areas, including payment system design, risk adjustment, cost estimation and cost-effectiveness analysis, as well as state health care reform and Medicaid program evaluation. In addition, RTI possesses substantial capabilities in the analysis of large databases. Staff members are highly regarded in their respective areas of expertise and they have testified before the U.S. Congress, MedPAC (and its predecessor agencies ProPAC and PPRC), and various state commissions.

RTI's main campus is located on 180 acres in North Carolina's RTP. In addition, RTI maintains well-staffed research facilities at sites in Washington, DC; Rockville, Maryland; Waltham, Massachusetts; Chicago, Illinois; Atlanta, Georgia; and at numerous project locations in the United States and abroad.

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