Medicare Health Outcomes Survey

Baseline Report

Cohort VI

2003

Centers for Medicare & Medicaid Services

Health Services Advisory Group

HEALTH SERVICES ADVISORY GROUP

Medicare Health Outcomes Survey
Cohort VI Baseline Report

EVALUATION AND FEEDBACK FORM

FAX BACK THIS FORM TO HSAG, ATTENTION:
LAURA GIORDANO AT 602-241-0757

-OR-

CONTACT THE MEDICARE HEALTH OUTCOMES SURVEY
INFORMATION AND TECHNICAL SUPPORT
TELEPHONE: (888) 880-0077 or E-MAIL ADDRESS: hos@azqio.sdps.org

The Centers for Medicare & Medicaid Services (CMS) and Health Services Advisory Group (HSAG) welcome your comments and feedback on this report. Please use the comment section below for your questions, comments, issues or concerns.

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In order to assure a complete and timely response, please complete the following information:

Name: _____ **Date:** _____

Title: _____

Organization: _____

If M+CO, Plan ID Number: _____

Phone Number: _____ **Fax:** _____

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Reader's Guide

WHAT'S NEW IN THE MEDICARE HEALTH OUTCOMES SURVEY PROGRAM

- A new manual, "*Measuring and Improving Health Outcomes: An SF-36® Primer for the Medicare Health Outcomes Survey*," was recently published by the Health Assessment Lab and QualityMetric, Inc. This primer provides general information about the Medicare Health Outcomes Survey (HOS) – how it came to be, what its components are, how HOS data are collected and analyzed, and how HOS results are being used. Information on the construction, scoring, reliability, validity and interpretation of the SF-36® Health Survey, which is the core HOS outcomes measure, is summarized. Multiple tables of normative data are included to allow health plans and others using the SF-36® to compare their data with reference norms for the Medicare managed care population, overall and by categories such as age and gender. A complimentary copy of the primer was sent to each health plan. Copies of the primer may be purchased via QualityMetric's Secure Online Order Center (*http://www.qualitymetric.com*).

- To promote and facilitate the usage of Medicare HOS data by researchers, the HOS project is collaborating with the Research Data Assistance Center (ResDAC) at the University of Minnesota. ResDAC is a contractor of the Centers for Medicare & Medicaid Services (CMS) that provides assistance to academic, government and non-profit researchers interested in using Medicare and/or Medicaid data. ResDAC is available to assist in the completion and/or review of data requisition forms for Medicare HOS research data files prior to their submission to CMS. For additional information and assistance with obtaining Medicare HOS research data files, please visit the ResDAC Medicare HOS Web page (*http://www.resdac.umn.edu/OtherDataSets/HOS.asp*). ResDAC may also be contacted by calling 1-888-9RESDAC (1-888-973-7322) or by e-mailing resdac@umn.edu.

- A detailed technical document, "*Calculating Medicare Health Outcomes Survey Performance Measurement Results*," is now available for download from the HOS Publications section of the Medicare HOS website (*http://www.cms.hhs.gov/surveys/hos*). This document outlines the steps utilized for the calculation of HOS Performance Measurement results among living beneficiaries over a two-year period. These results are based on risk adjusted mortality rates, and changes in physical and mental health functioning and well being.

- Program of All-inclusive Care for the Elderly (PACE) plans participated in the HOS from 1999 through 2002 (*Cohorts II* through *VI Baseline*); however, beginning with the 2003 (*Cohort VII Baseline)* administration, PACE plans are no longer required to participate in the HOS. Instead PACE plans administer the Medicare Health Survey for PACE and Evercare (MHSPE). The MHSPE is a brief instrument comprised of the SF-12®[1], a series of questions regarding activities of daily living (ADLs), and questions about the use of a proxy respondent. For additional information on the MHSPE, please contact Edith Walsh, PhD, of Research Triangle Institute (RTI) International at ewalsh@rti.org or (781)788-8100.

[1] SF-12® is a registered trademark of the Medical Outcomes Trust.

HOW TO USE THIS REPORT

- **What portion of this report is equivalent to the hard copy Baseline reports I have received in the past?**
  Sections A through D are equivalent to the hard copy Baseline reports distributed in the past. The Supplemental Figures section (E) was included on the CD-ROM that accompanied past Baseline reports. Please note, in the reports for the Quality Improvement Organizations (QIOs), the executive summaries and supplemental figures **for all plans in the state** are included in section E.

- **How can I use the information contained in this report?**
  The Baseline report is designed to guide each QIO and Medicare + Choice Organization (M+CO) in identifying the overall health of their Medicare population and in exploring potential programmatic interventions aimed at maintaining or improving health status.

- **Where can I find my plan level results in this report?**
  The information for all plans in **your** state is presented in the Executive Summary section (B) of this report. Please be advised that the baseline information in this report is not suitable for plan level comparisons, and should **not** be utilized for public release or marketing purposes.

- **How many beneficiaries participated in determining my plan level results?**
  The number of beneficiaries that participated in the HOS is summarized in the Response Rates and Distribution of the Eligible Sample headings of the Executive Summary section (B).

- **How were my plan level results generated?**
  A complete summary of the data collection and analysis can be found in the Overview section (C) of this report.

- **Where can I find additional plan level results?**
  Demographic information displayed in a tabular format can be found in the Executive Summary section (B) of this report. In addition, supplemental graphs of demographics and health status indicators at the plan, state, and national levels are available in the Supplemental Figures section (E) of this report.

- **What if I encounter a term I do not understand?**
  A glossary consisting of definitions relevant to Medicare HOS can be found in the Definitions of Key Terms section (D) of this report.

- **What survey questions were used in HOS?**
  Copies of the HOS questionnaire can be obtained from the Medicare HOS website (*http://www.cms.hhs.gov/surveys/hos*). In addition, the HOS questionnaire can also be found in the National Committee for Quality Assurance (NCQA) Health Plan Employer Data and Information Set (HEDIS®) 2003, Volume 6 Manual.[2]

[2] HEDIS® is a registered trademark of the National Committee for Quality Assurance.

- **Where can I obtain a copy of HEDIS® 2003, Volume 6?**
  Copies of HEDIS® 2003, Volume 6, as well as other HEDIS® Volume 6 publications, may be purchased by calling the NCQA Customer Support Telephone Line at 1-888-275-7585 or via NCQA's Secure Online Order Center (*http://www.ncqa.org*).

- **When will QIOs and M+COs receive beneficiary level data for *Cohort VI Baseline*?**
  Beneficiary level data are planned to be distributed to QIOs in Fall 2004 via the HOS_Data Exchange Group within the QualityNet Exchange application. Beneficiary level data will be distributed to the M+COs following the release of the *Cohort VI Performance Measurement* Report in 2006. M+COs will be notified of the availability of their data on CMS' Health Plan Management System (HPMS).

- **How can I obtain additional copies of this report?**
  All report distribution occurs electronically to participating plans through CMS' HPMS, and to participating QIOs through the HOS_Data Exchange Group within the QualityNet Exchange application. In addition, QIOs can access their HOS reports and the reports for all plans in their state via HPMS. An HPMS User ID is required to access the HPMS. Please contact your plan's CMS Quality Point of Contact to obtain access to your HOS reports. If assistance is required regarding HPMS access, please contact Neetu Jhagwani (410-786-2548) or Don Freeburger (410-786-4586) at CMS.

- **Who can I contact for technical assistance with this report?**
  The Medicare HOS Information and Technical Support Telephone Line (1-888-880-0077), as well as the HOS e-mail address (hos@azqio.sdps.org), are available to provide assistance with report questions and interpretation. Additionally, the Medicare HOS website provides general information on the project and responses to Frequently Asked Questions (*http://www.cms.hhs.gov/surveys/hos*).

MEDICARE HEALTH OUTCOMES SURVEY
SAMPLE EXECUTIVE SUMMARY

The following is a sample version of the Executive Summary made available to all M+COs participating in the *Cohort VI Baseline* Medicare Health Outcomes Survey.

The figures, tables, and text in this document contain sample plan and state level data. In addition to the sample plan and state level data, 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 e-mail address (*hos@azqio.sdps.org*), are available to provide assistance with report questions and interpretation. Additionally, the Medicare HOS website provides general information on the project and responses to Frequently Asked Questions (*http://www.cms.hhs.gov/surveys/hos*).

Executive Summary

The Centers for Medicare & Medicaid Services (CMS) is committed to monitoring the quality of care provided by Medicare + Choice Organizations (M+COs). The Medicare Health Outcomes Survey (HOS) is the first health outcomes measure for the Medicare population in managed care settings. The HOS design is based on a randomly selected sample of individuals from each participating M+CO, and measures their physical and mental health over a two-year period.

The following report presents baseline results for your plan, **HXXXE**, from the 2003 Medicare HOS *Cohort VI Baseline* survey. In addition, aggregate and state level data are provided for your state, **STXXXX**. The state level data are provided only to facilitate internal quality improvement activities. **Please be advised that the baseline information in this report is not suitable for plan level comparisons. Therefore, these data should not be utilized for public release or marketing purposes.**

THE HOS MEASURE

The HOS measure is an assessment of a health plan's ability to maintain or improve the physical and mental health functioning of its people with Medicare over a two-year period of time. The functional status of the elderly is known to decline over such a period.[1] The differences between the baseline and the two-year follow up physical and mental health scores are aggregated at the plan level, yielding HOS plan level Performance Measurement results. These results are specific to each individual plan. The HOS results are an important part of CMS' quality improvement activities, as current law authorizes Quality Improvement Organizations (QIOs) to review the quality of care provided to Medicare beneficiaries. In addition, CMS includes the HOS results as one of the components of their performance assessment program. The Performance Measurement results (scheduled for release in 2006) for *Cohort VI* will incorporate data from the *Cohort VI* 2003 *Baseline* and 2005 *Follow Up* surveys.

This HOS baseline report is part of a larger effort by CMS to improve the health care industry's capacity to sustain and improve the health status and functioning of its Medicare population. The *Cohort VI Baseline* results are intended to assist M+COs and QIOs in identifying areas requiring potential improvement. The goal of the HOS program is to gather valid and reliable health status data in Medicare managed care for use in quality improvement activities, public reporting, plan accountability, and improving health outcomes.

[1] National Committee for Quality Assurance. *HEDIS® 2003, Volume 6: Medicare Health Outcomes Survey Manual*. Washington DC: NCQA Publication, 2003.

The HOS instrument consists of the SF-36® Health Survey[2, 3] and additional questions, including those used for case mix/risk adjustment purposes. Physical and mental functioning are measured with the Physical Component Summary (PCS) and Mental Component Summary (MCS) scores, which are derived from the SF-36®.

[2] SF-36® is a registered trademark of the Medical Outcomes Trust.
[3] Ware JE, Snow KK, Kosinski M, Gandek B. *SF-36® Health Survey Manual and Interpretation Guide.* Boston: The Health Institute, New England Medical Center, 1993.

RESPONSE RATES

The 2003 *Cohort VI Baseline* Medicare HOS included a random sample of 161,409 beneficiaries, including both the aged and disabled, from 163 managed care plans. Of the 161,409 individuals sampled, 5,579 were determined to be invalid members during the survey administration. Invalid members of the sample meet one of the following criteria: deceased; not enrolled in the M+CO; have an incorrect address and phone number; or have a language barrier. The removal of the invalid members from the total sample yields a sample of 155,830. This sample is referred to as the *Cohort VI Baseline eligible sample*. Of the 155,830 beneficiaries in the eligible sample, 64.6% (100,669) returned a completed baseline survey. For the purposes of this baseline report, a completed survey is defined as one that could be used to calculate PCS and MCS scores.

For your plan, 1,000 individuals were originally sampled; however, 31 were determined to be invalid members, yielding an eligible sample of 969 beneficiaries. Of the 969 beneficiaries in your plan's eligible sample, 633 returned a completed survey. Therefore, your plan's overall response rate was **65.3%**.[4] Table B1 presents the response rates for all plans in STXXXX.

TABLE B1
RESPONSE RATES FOR THE STATE OF STXXXX

	SAMPLE SIZE	INVALIDS	RESPONDENTS	RESPONSE RATE (%)
HOS Total	161,409	5,579	100,669	64.6
All XX Plans	5,000	175	3,149	65.3
Plan A	1,000	27	645	66.3
Plan B	1,000	48	631	66.3
Plan C	1,000	36	633	65.7
Plan D	1,000	33	607	62.8
HXXXE	1,000	31	633	65.3

Please note, the plan designated as "Plan A" in this table does not necessarily correspond to "Plan A" in subsequent tables. Please be advised that the baseline information in this report is not suitable for plan level comparisons, and should not be utilized for public release or marketing purposes.

[4] Response Rate = [Respondents/(Sample Size – Invalids)] x 100% = [Respondents/Eligible Sample] x 100%

DISTRIBUTION OF THE ELIGIBLE SAMPLE

The 155,830 members of the *Cohort VI Baseline eligible sample* (as defined on page B3) included 144,874 seniors (age 65 or older). Of the 144,874 eligible seniors sampled, 94,012 completed the baseline survey. This group of seniors comprises the *Cohort VI Baseline analytic sample*. **The analytic sample is the focus of all analyses within this report**.

For your plan, 969 beneficiaries were eligible for the survey, including 892 seniors (age 65 or older). Of the 892 seniors in your plan, 587 completed a baseline survey. Therefore, your plan's *Cohort VI Baseline analytic sample* is **587**. Table B2 presents the distribution of the eligible sample for all plans in STXXXX.

TABLE B2
DISTRIBUTION OF THE ELIGIBLE SAMPLE FOR ALL PLANS IN THE STATE OF STXXXX

	TOTAL ELIGIBLE	ELIGIBLE UNDER 65	ELIGIBLE 65 AND OVER	ANALYTIC SAMPLE
HOS Total	155,830	10,956	144,874	94,012
All XX Plans	4,825	336	4,489	2,938
Plan A	973	62	911	605
Plan B	952	63	889	594
Plan C	964	63	901	594
Plan D	967	71	896	558
HXXXE	969	77	892	587

Please note, the plan designated as "Plan A" in this table does not necessarily correspond to "Plan A" in other tables. Please be advised that the baseline information in this report is not suitable for plan level comparisons, and should not be utilized for public release or marketing purposes.

DEMOGRAPHICS

The following table, Table B3, depicts your plan's demographics.[5] For additional demographic information, please refer to the Supplemental Figures section (E) of this report.

TABLE B3
DEMOGRAPHICS FOR PLAN HXXXE

DEMOGRAPHIC	*Cohort VI Baseline* RESPONDENT SAMPLE [6]	*Cohort VI Baseline* NON-RESPONDENT SAMPLE
Age	(N=587)	(N=305)
Mean in Years	74.9	77.4
Standard Deviation	+/- 6.5	+/- 7.0
Gender (%)	(N=587)	(N=305)
Male	43.3	41.0
Female	56.7	59.0
Race (%)	(N=587)	(N=305)
White	84.0	81.0
Black	11.4	13.4
Other	4.3	5.6
Unknown	0.3	0.0
Marital Status (%)	(N=578)	NR
Married	55.5	
Widowed	30.3	
Divorced or Separated	9.7	
Never Married	4.5	
Education (%)	(N=578)	NR
Did Not Graduate HS	30.1	
High School Graduate	38.8	
Some College	16.6	
4 Year Degree or Beyond	14.5	
Annual Household Income (%)	(N=538)	NR
Less than $10,000	12.3	
$10,000 - $19,999	23.2	
$20,000 - $29,999	20.4	
$30,000 - $49,999	20.1	
$50,000 or More	9.9	
Don't Know	14.1	

[5] Please note, percentages may not total 100% due to rounding. Age, gender, and race are obtained from the CMS Medicare Enrollment Database. Marital status, education, and annual household income are survey questions, which are not reported (NR) for the non-respondent sample.
[6] *Cohort VI Baseline* respondent sample is equivalent to the analytic sample in Table B2.

SF-36® SUMMARY MEASURES

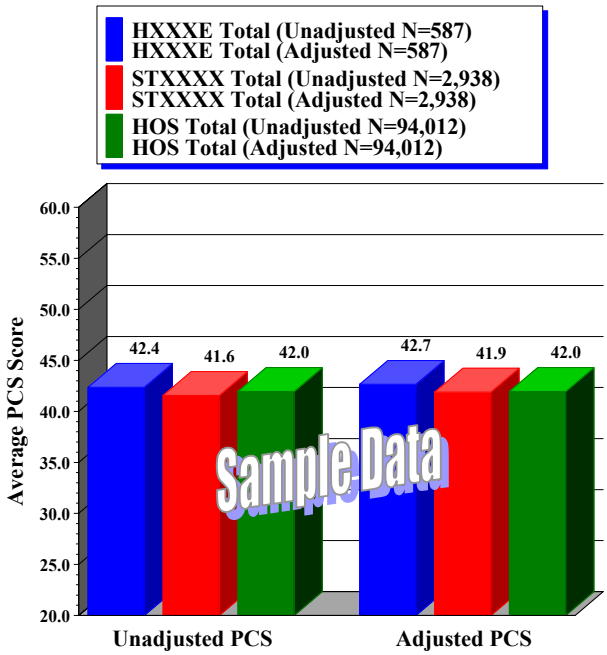
Both PCS and MCS scores are calculated utilizing the eight scales of the SF-36®: Physical Functioning (PF); Role-Physical (RP); Bodily Pain (BP); General Health (GH); Vitality (VT); Social Functioning (SF); Role-Emotional (RE); and Mental Health (MH). The summary scores are normed to the values for the 1998 general United States population, so that a score of fifty represents the national average for a given scale or summary score.

Physical Health

The PCS score is a reliable and valid measure of physical health. A very high PCS score indicates no physical limitations, disabilities, or decline in well being; high energy level; and a rating of health as "excellent."[7] A very low PCS score indicates limitations in self care, physical, social and role activities; severe bodily pain; frequent tiredness; and a rating of health as "poor." The PCS score is highly correlated with the PF, RP, and BP scales.

The figure below, Figure B1, depicts the average *unadjusted* and *adjusted* PCS scores for your plan, state, and HOS totals. These scores have been adjusted for demographics, chronic medical conditions, and HOS study design variables. For more details on the case mix adjustment, please refer to the Methodology subsection of the Overview section (C). It is important to note that the 1998 general population elderly norms reflect a PCS mean score of 42.6.

FIGURE B1: PHYSICAL COMPONENT SUMMARY (PCS) SCORES FOR PLAN HXXXE, STXXXX TOTAL, AND HOS TOTAL



[7] Ware JE, Kosinski M, Bayliss MS, McHorney CA, Rogers WH, Raczek A. Comparison of methods for the scoring and statistical analysis of SF-36® health profiles and summary measures: summary of results from the Medical Outcomes Study. *Medical Care* 1995; 33(Suppl. 4): AS264-AS279.

The following table, Table B4, depicts the *unadjusted* and *adjusted* PCS scores (including the corresponding standard deviations) for all plans in STXXXX.

TABLE B4
PHYSICAL COMPONENT SUMMARY SCORES (PCS) FOR ALL PLANS IN THE STATE OF STXXXX

	UNADJUSTED AVERAGE PCS SCORE (SD)	ADJUSTED AVERAGE PCS SCORE (SD)
HOS Total	42.0 (11.5)	42.0 (6.5)
All XX Plans	41.6 (11.6)	41.9 (6.5)
Plan A	41.5 (11.8)	42.2 (6.5)
Plan B	41.7 (11.5)	41.6 (6.7)
Plan C	41.0 (11.8)	41.6 (6.5)
Plan D	41.3 (11.5)	41.4 (6.3)
HXXXE	42.4 (11.3)	42.7 (6.4)

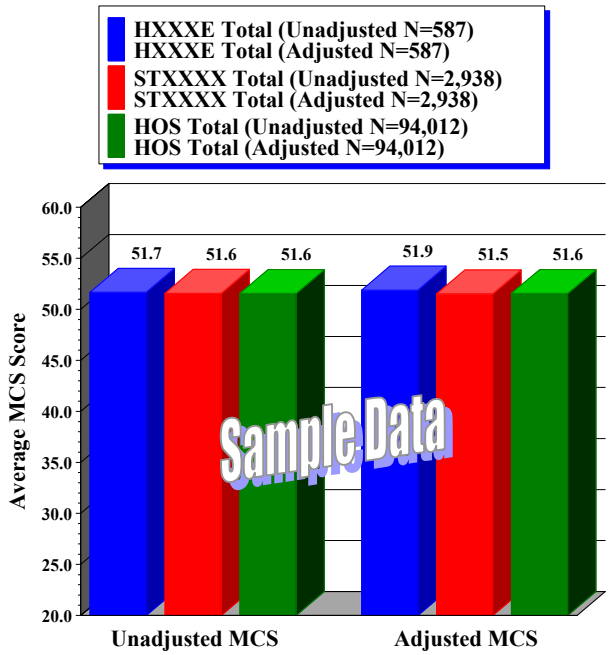
Please note, the plan designated as "Plan A" in this table does not necessarily correspond to "Plan A" in other tables. Please be advised that the baseline information in this report is not suitable for plan level comparisons, and should not be utilized for public release or marketing purposes.

Mental Health

The MCS score is a reliable and valid measure of mental health. A very high MCS score indicates frequent positive affect, absence of psychological distress, and no limitations in usual social and role activities due to emotional problems.[8] A low MCS score indicates frequent psychological distress, and social and role disability due to emotional problems. The MCS is highly correlated with the SF, RE, and MH scales.

The figure below, Figure B2, depicts the average *unadjusted* and *adjusted* MCS scores for your plan, state, and HOS totals. These scores have been adjusted for demographics, chronic medical conditions, and HOS study design variables. For more details on the case mix adjustment, please refer to the Methodology subsection of the Overview section (C). It is important to note that the 1998 general population elderly norms reflect an MCS mean score of 52.0.

FIGURE B2: MENTAL COMPONENT SUMMARY (MCS) SCORES FOR PLAN HXXXE, STXXXX TOTAL, AND HOS TOTAL



[8] Ware JE, Kosinski M, Bayliss MS, McHorney CA, Rogers WH, Raczek A. Comparison of methods for the scoring and statistical analysis of SF-36® health profiles and summary measures: summary of results from the Medical Outcomes Study. *Medical Care* 1995; 33(Suppl. 4): AS264-AS279.

The following table, Table B5, depicts the *unadjusted* and *adjusted* MCS scores (including the corresponding standard deviations) for all plans in STXXXX.

TABLE B5
MENTAL COMPONENT SUMMARY SCORES (MCS) FOR ALL PLANS IN THE STATE OF STXXXX

	UNADJUSTED AVERAGE MCS SCORE (SD)	ADJUSTED AVERAGE MCS SCORE (SD)
HOS Total	51.6 (10.5)	51.6 (3.6)
All XX Plans	51.6 (10.5)	51.5 (3.6)
Plan A	52.3 (9.9)	51.7 (3.5)
Plan B	51.2 (10.6)	51.4 (3.7)
Plan C	51.3 (10.5)	51.3 (3.7)
Plan D	51.4 (10.7)	51.3 (3.5)
HXXXE	51.7 (10.9)	51.9 (3.6)

Please note, the plan designated as "Plan A" in this table does not necessarily correspond to "Plan A" in other tables. Please be advised that the baseline information in this report is not suitable for plan level comparisons, and should not be utilized for public release or marketing purposes.

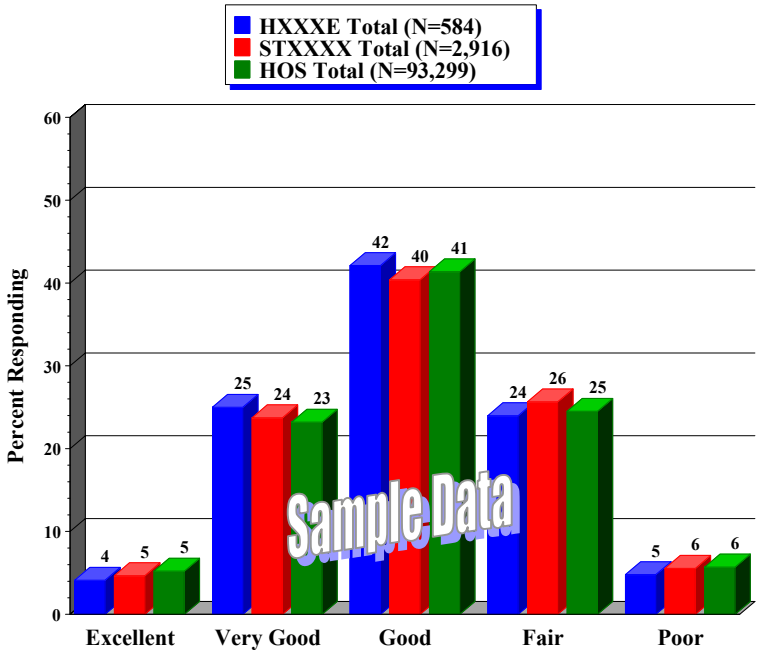
HEALTH STATUS QUESTIONS

The HOS instrument includes a number of questions on health status, including: a General Health question; a Health Transition question; a Comparative Health question; and a series of three questions which constitute a depression screen.

General Health Question

The first question in the HOS survey asks, "In general, how would you say your health is: Excellent; Very Good; Good; Fair; or Poor?" Individuals responding "Fair" or "Poor" are known to be at increased risk for near future hospitalization (i.e., within 6 months), use of mental health services, and/or mortality in five years.[9] The figure below, Figure B3, depicts the distribution of responses for your plan, state, and HOS totals.

FIGURE B3: GENERAL HEALTH QUESTION FOR PLAN HXXXE, STXXXX TOTAL, AND HOS TOTAL



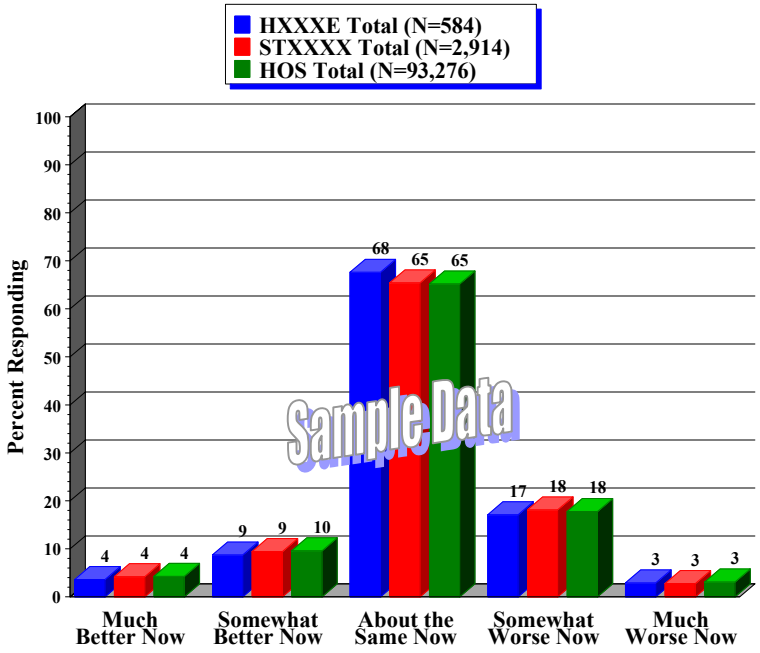
Please note, percentages may not add up to 100% due to rounding.

[9] Ware JE, Kosinski M, Keller SD. *SF-36® Physical and Mental Health Summary Scales: A User's Manual.* Boston, MA: The Health Institute, 1994.

Health Transition Question

The second question in the HOS survey asks, "Compared to one year ago, how would you rate your health in general now: Much Better Now; Somewhat Better Now; About the Same Now; Somewhat Worse Now; or Much Worse Now?" Individuals responding "Somewhat Worse Now" or "Much Worse Now" are known to be at increased risk for near future hospitalization (i.e., within 6 months), use of mental health services, and/or mortality in five years.[10] The figure below, Figure B4, depicts the distribution of responses for your plan, state, and HOS totals.

FIGURE B4: HEALTH TRANSITION QUESTION FOR PLAN HXXXE, STXXXX TOTAL, AND HOS TOTAL



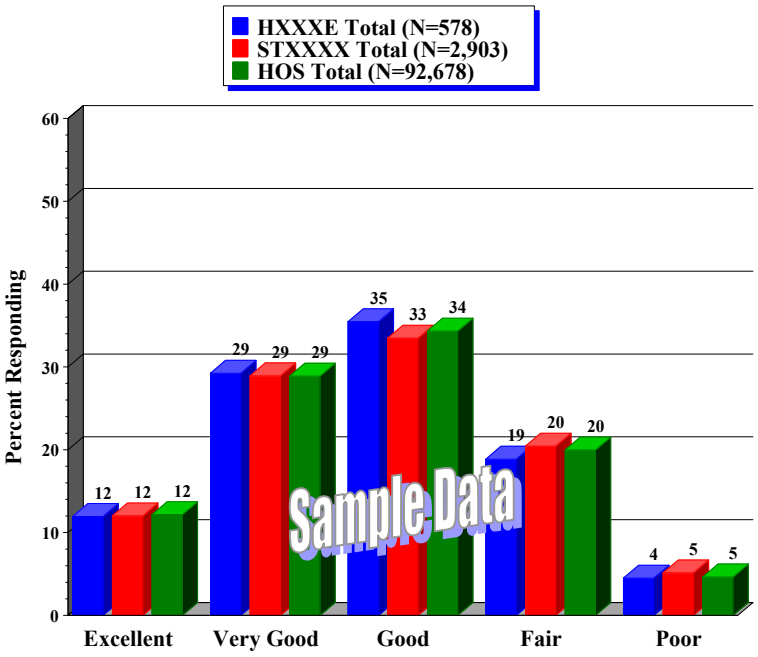
Please note, percentages may not add up to 100% due to rounding.

[10] Ware JE, Kosinski M, Keller SD. *SF-36® Physical and Mental Health Summary Scales: A User's Manual.* Boston, MA: The Health Institute, 1994.

Comparative Health Question

Question 42 on the HOS survey asks, "In general, compared to other people your age, would you say your health is: Excellent; Very Good; Good; Fair; or Poor?" The figure below, Figure B5, depicts the distribution of responses for your plan, state, and HOS totals.

FIGURE B5: COMPARATIVE HEALTH QUESTION FOR PLAN HXXXE, STXXXX TOTAL, AND HOS TOTAL

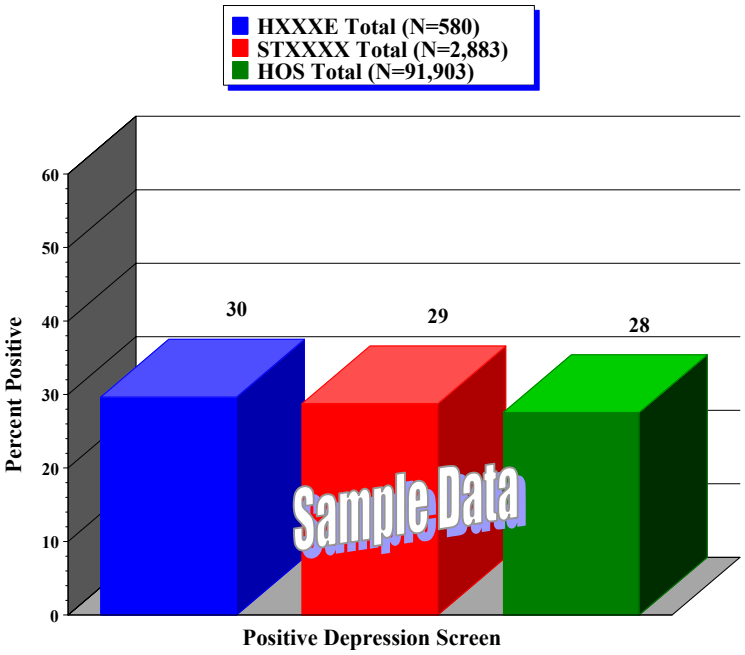


Please note, percentages may not add up to 100% due to rounding.

Depression Screen

A participant of the Medicare HOS Survey is considered to have a positive depression screen when he or she answers "yes" to *any* of the three depression questions (numbers 39, 40 or 41). Individuals with a positive depression screen may be at risk for depressive disorders.[11] These individuals may experience poor outcomes. The figure below, Figure B6, depicts the percentage of beneficiaries with a positive depression screen in your plan, state, and HOS totals.

FIGURE B6: DEPRESSION SCREEN FOR PLAN HXXXE, STXXXX TOTAL, AND HOS TOTAL



[11] Burnam MA, Wells KB, Leake B, Landsverk J. Development of a brief screening instrument for detecting depressive disorders. *Medical Care* 1988; 26:775-789.

DISCUSSION

Aggregate and state level data are provided only to facilitate internal quality improvement activities. **Please be advised that the baseline information in this report is not suitable for plan level comparisons. Therefore, these data should not be utilized for public release or marketing purposes.** Major differences in plan specific rank order results may occur at the time of Performance Measurement. CMS has developed a rigorous risk adjustment model which is used in deriving the Performance Measurement results. The Performance Measurement results for *Cohort VI* are scheduled to be released in 2006.

Although some of the baseline differences in average physical and mental health scores observed across M+COs may appear large and unlikely to be due to chance, they should be interpreted with caution. Such differences may not support a claim of better or worse health *outcomes* for any of these plans, and any such claim would be unjustified scientifically. CMS strongly advises against such interpretations. One obvious explanation for differences in average health status scores across M+COs is that the plans serve different populations or regions differing in health status. These differences should be reflected in their average scores at baseline. Another explanation is that plans have attracted different beneficiaries varying in health status.

Additional plan level results are provided in the Supplemental Figures section (E) of this report. These results include the relevant data illustrations previously provided in hard copy in the *Cohorts I, II,* and *III Baseline* Reports, and on CD-ROM for the *Cohorts IV* and *V Baseline* Reports. Please refer to section E for a complete description of this report's supplemental figures.

The Medicare HOS Information and Technical Support Telephone Line (1-888-880-0077), as well as the HOS e-mail address (*hos@azqio.sdps.org*), are available to provide assistance with report questions and interpretation. Additionally, the Medicare HOS website provides general information on the project and responses to Frequently Asked Questions (*http://www.cms.hhs.gov/surveys/hos*).

Overview

This section provides an introduction to the Medicare HOS, including a discussion of the HOS reporting process, a review of the HOS survey timeline, and a description of the HOS baseline report methodology.

INTRODUCTION TO THE MEDICARE HEALTH OUTCOMES SURVEY

In the mid-1990s, Medicare beneficiaries were joining health maintenance organizations (HMOs) and other types of managed care organizations (MCOs) in increasing numbers. It became apparent to CMS that the agency needed performance reporting requirements for Medicare managed care. In order to establish these reporting requirements, CMS, in collaboration with the National Committee for Quality Assurance (NCQA), launched the first Medicare managed care outcomes measure in the Health Plan Employer Data and Information Set (HEDIS®) in 1998.[1] The measure includes the most recent advances in summarizing physical and mental health outcomes results and appropriate risk adjustment techniques. This measure was initially titled the Health of Seniors, and was renamed the Medicare Health Outcomes Survey during the first year of implementation. The name change was intended to reflect the inclusion of Medicare recipients who are disabled and not seniors (not age 65 or older) in the sampling methodology.

The integration of the Medicare population into HEDIS® was achieved with the release of HEDIS® 3.0. CMS, NCQA, and others felt there was a need to develop additional measures for the Medicare population including an "outcomes" measure for HEDIS®. Traditionally, HEDIS® contained "process" measures that assessed interventions such as mammograms for older women and retinal eye exams for people with diabetes. While evidence in the scientific literature tied the measured processes or interventions to favorable patient outcomes, there was a desire to develop an outcomes measure that captured performance across multiple aspects of care.

CMS, NCQA, Health Assessment Lab (HAL), and performance measurement experts worked together to develop a measure that would assess the physical functioning and mental well being of Medicare beneficiaries over time. It was decided that this measure should include a set of survey questions known as the SF-36® Health Survey.[2] The SF-36® was developed as part of the Medical Outcomes Study, a national research effort, and has a long history of use in estimating relative disease burden for numerous conditions.[3] The survey is referenced in the literature in connection with over 150 diseases and conditions including arthritis, back pain, depression, diabetes and hypertension.[4] Additional items were included in the HOS in addition to the SF-

[1] HEDIS® is a registered trademark of the National Committee for Quality Assurance.
[2] SF-36® is a registered trademark of the Medical Outcomes Trust.
[3] Tarlov AR, Ware JE, Greenfield S, Nelson EC, Perrin E, Zubkoff M. The Medical Outcomes Study: an application of methods for monitoring the results of medical care. *Journal of the American Medical Association.* 1989; 262:925-930.
[4] QualityMetric. *Search Bibliography*. www.sf-36.com/cgi-bin/bibsearch.cgi. December 5, 2000.

36® survey to allow for case mix adjustment, which is essential for meaningful and valid plan-to-plan comparisons of health outcomes.

The HOS measure was approved for inclusion in HEDIS® by the Committee on Performance Measurement (CPM), the NCQA panel that oversees the development and evolution of HEDIS®. CMS has contracted with Health Assessment Lab (HAL) and QualityMetric (QM), Health Outcomes Technologies Program (HOT) of the Boston University School of Public Health, Health Services Advisory Group (HSAG), National Committee for Quality Assurance (NCQA), and Research Triangle Institute (RTI) International to implement and operationalize all aspects of the HOS measure. Additionally, NCQA convenes a Technical Expert Panel (TEP) that continues to provide input for developing the science of the Medicare HOS measure.

In 1998, CMS required Medicare MCOs with contracts in effect on or before January 1, 1997 to participate in the HOS. Some Medicare MCOs were required to report by market areas, defined as geographic areas containing more than 5,000 members that generally are served by distinctly separate networks of service providers (referred to as "contract markets"). In 1999, CMS required all M+COs and section 1876 Risk and Cost health plans with contracts in place on or before January 1, 1998 to participate in the HOS. In addition, selected Program of All-inclusive Care for the Elderly (PACE) plans, Evercare plans, and demonstration risk plans participated in the second year administration. A Spanish language version of the survey was also incorporated into the survey protocol.

In 2000, CMS required all M+COs, continuing cost contractors, PACE plans, Social HMOs, Medicare Choices Demonstration plans, and Department of Defense (DOD) Subvention Demonstration plans with contracts in place on or before January 1, 1999 to participate in the *Cohort III Baseline* survey. All plans with contracts in place on or before January 1, 1997 that participated in the *Cohort I Baseline* survey in 1998 were required to participate in the *Cohort I Follow Up* survey in 2000. In 2001, CMS required all M+COs, continuing cost contractors, PACE plans, Social HMOs, and Medicare Choices Demonstration plans with contracts in place on or before January 1, 2000 to participate in the *Cohort IV Baseline* survey. All plans with contracts in place on or before January 1, 1998 that participated in the *Cohort II Baseline* survey in 1999 were required to participate in the *Cohort II Follow Up* survey in 2001. In 2002, CMS required all M+COs, continuing cost contractors, PACE plans, Social HMOs, and Medicare Choices Demonstration plans with contracts in place on or before January 1, 2001 to participate in the *Cohort V Baseline* survey. In addition, all plans with contracts in place on or before January 1, 1999 that participated in the *Cohort III Baseline* survey in 2000 were required to participate in the *Cohort III Follow Up* survey in 2002

In 2003, CMS required all M+COs, continuing cost contractors, Social HMOs, and Medicare Choices Demonstration plans with contracts in place on or before January 1, 2002 to participate in the *Cohort VI Baseline* survey. In addition, all plans with contracts in place on or before January 1, 2000 that participated in the *Cohort IV Baseline* survey in 2001 were required to participate in the *Cohort IV Follow Up* survey in 2003.

MEDICARE HEALTH OUTCOMES SURVEY TIMELINE

HOS survey data are collected annually for a new sample of members (cohort), with a two-year follow up for each baseline cohort. The HOS 2003 survey administration was the fourth year of parallel data collection on two separate samples for M+COs (*Cohort VI Baseline* and *Cohort IV Follow Up*). Timelines for the sampling protocol, as well as reporting cycles, are described in the table below:

	1998 (ROUND 1)	1999 (ROUND 2)	2000 (ROUND 3)	2001 (ROUND 4)	2002 (ROUND 5)	2003 (ROUND 6)	2004 (ROUND 7)
COHORT I	**CI Baseline Data Collection**	*CI Baseline Report*	**CI Follow Up Data Collection**	*Cohort I PM Report*			
COHORT II		**CII Baseline Data Collection**	*CII Baseline Report*	**CII Follow Up Data Collection**	*Cohort II PM Report*		
COHORT III			**CIII Baseline Data Collection**	*CIII Baseline Report*	**CIII Follow Up Data Collection**	*Cohort III PM Report*	
COHORT IV				**CIV Baseline Data Collection**	*CIV Baseline Report*	**CIV Follow Up Data Collection**	*Cohort IV PM Report*
COHORT V					**CV Baseline Data Collection**	*CV Baseline Report*	**CV Follow Up Data Collection**
COHORT VI						**CVI Baseline Data Collection**	*CVI Baseline Report*
COHORT VII							**CVII Baseline Data Collection**

PM = Performance Measurement

SF-36® HEALTH SURVEY

The Medicare HOS has incorporated the SF-36®, a multipurpose, short-form health survey with only 36 questions. The SF-36® yields an eight scale profile of scores, as well as physical and mental health summary measures. It is a generic measure, as opposed to one that targets a specific age, disease, or treatment group. As documented in more than 2,500 publications, the SF-36® has proven useful in both general and specific populations, comparing the relative burden of diseases, differentiating the health benefits produced by a wide range of different treatments, and screening individual patients. The most complete information about the history and development of the SF-36®, its psychometric evaluation, studies of reliability and validity, and normative data are available in two user's manuals.[5, 6]

The SF-36® asks respondents about their usual activities and how they would rate their health. It is a barometer of physical and mental health functional status. Concepts (scales) included in the SF-36® are:

- *Physical Functioning (PF)* – These ten questions ask respondents to indicate the extent to which their health limits them in performing physical activities.
- *Role-Physical (RP)* – These four questions assess whether respondents' physical health limits them in the kind of work or other usual activities they perform, both in terms of time and performance.
- *Role-Emotional (RE)* – These three questions assess whether emotional problems have caused respondents to accomplish less in their work or other usual activities, both in terms of time and performance.
- *Bodily Pain (BP)* – These two questions determine the respondents' frequency of pain and the extent to which it interferes with their normal activities.
- *Social Functioning (SF)* – These two questions ask respondents to indicate limitations in social function due specifically to health.
- *Mental Health (MH)* – These five questions ask respondents how frequently they experience feelings representing four major mental health dimensions: anxiety, depression, loss of behavioral/emotional control, and psychological well being.
- *Vitality (VT)* – These four questions ask respondents to rate their well being by indicating how frequently they experience energy and fatigue.
- *General Health (GH)* – These five questions ask respondents to rate their current health status overall, susceptibility to illness, and their expectations for health in the future.

Figure C1 on page C6 illustrates the taxonomy of items and concepts underlying the construction of the SF-36® scales and summary measures. The taxonomy has three levels: (1) items; (2) eight scales that aggregate 2-10 items each; and (3) two summary measures that aggregate the scales. All but one of the 36 items (self-reported health transition) are used to score the eight SF-36® scales. Each item is used in scoring only one scale. The eight scales form two distinct higher-ordered clusters (principal components) that are the basis for scoring the physical (PCS) and

[5] Ware JE, Snow KK, Kosinski M, Gandek B. *SF-36® Health Survey Manual and Interpretation Guide.* Boston, MA: New England Medical Center, The Health Institute, 1993.
[6] Ware JE, Kosinski M. *SF-36® Physical and Mental Health Summary Scales: A Manual for Users of Version 1, Second Edition*. Lincoln, RI: QualityMetric, Incorporated, 2001.

mental (MCS) component summary measures. These components account for 80-85% of the reliable variance in the eight scales in the US general population and in other countries, in both cross-sectional and longitudinal studies.[7, 8] This discovery made it possible to reduce the number of statistical comparisons involved in analyzing the SF-36® (from eight to two) without substantial loss of information.[9, 10]

The reliability of the two summary measures has been estimated using both internal consistency and test-retest methods. With rare exceptions, reliability estimates for physical and mental summary scores usually exceed 0.90.[11] These trends in reliability coefficients for the summary measures have also been replicated for the elderly and across other groups differing in socio-demographic characteristics and diagnoses.[12] While studies of subgroups indicate slight declines in reliability for more disadvantaged respondents, reliability coefficients consistently exceeded recommended standards for group level analysis.

Studies of validity generally support the intended meaning of high and low SF-36® scores as documented in the original user's manuals.[7, 12] Because of the widespread use of the SF-36® across a variety of applications, evidence from many types of validity research is relevant to these interpretations. Studies to date have yielded content, concurrent, criterion, construct, and predictive evidence of validity. The content validity of the SF-36® has been compared to that of other widely used generic health surveys.[7, 12] Systematic comparisons indicate that the SF-36® includes eight of the most frequently measured health concepts. Among the content areas included in widely used surveys, but not included in the SF-36®, are: sleep adequacy, cognitive functioning, sexual functioning, health distress, family functioning, self-esteem, eating, recreation/hobbies, communication, and symptoms/problems that are specific to one condition. The latter are not included in the SF-36® because it is a generic measure.

The SF-36® is scored from 0 to 100 points, with higher scores indicating better functioning on both the individual scales and summary measures (PCS and MCS). The HOS individual scale scores, as well as the PCS and MCS scores, have been normed to the values for the 1998 general US population, so that a score of fifty represents the national average for a given scale or summary score. In addition, the norm based score for the 1998 general US population has a standard deviation (SD) of ten points. It is important to note, however, that the 1998 general population elderly norms reflect a PCS mean score of 42.6 and an MCS mean score of 52.0.

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[7] Ware JE, Snow KK, Kosinski M, Gandek, B. *SF-36® Health Survey Manual and Interpretation Guide.* Boston, MA: New England Medical Center, The Health Institute, 1993.

[8] Gandek B, Ware JE, Aaronson NK, Alonso J, Apolone G, Bjorner J, *et al.* Tests of data quality, scaling assumptions and reliability of SF-36® in eleven countries: Results from the IQOLA Project. *Journal of Clinical Epidemiology* 1998; 51:1149-1158.

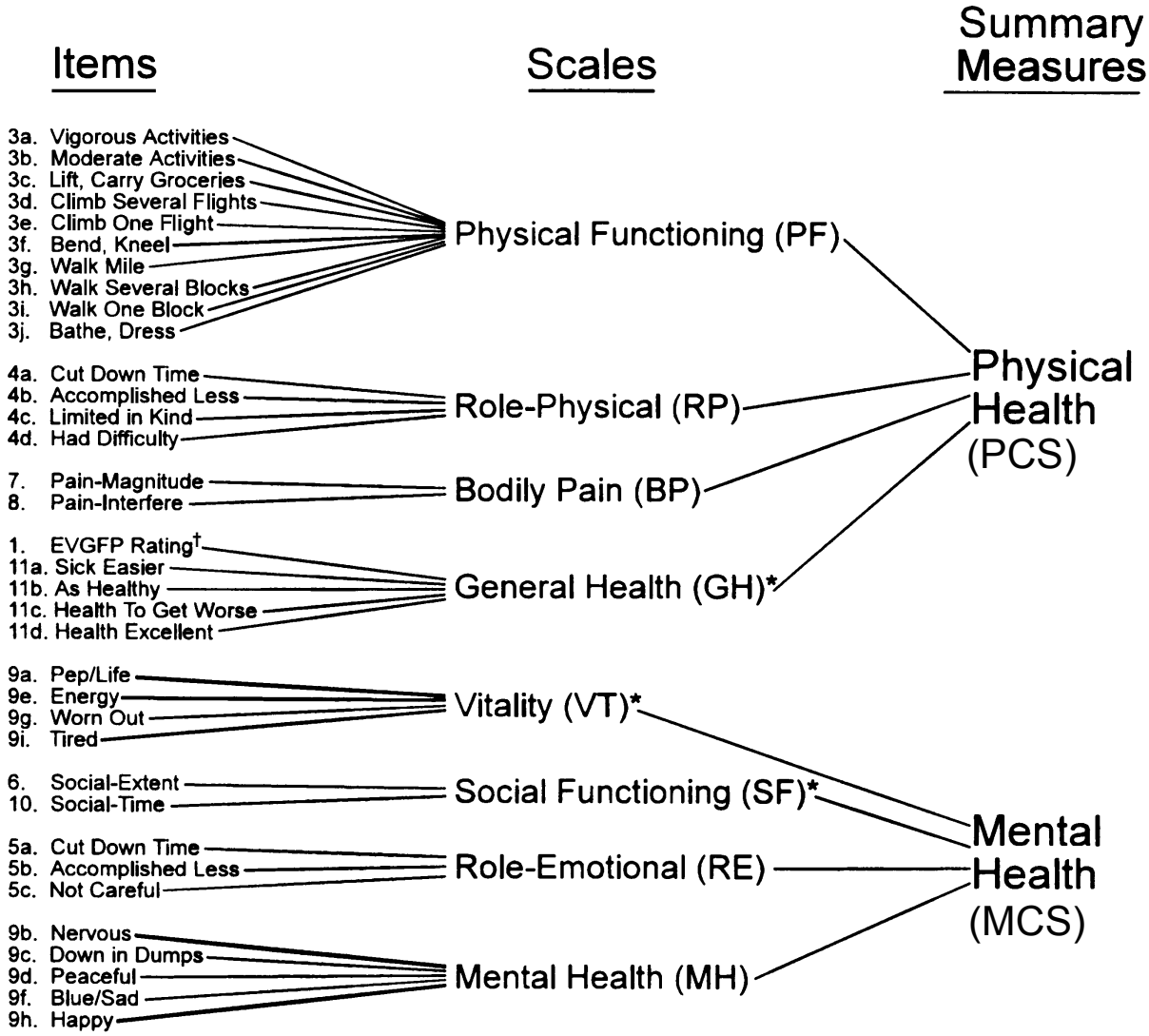
[9] Ware JE, Kosinski M, Bayliss MS, McHorney CA, Rogers WH, Raczek A. Comparison of methods for the scoring and statistical analysis of SF-36® health profiles and summary measures: summary of results from the Medical Outcomes Study. *Medical Care* 1995; 33: AS264-AS279.

[10] Ware JE, Kosinski M. *SF-36® Physical and Mental Health Summary Scales: A Manual for Users of Version 1, Second Edition*. Lincoln, RI: QualityMetric, Incorporated, 2001.

[11] Quality Metric. *Search Bibliography*. www.sf-36.com/cgi-bin/bibsearch.cgi

[12] Ware JE, Kosinski M, Keller SK. *SF-36® Physical and Mental Health Summary Scales: A User's Manual.* Boston, MA: The Health Institute, 1994.

FIGURE C1: SF-36® MEASUREMENT MODEL



* **Significant correlation with other summary measure**

† **EVGFP Rating: In general, would you say your health is:**
Excellent Very Good Good Fair Poor

Source: Ware JE, Kosinski M, Keller SD. *SF-36® Physical and Mental Health Summary Scales: A User's Manual*. Boston, MA: The Health Institute, 1994.

METHODOLOGY AND DESIGN

Sampling Methodology

The HOS measure is administered to a randomly selected sample of individuals at baseline from each M+CO. The sampling methodology is dependent upon the plan's population. For M+COs with Medicare populations of more than 1,000 members, a simple random sample of 1,000 members is selected for the baseline survey. In those M+COs with 3,000 or more members, members who responded to the *Cohort V Baseline* survey were excluded from the *Cohort VI Baseline* sample. For M+COs with populations of 1,000 members or less, all eligible members are included in the sample. Members are defined as eligible if they have been continuously enrolled for at least six months and do not have End Stage Renal Disease (ESRD).

Data Collection

M+COs must contract with an NCQA-certified HOS vendor to administer the survey. For Round 6 data collection, vendors followed the protocol contained in *HEDIS® 2003, Volume 6: Specifications for the Medicare Health Outcomes Survey*.[13] The standard HEDIS® protocol for administering the HOS employs a combination of mail and telephone survey administration. The mail component of the survey uses a standardized questionnaire, survey letters, and prenotification and reminder/thank you postcards. Vendors review each returned mail questionnaire for legibility and completeness. If a beneficiary's responses are ambiguous, then a coding specialist employs standardized decision rules. Questionnaires can be entered into a computer manually or optically scanned into a computer readable file. For manually entered data, two separate data entry specialists must key enter responses from each questionnaire.

In those instances when beneficiaries fail to respond after the second mail survey, vendors attempt telephone follow up (with a maximum of six attempts). Vendors also perform telephone follow up for members who return an incomplete mail survey in order to obtain responses to missing questions. Vendors use a standardized version of a Computer Assisted Telephone Interviewing (CATI) script to collect telephone interview data for the survey. To ensure the standardization of the data collection process, vendors are prohibited from augmenting or adjusting the HOS protocol or instrument.

Periodically during the survey administration, and again when data collection is completed, vendors run an edit program against each record in the data file to identify invalid data elements. At the conclusion of the data collection period, vendors perform preliminary data cleaning and editing and follow up with survey respondents, as necessary. For a more detailed discussion on data sampling, collection and submission, please refer to Volume 6 of HEDIS® 2003.

[13] National Committee for Quality Assurance. *HEDIS® 2003, Volume 6: Specifications for the Medicare Health Outcomes Survey*. Washington DC: NCQA Publication, 2003.

Data Cleaning

Data consistency checks are performed by reviewing the entire HOS data set for out of range values. To verify the presence of unique beneficiaries in the HOS data file, the file is examined for duplicate Health Insurance Claim (HIC) numbers. All dates contained within the data file are verified to correspond to the appropriate range. Frequency distributions of all categorical variables, as well as cross tabulations by vendor and mode of administration, are performed to identify both out of range values, inconsistent data distributions among vendors, and data shifts in value assignment. The cross tabulations are performed using the entire HOS data file and also specified subsets of the data file. In addition to the cross tabulations of categorical variables, the survey variables (such as survey disposition, round number, and survey language) are assessed for accuracy and consistency. Finally, response consistency checks are performed to validate the integrity of the data.

All date variables contained in the data file are converted to SAS®[14] date format (elapsed date variables) to facilitate the calculation of duration of enrollment and age, which are then incorporated into the data file. Upon completion of the HOS data editing and cleaning process, the final data set is produced.

Scoring SF-36® Scales and Summary Measures

The eight scales and two summary measures are estimated using the scoring algorithms recommended by the developers of the SF-36® Health Survey.[15] Briefly, these norm-based algorithms yield favorably scored (i.e., higher is better) measures that have a mean of 50 and a standard deviation of 10 in the general US population. For the PCS, 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 MCS, very high scores indicate frequent positive affect, absence of psychological distress, and no limitations in usual social and role activities due to emotional problems.

Given that the *Cohort I Baseline* survey was fielded in 1998, the means and standard deviations used in scoring the SF-36® scales and summary measures were based on the 1998 National Survey of Functional Health Status. In order to allow for interpretation of scores across all of the cohorts of data, the weights (i.e., component scoring coefficients) used in aggregating the eight scales to score the PCS and MCS measures are the original standardized weights recommended by the developers.[15]

[14] SAS® is a registered trademark of SAS Institute Inc., Cary, NC.
[15] Ware JE, Kosinski M. *SF-36® Physical and Mental Health Summary Scales: A Manual for Users of Version 1, Second Edition*. Lincoln, RI: QualityMetric, 2001.

Data Analysis

Of the 144,874 eligible seniors sampled, 94,012 had completed a sufficient number of survey items to calculate all eight scales and the two summary measures of the SF-36®. For the eight scales, a score was calculated if at least 50% of the items in the scale were completed. The two summary measures were calculated when all eight scales were not missing. Linear regression techniques were used to case mix adjust these measures for each beneficiary. In brief, models used to adjust the SF-36® scales and summary measures included variables to control for differences in demographic and socioeconomic characteristics, chronic medical conditions, and HOS study design variables. Demographic and socioeconomic variables included age, gender, race, education, marital status, and income. Chronic medical conditions were measured with a checklist of 13 medical conditions. HOS study design variables included who completed the survey, the mode of survey administration, CMS region, and the survey vendor.

A series of three different models was used for each measure since all beneficiaries did not have completed data for all of the covariates. The most comprehensive model possible was used for each beneficiary. If beneficiaries had completed data for all of the covariates, then their adjusted scores were calculated using the model with all variables (Model One). If not, then the next most comprehensive model was used if the beneficiaries had completed data for all covariates but income (Model Two). If the beneficiaries did not have enough completed data for Model One or Model Two, a third model was used, which was limited to age, gender, race, mode of survey administration, CMS plan region, and survey vendor (Model Three). The variables included in Model Three were available for all participating beneficiaries. One model was used for each beneficiary, and an adjusted score was calculated for every beneficiary. Table C1 on page C10 describes the covariates used in the case mix adjustment of the SF-36® measures.

TECHNICAL ASSISTANCE

The Medicare HOS Information and Technical Support Telephone Line (1-888-880-0077), as well as the HOS e-mail address (*hos@azqio.sdps.org*), are available to provide assistance with report questions and interpretation. Additionally, the Medicare HOS website provides general information on the project and responses to Frequently Asked Questions (*http://www.cms.hhs.gov/surveys/hos*).

TABLE C1
COVARIATES USED IN THE CASE MIX ADJUSTMENT OF SF-36® MEASURES

	PCS and MCS Models		
DEMOGRAPHICS COVARIATES	**ONE**	**TWO**	**THREE**
Age (Continuous)	✓	✓	✓
Gender (Male or Female)	✓	✓	✓
Race (White, Black, Other Minority)	✓	✓	✓
Education	✓	✓	
Marital Status	✓	✓	
Annual Household Income	✓		
CHRONIC MEDICAL CONDITIONS			
Hypertension or high blood pressure	✓	✓	
Angina pectoris or coronary artery disease	✓	✓	
Congestive heart failure	✓	✓	
Myocardial infarction or heart attack	✓	✓	
Other heart conditions, such as problems with heart valves or arrhythmias	✓	✓	
Stroke	✓	✓	
Emphysema, or asthma, or COPD (Chronic Obstructive Pulmonary Disease)	✓	✓	
Crohn's disease, ulcerative colitis, or inflammatory bowel disease	✓	✓	
Arthritis of the hip or knee	✓	✓	
Arthritis of the hand or wrist	✓	✓	
Sciatica	✓	✓	
Diabetes, high blood sugar, or sugar in the urine	✓	✓	
Any cancer (other than skin cancer)	✓	✓	
HOS STUDY DESIGN VARIABLES			
Who Completed Survey (Self or Other)	✓	✓	
Mode of Survey Administration (Mail or Telephone)	✓	✓	✓
CMS Plan Region	✓	✓	✓
Survey Vendor	✓	✓	✓

Note: Model One included all covariates listed in Table C1 and was used for beneficiaries with completed data for all of the covariates. Model Two was used for beneficiaries with completed data for all of the covariates except annual household income. Model Three was limited to age, gender, race, mode of survey administration, CMS plan region, and survey vendor, and was used for beneficiaries who did not have enough completed data for Model One or Model Two. The variables included in Model Three were available for all participating beneficiaries.

Definitions of Key Terms

ACTIVITIES OF DAILY LIVING (ADLS)	Activities of daily living are the everyday activities involved in personal care such as feeding, dressing, bathing, getting in or out of chairs, toileting, and walking. Physical or mental disabilities can restrict a person's ability to perform personal ADLs.
ANALYTIC SAMPLE	The analytic sample for the Medicare HOS *Cohort VI Baseline* Report is limited to those seniors (age 65 or over) with calculatable PCS and MCS scores. For *Cohort VI Baseline* there are 94,012 beneficiaries in the analytic sample.
BENEFICIARY	An individual receiving benefits from the Medicare program
BODILY PAIN (BP) SCALE	The Bodily Pain scale is derived from the SF-36® survey. It assesses respondents' frequency of pain and the extent to which it interferes with their normal activities.
CASE MIX ADJUSTMENT	This is a method which adjusts the resulting data for patient characteristics that are known to be related to systematic biases in the way people respond to survey questions. This is accomplished using linear regression techniques, and assumes that the control variables (covariates) have been measured accurately and that the model is correctly specified and applicable to all cases.
CATI	Computer Assisted Telephone Interviewing
CENTERS FOR MEDICARE & MEDICAID SERVICES (CMS)	The Centers for Medicare & Medicaid Services is responsible for administering Medicare, Medicaid, and Child Health Insurance Programs.
COHORT	A cohort is a group of people who share a common designation (e.g., "Medicare beneficiaries"), experience, or condition. In terms of HOS, *Cohort VI* refers to the group of Medicare managed care beneficiaries first surveyed in 2003.
CPM	NCQA's Committee on Performance Measurement that oversees the development of the HEDIS® measurement set

DATA CLEANING	This is the process by which discrepancies within the data are identified and resolved, including issues related to file structure, record numbers, range, and consistency. Data cleaning for all HOS cohorts is conducted by Health Services Advisory Group, Inc. (HSAG).
DEPRESSION SCREEN	A participant in the Medicare HOS is considered to have a positive depression screen when he or she answers "yes" to *any* of the three depression questions (numbers 39, 40 or 41). Individuals with a positive depression screen may be at risk for depressive disorders. These individuals may experience poor outcomes.
ELIGIBLE SAMPLE	The *Cohort VI Baseline eligible sample* is limited to those beneficiaries randomly selected from each M+CO who were continuously enrolled in their plan for at least six months, did not have End Stage Renal Disease (ESRD), and were not considered invalid members. For *Cohort VI Baseline* there are 155,830 beneficiaries in the eligible sample.
ESRD	End Stage Renal Disease
GENERAL HEALTH (GH) SCALE	The General Health scale is derived from the SF-36® survey. It assesses respondents' current health status overall, susceptibility to illness, and their expectations for health in the future.
HAL	Health Assessment Lab 235 Wyman Street, Suite 130 Waltham, MA 02451
HEDIS®	The Health Plan Employer Data and Information Set is the most widely used set of performance measures in the managed care industry, and is developed and maintained by NCQA.
HIC NUMBER (HIC#)	Health Insurance Claim Number (usually the Medicare number)
HOS MEASURE	See Medicare Health Outcomes Survey

HOT	Health Outcomes Technologies Program Health Services Department Boston University School of Public Health 715 Albany Street (T-3W) Boston, MA 02118
HPMS	The Health Plan Management System is CMS' data collection and maintenance system that houses MCO and plan related information.
HSAG	Health Services Advisory Group, Inc. 1600 East Northern Avenue, Suite 100 Phoenix, AZ 85020
INVALID MEMBER	An invalid member is a beneficiary that has been sampled for the cohort but is not included in the eligible sample because he or she meets one of the following criteria: deceased; not enrolled in the M+CO; has an incorrect address and phone number; or has a language barrier.
M+CO	Established in section 4001 of the Balanced Budget Act of 1997 (under Part C of the Medicare Program), a Medicare + Choice Organization is a public or private entity organized and licensed under State law as a risk-bearing entity that is certified by CMS as meeting the Medicare + Choice contract requirements, including: processing the enrollment and disenrollment of beneficiaries within a plan; transmitting information such as enrollment information and encounter data to CMS; submitting marketing materials; providing all Medicare-covered benefits and other benefits covered under the contract in a manner consistent with specified access standards; performing quality assurance; creating and carrying out plan procedures for grievances, organization determinations, and appeals; maintaining necessary records; providing advance directives; establishing procedures related to provider participation; setting medical policies; notifying beneficiaries of any "Conscience Protection" exceptions; disclosing physician incentive plans; receiving payment; reporting financial information; paying user fees; making prompt payments to providers; receiving any sanctions invoked by CMS on any of the organization's plans; and fulfilling other contract requirements as specified in regulation.

MEDICARE HEALTH OUTCOMES SURVEY (HOS)	The Medicare Health Outcomes Survey is the first health outcomes measure for the Medicare population in managed care settings. It was developed in 1997 as the Health of Seniors survey in response to the growing number of Medicare beneficiaries receiving their health care through M+COs. The Medicare HOS assesses an M+CO's ability to maintain or improve the physical and mental health functioning of its Medicare members over time. The survey is administered to a random sample of members from each M+CO at the beginning and end of a two-year period. The HOS results are used to monitor the health of the general population, to evaluate treatment outcomes and procedures, and to provide external performance measurement.
MEDICARE HOS BASELINE REPORT	The Medicare Health Outcomes Survey Baseline Report is produced and made available to all participating M+COs and QIOs after each baseline cohort data collection is completed. It is part of a larger effort by CMS to improve the health care industry's capacity to sustain and improve health status and functioning within the Medicare population.
MEDICARE HOS PERFORMANCE MEASUREMENT REPORT	The Medicare Health Outcomes Survey Performance Measurement Report is produced and made available to all participating M+COs and QIOs after the collection of follow up data on each cohort. Performance Measurement results reflect a health plan's ability to maintain or improve the physical and mental health functioning of its Medicare beneficiaries over a two-year period of time. It is part of a larger effort by CMS to improve the health care industry's capacity to sustain and improve health status and functioning within the Medicare population.
MENTAL COMPONENT SUMMARY (MCS) SCORE	The Mental Component Summary score is derived from the SF-36® survey, and is a reliable and valid measure of mental health. The measure is highly correlated to the Mental Health (MH), Role-Emotional (RE), and Social Functioning (SF) SF-36® scales.

MENTAL HEALTH (MH) SCALE	The Mental Health scale is derived from the SF-36® survey. It assesses how frequently respondents experience feelings representing four major mental health dimensions: anxiety, depression, loss of behavioral/emotional control, and psychological well being.
NCQA	National Committee for Quality Assurance 2000 L St, NW, Suite 500 Washington, DC 20036
OUTCOME	The Medicare HOS defines outcome as a change in health over time, which is characterized in terms of the direction and magnitude for a given respondent. The three major Medicare HOS outcomes are death, change in physical health, and change in mental health. The PCS and MCS performance measures describe the changes in physical and mental health.
PERFORMANCE MEASUREMENT RESULTS	The adjusted differences between the HOS baseline and two-year follow up scores, which are presented as better, same, or worse than expected for PCS and MCS
PHYSICAL COMPONENT SUMMARY (PCS) SCORE	The Physical Component Summary score is derived from the SF-36® survey, and is a reliable and valid measure of physical health. The measure is highly correlated to the Physical Functioning (PF), Role-Physical (RP), and Bodily Pain (BP) SF-36® scales.
PHYSICAL FUNCTIONING (PF) SCALE	The Physical Functioning scale is derived from the SF-36® survey and assesses the extent to which health limits respondents' performance of physical activities.
PROXY	An individual who completed a survey on behalf of the beneficiary
QIO	Quality Improvement Organization, formerly referred to as Peer Review Organization (PRO)
QM	QualityMetric, Incorporated 640 George Washington Highway Lincoln, RI 02865

RESPONSE RATE	The Medicare HOS response rate is the number of beneficiaries who have PCS and MCS scores, divided by the number of eligible beneficiaries sampled (excluding invalids).
RISK ADJUSTMENT	This is a method that adjusts for multiple factors, which may impact the outcome of interest. This is accomplished using regression models, and assumes that the control variables (covariates) have been measured accurately and that the models are correctly specified and applicable to all cases.
ROLE-EMOTIONAL (RE) SCALE	The Role-Emotional scale is derived from the SF-36® survey. It assesses whether emotional problems have caused respondents to accomplish less in their work or other usual activities, both in terms of time and performance.
ROLE-PHYSICAL (RP) SCALE	The Role-Physical scale is derived from the SF-36® survey. It assesses whether respondents' physical health limits them in the kind of work or other usual activities they perform, both in terms of time and performance.
RTI	Research Triangle Institute International 3040 Cornwallis Road, PO Box 12194 Research Triangle Park, NC 27709
SAS®	A software package used for data processing and statistical analysis
SF-36®	36-Item Short-Form Health Survey
SOCIAL FUNCTIONING (SF) SCALE	The Social Functioning scale is derived from the SF-36® survey and assesses limitations in social function due specifically to health.
TECHNICAL EXPERT PANEL (TEP)	The Medicare HOS Technical Expert Panel (convened by NCQA) provides input for the continued development of the Medicare HOS measure, and is comprised of individuals with specific expertise in the health care industry and outcomes measurement.
VENDOR	Independent survey organization that is trained and certified by NCQA to administer the HOS Survey
VITALITY (VT) SCALE	The Vitality scale is derived from the SF-36® survey. It assesses well being by asking respondents to indicate how frequently they experience energy and fatigue.

Supplemental Figures

This section contains supplementary graphical displays of plan level results. The graphs (Figures 1 – 31) outlined below examine the *Cohort VI Baseline analytic sample* (94,012) with an emphasis on demographics and health status indicators. The graphs (Figures 32 – 36) examine the *Cohort VI Baseline eligible sample* of seniors (144,874) with an emphasis on non-respondent information.

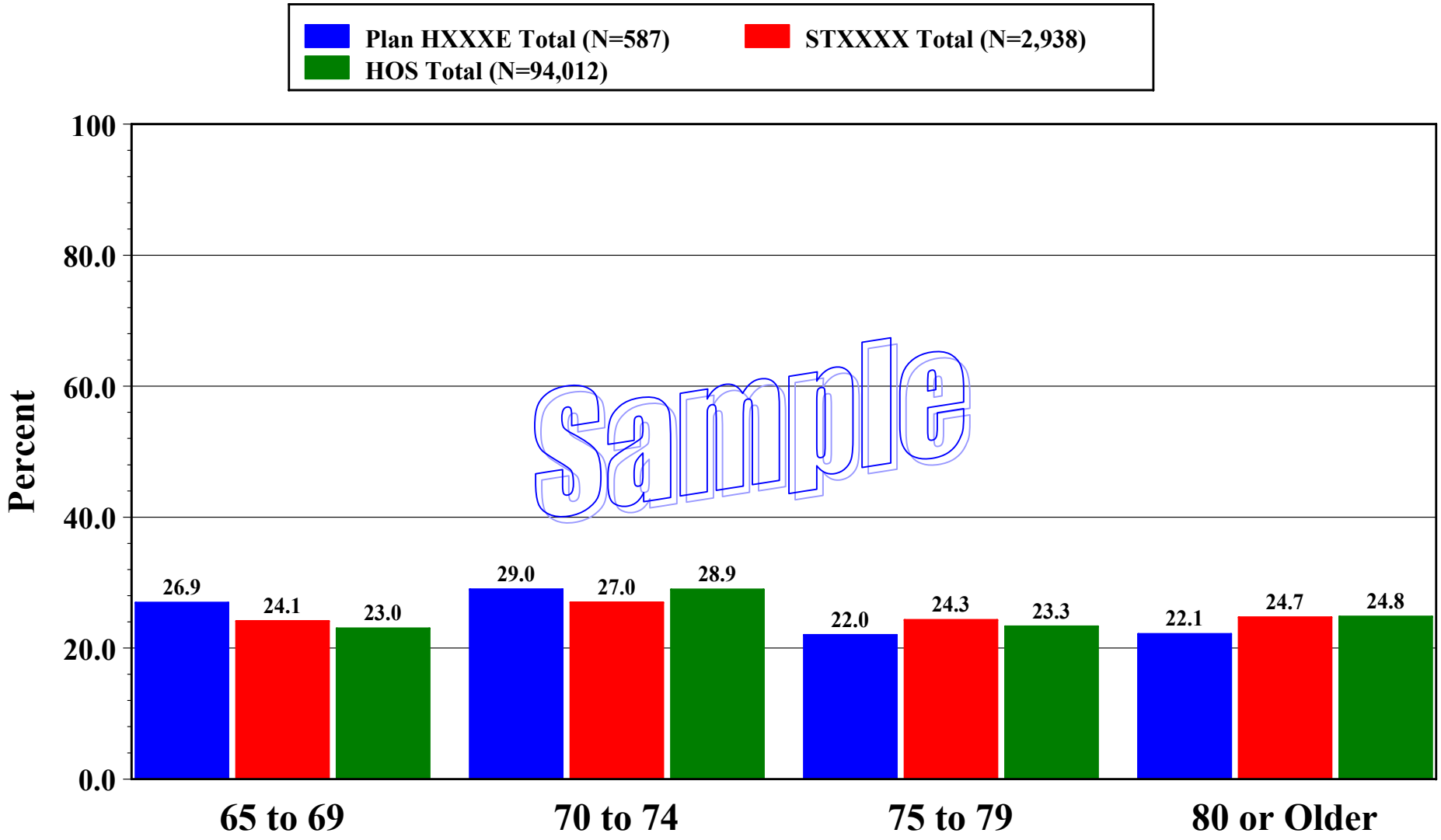
DEMOGRAPHICS

HEALTH STATUS INDICATORS

***** Figures 22-31 are displayed for all plans in your state.

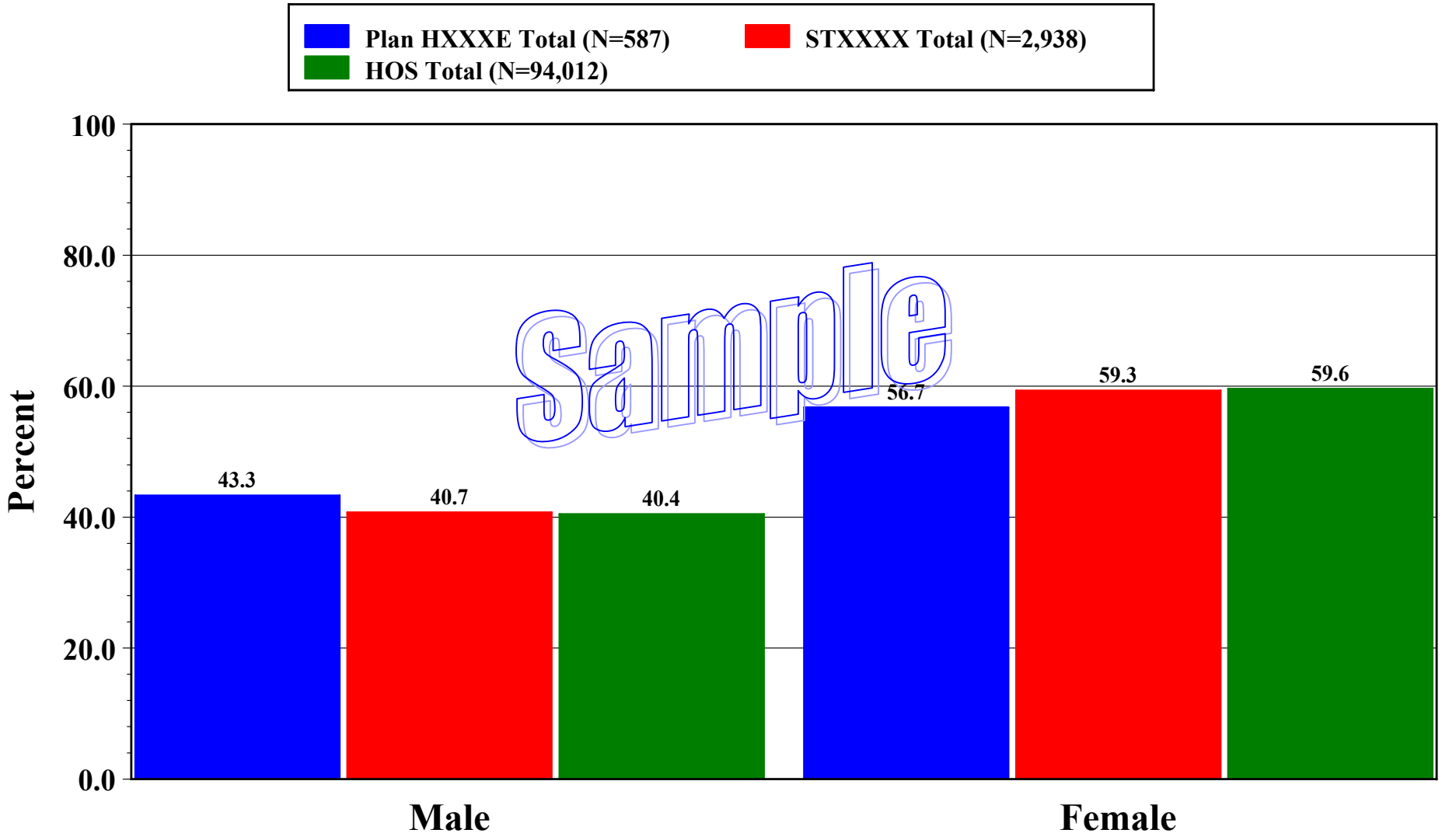
NON-RESPONDENT INFORMATION

Figure 1: Percent Distribution of Age Group for Plan HXXXE, STXXXX Total, and HOS Total



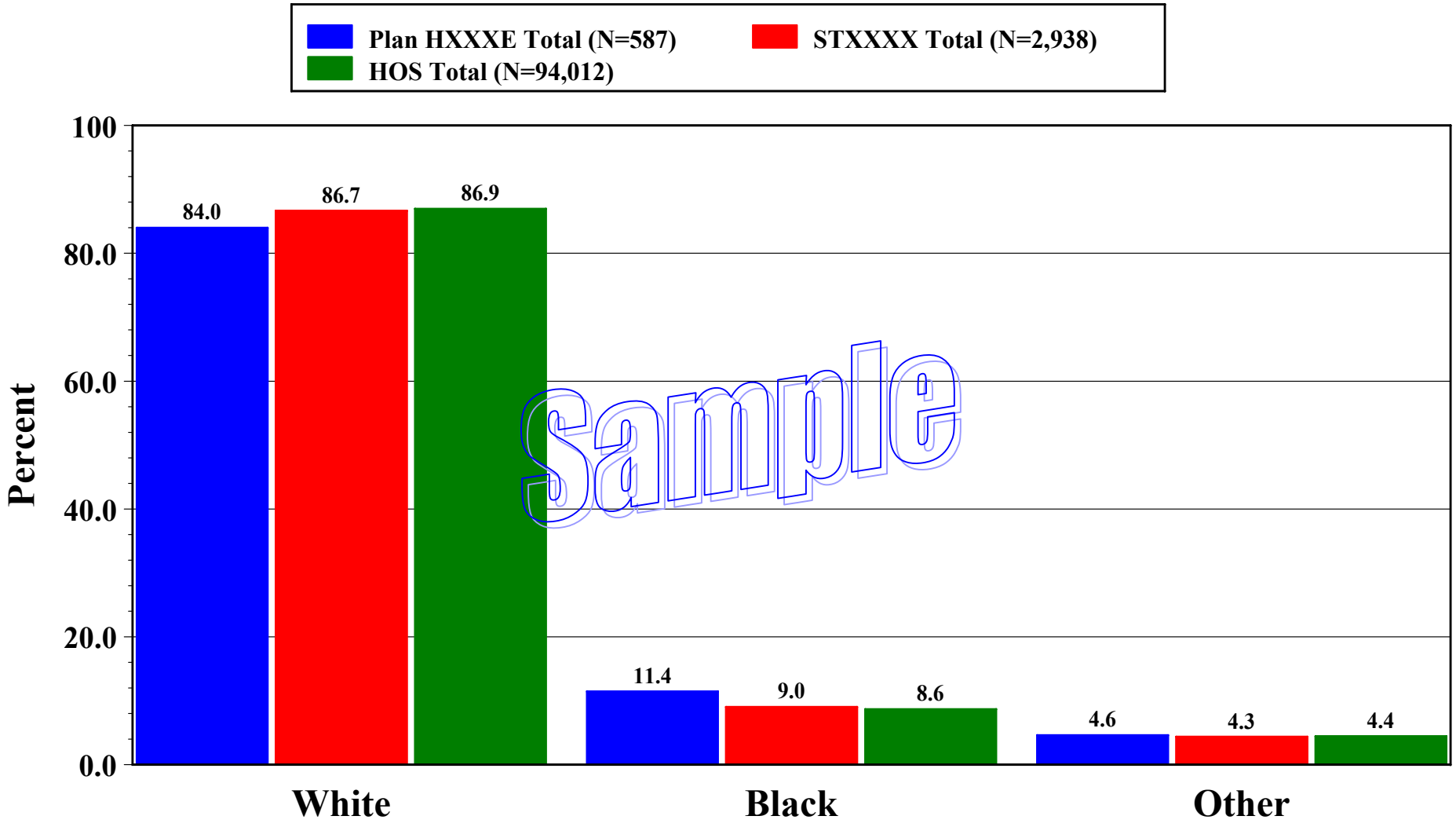
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 2: Percent Distribution of Gender for Plan HXXXE, STXXXX Total, and HOS Total



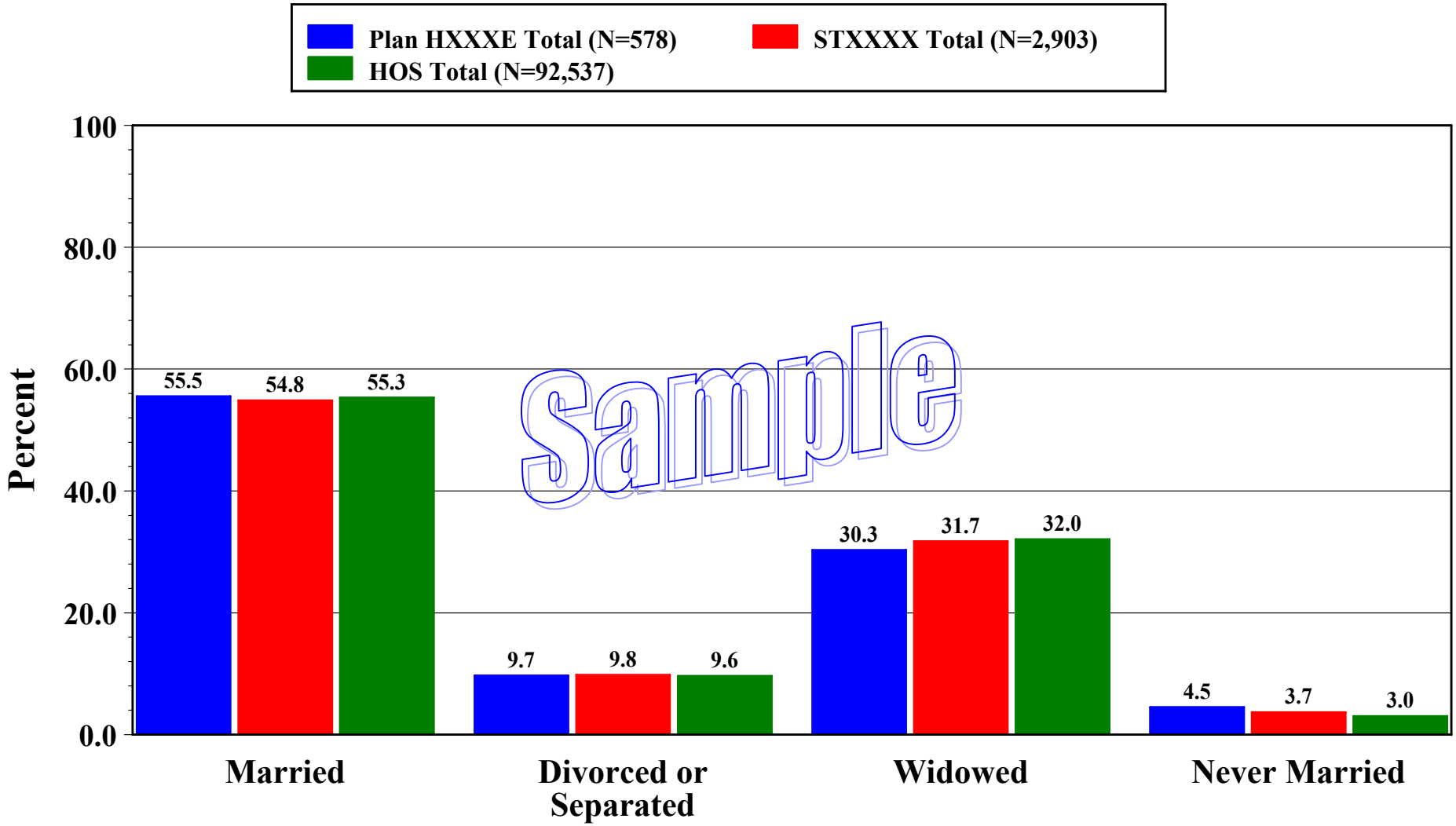
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 3: Percent Distribution of Race for Plan HXXXE, STXXXX Total, and HOS Total



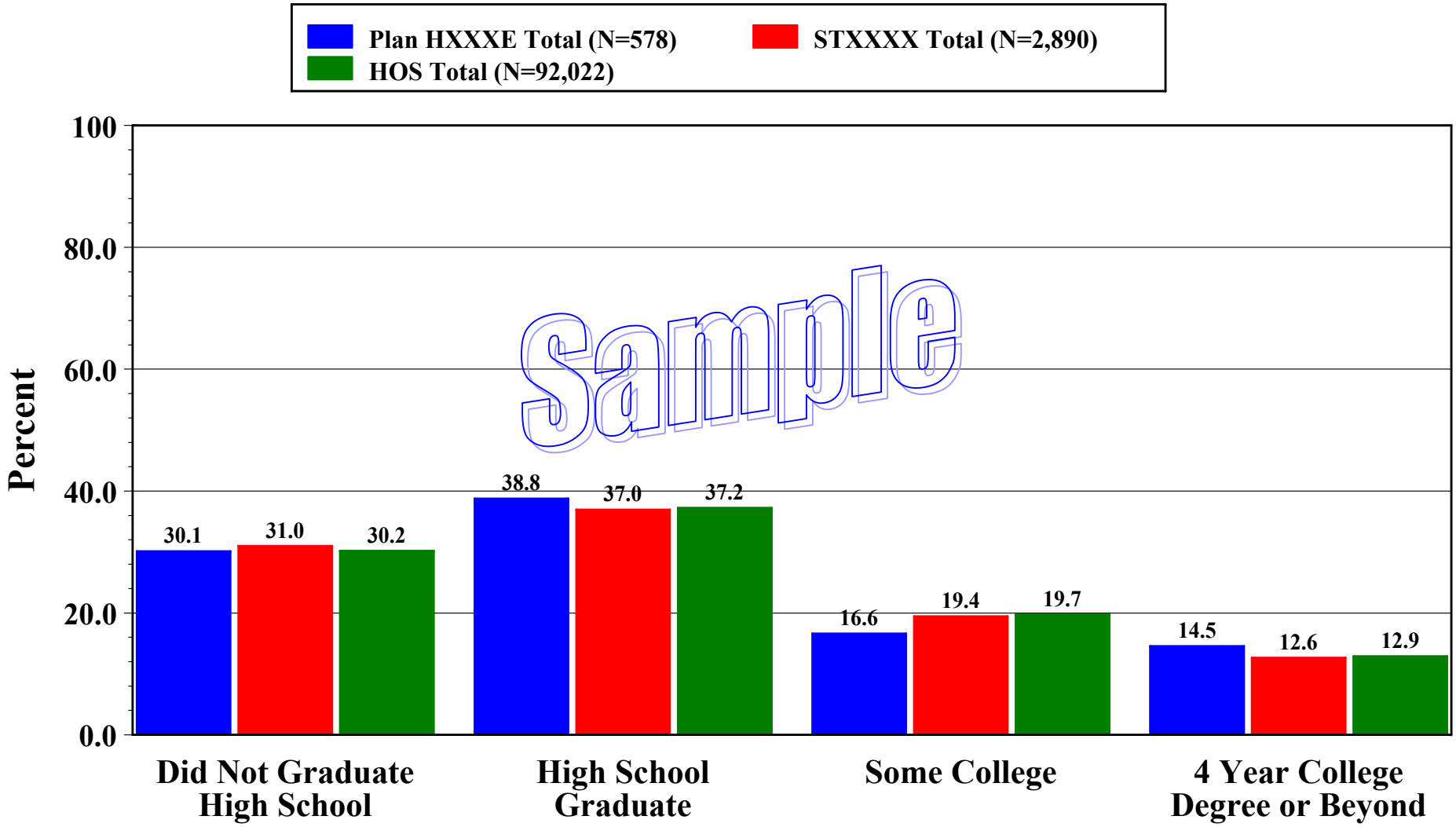
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
A very small percentage of the "Other" category can be attributed to beneficiaries being coded as "Unknown."
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 4: Percent Distribution of Marital Status for Plan HXXXE, STXXXX Total, and HOS Total



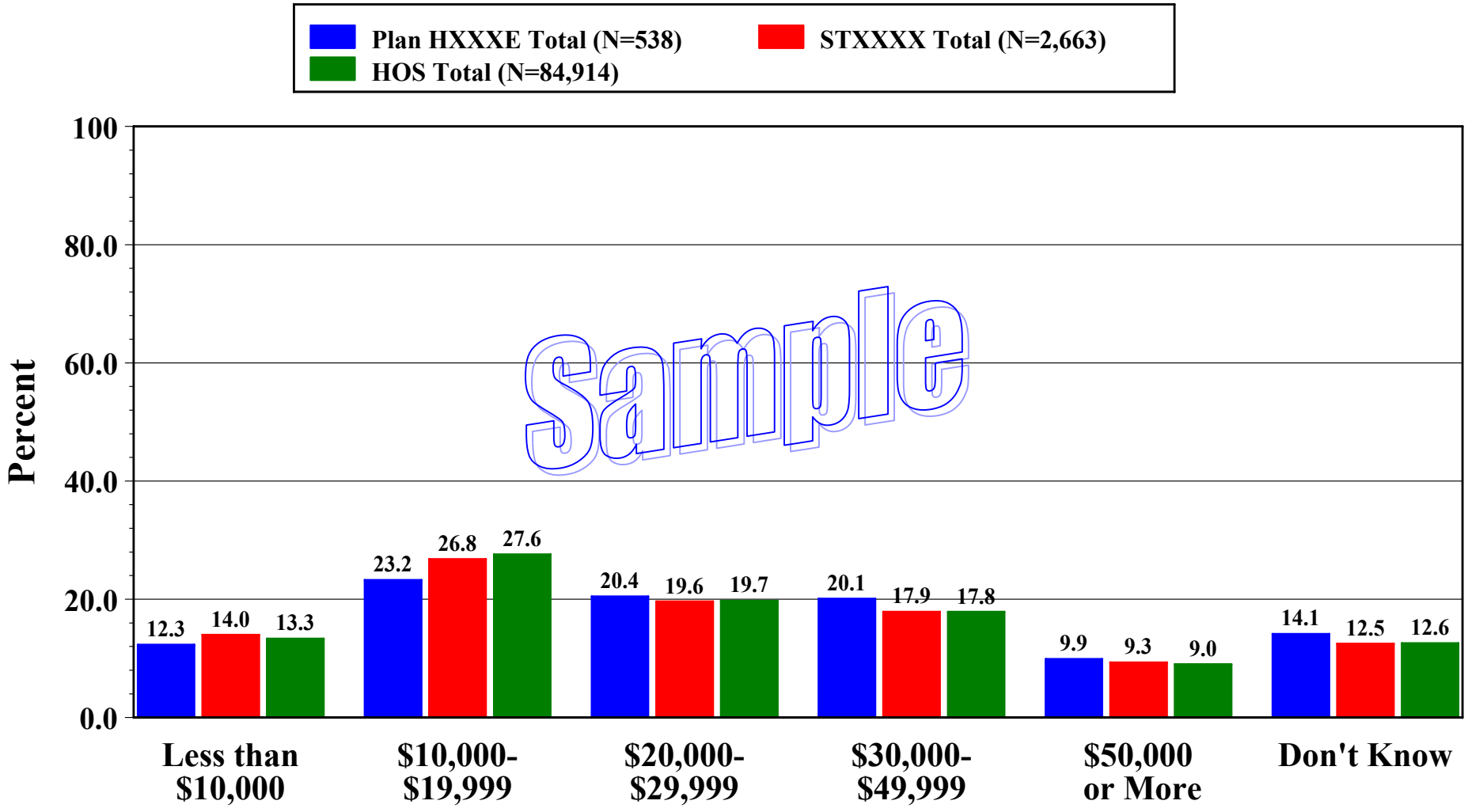
Data Source: Medicare Health Outcomes Survey Respondents
Responses to question #52: "What is your current marital status?"
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 5: Percent Distribution of Education for Plan HXXXE, STXXXX Total, and HOS Total



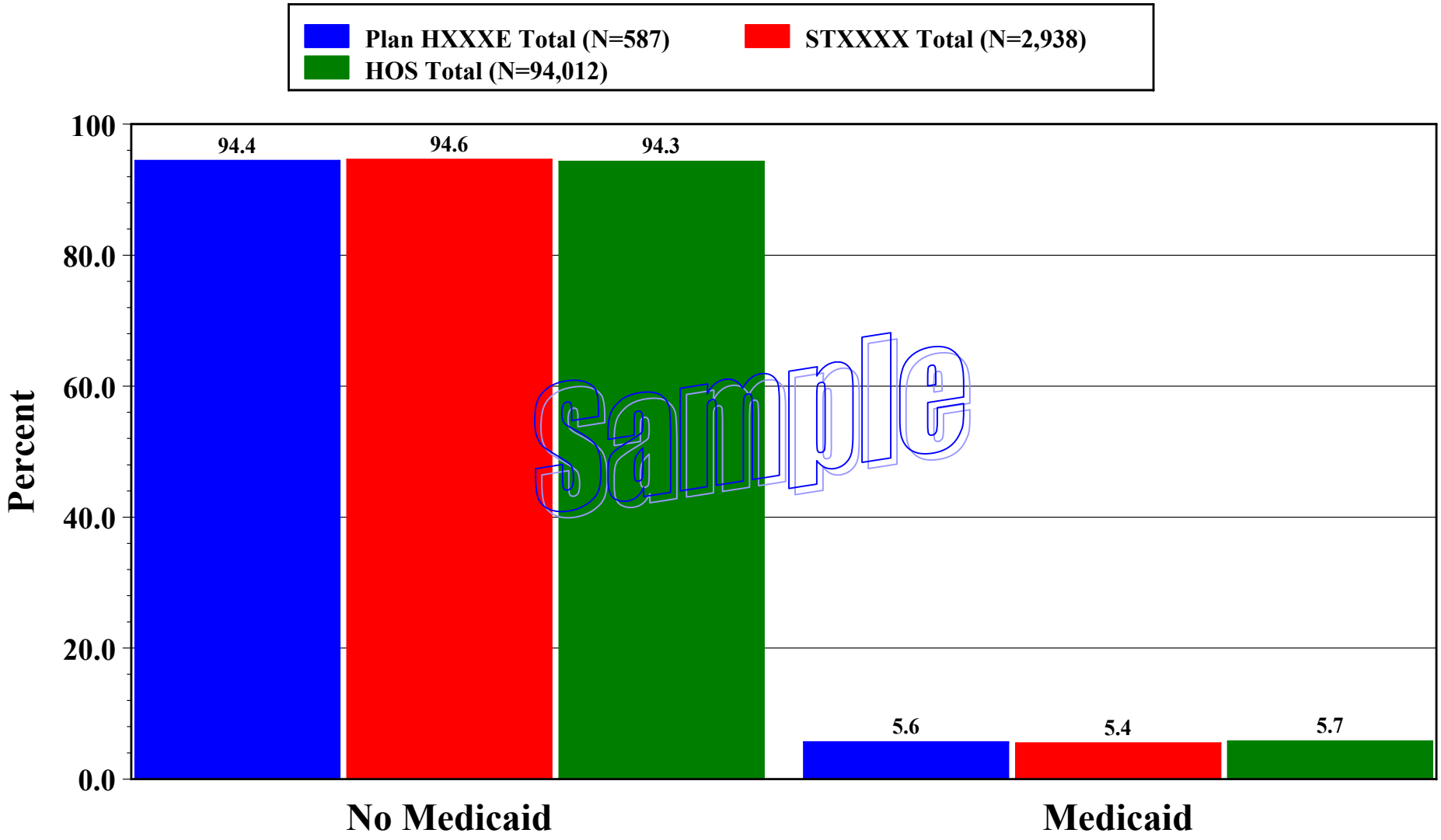
Data Source: Medicare Health Outcomes Survey Respondents
Responses to question #53: "What is the highest grade or level of school that you have completed?"
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 6: Percent Distribution of Annual Household Income for Plan HXXXE, STXXXX Total, and HOS Total



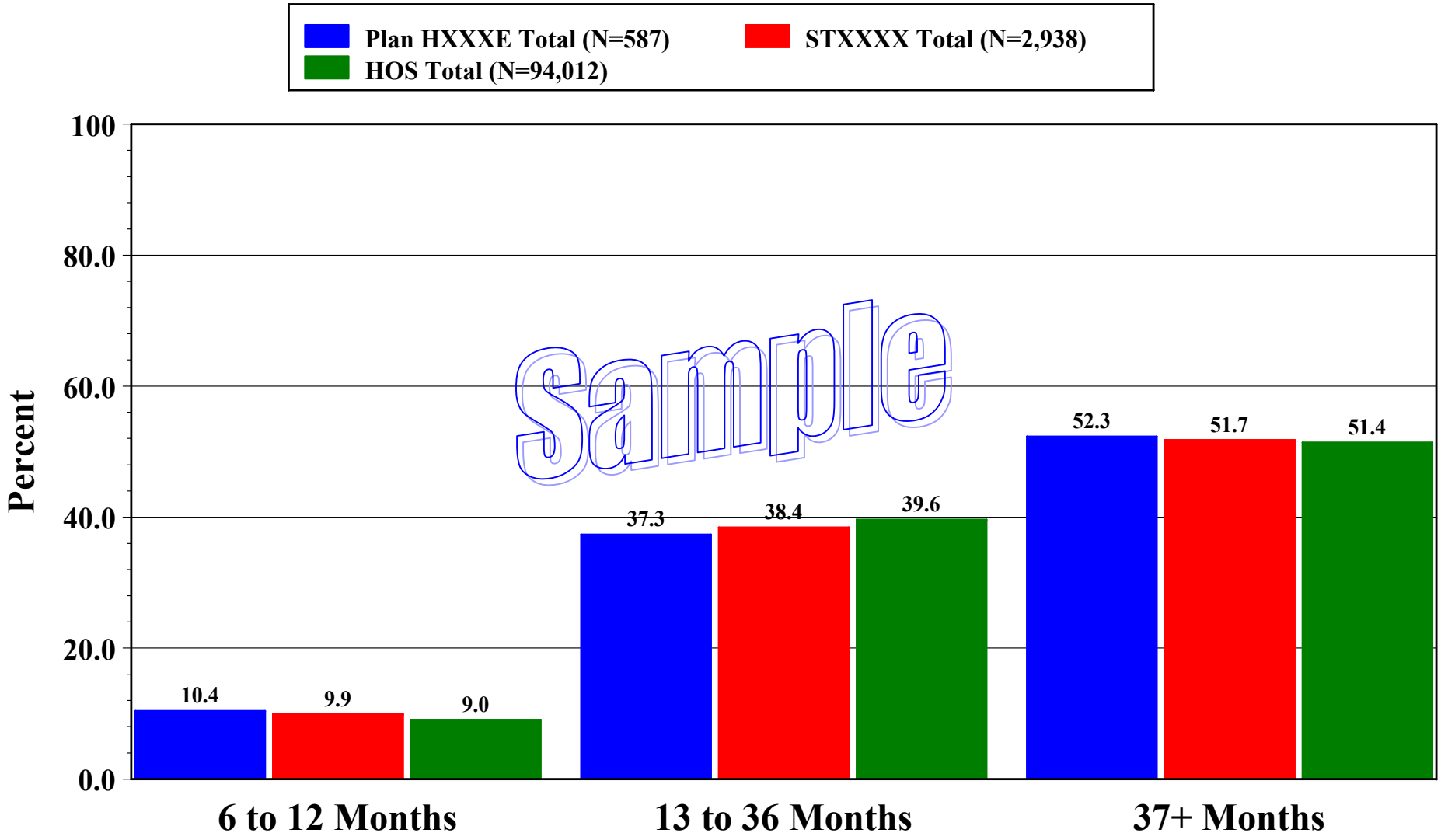
Data Source: Medicare Health Outcomes Survey Respondents
Responses to question #57: "Which of the following categories best represents the combined income for all family members in your household for the past 12 months?"
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 7: Percent Distribution of Medicaid Status for Plan HXXXE, STXXXX Total, and HOS Total



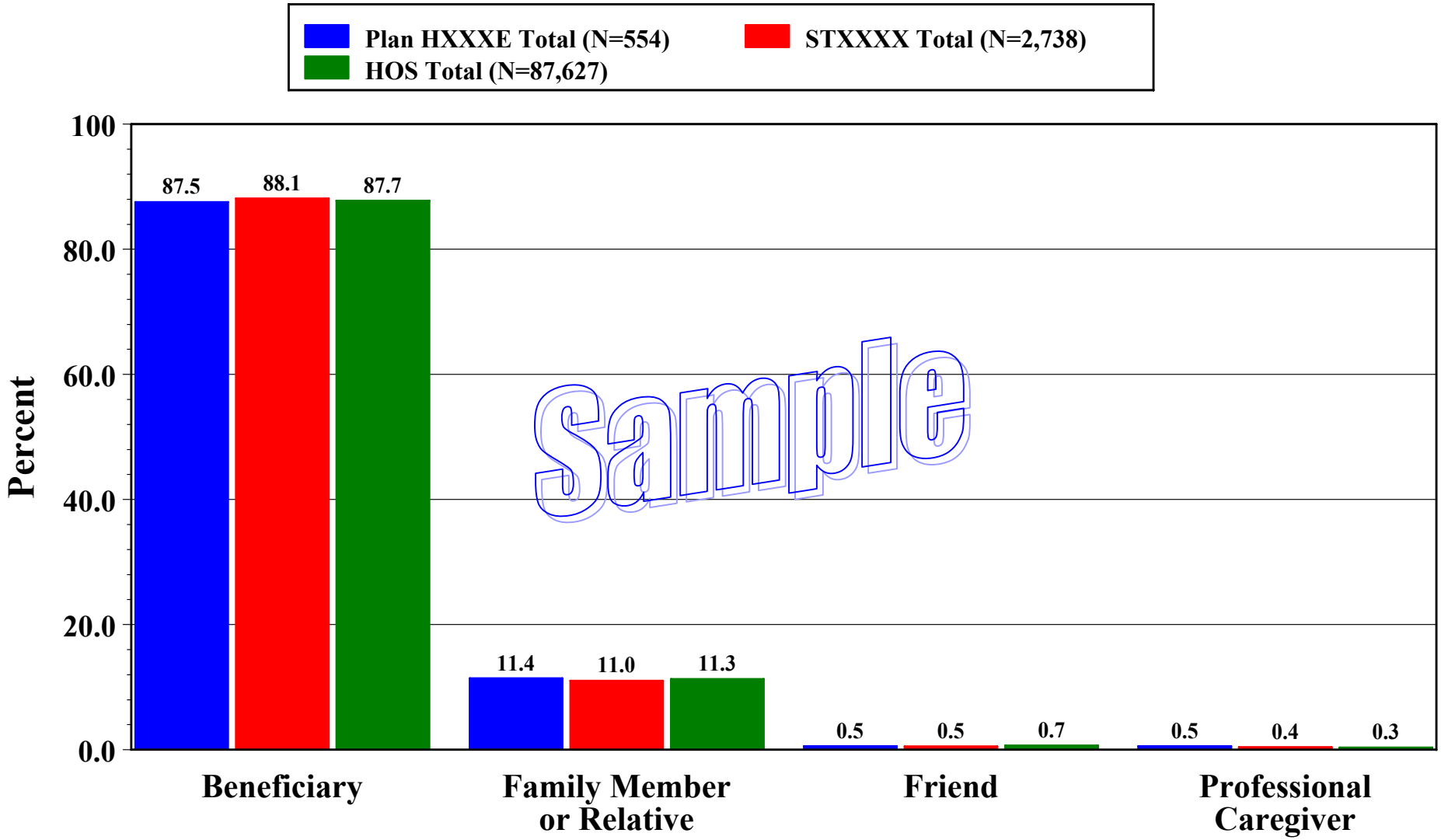
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 8: Percent Distribution of Enrollment Duration for Plan HXXXE, STXXXX Total, and HOS Total



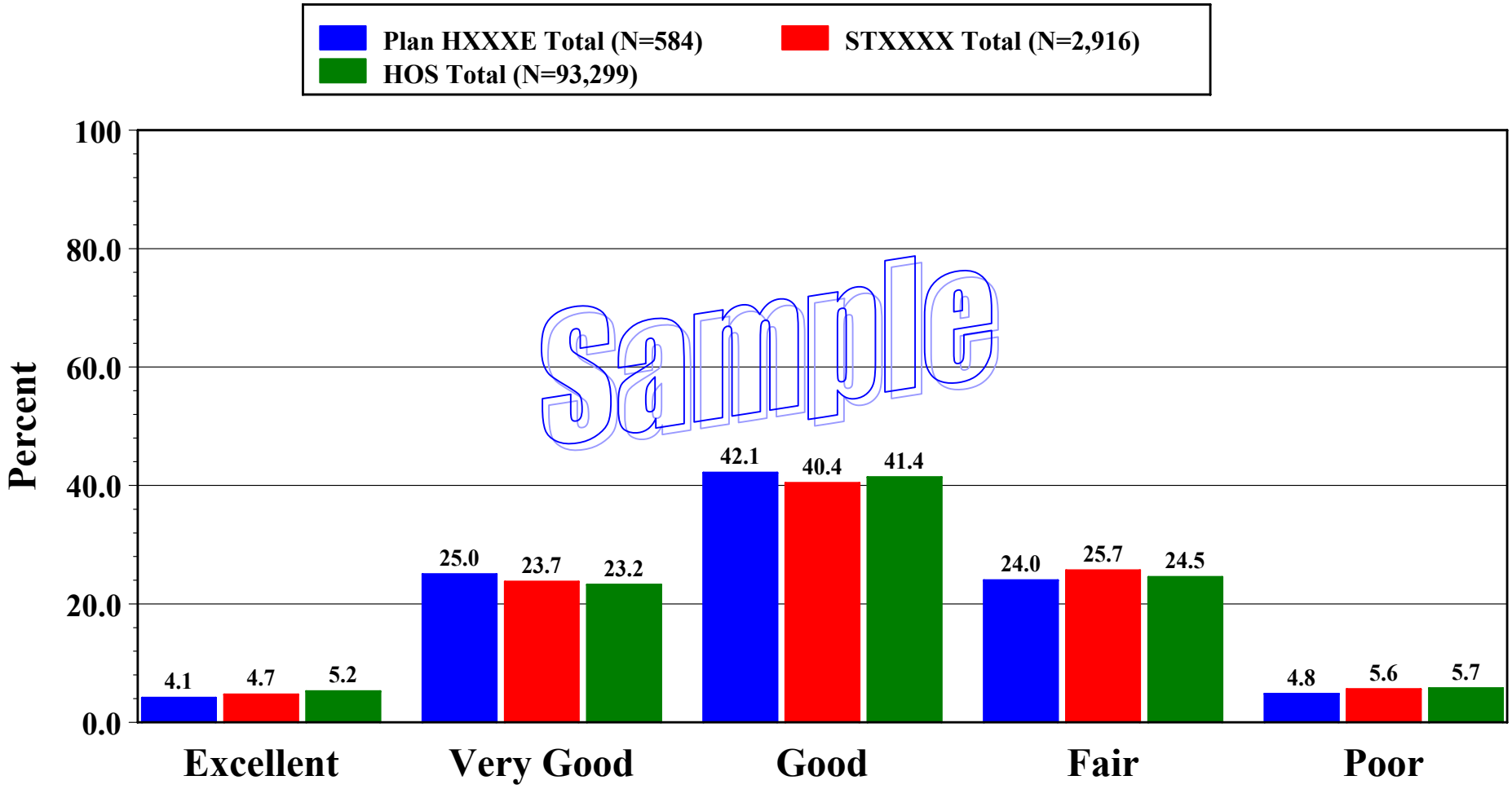
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 9: Person Responding to Survey for Plan HXXXE, STXXXX Total, and HOS Total



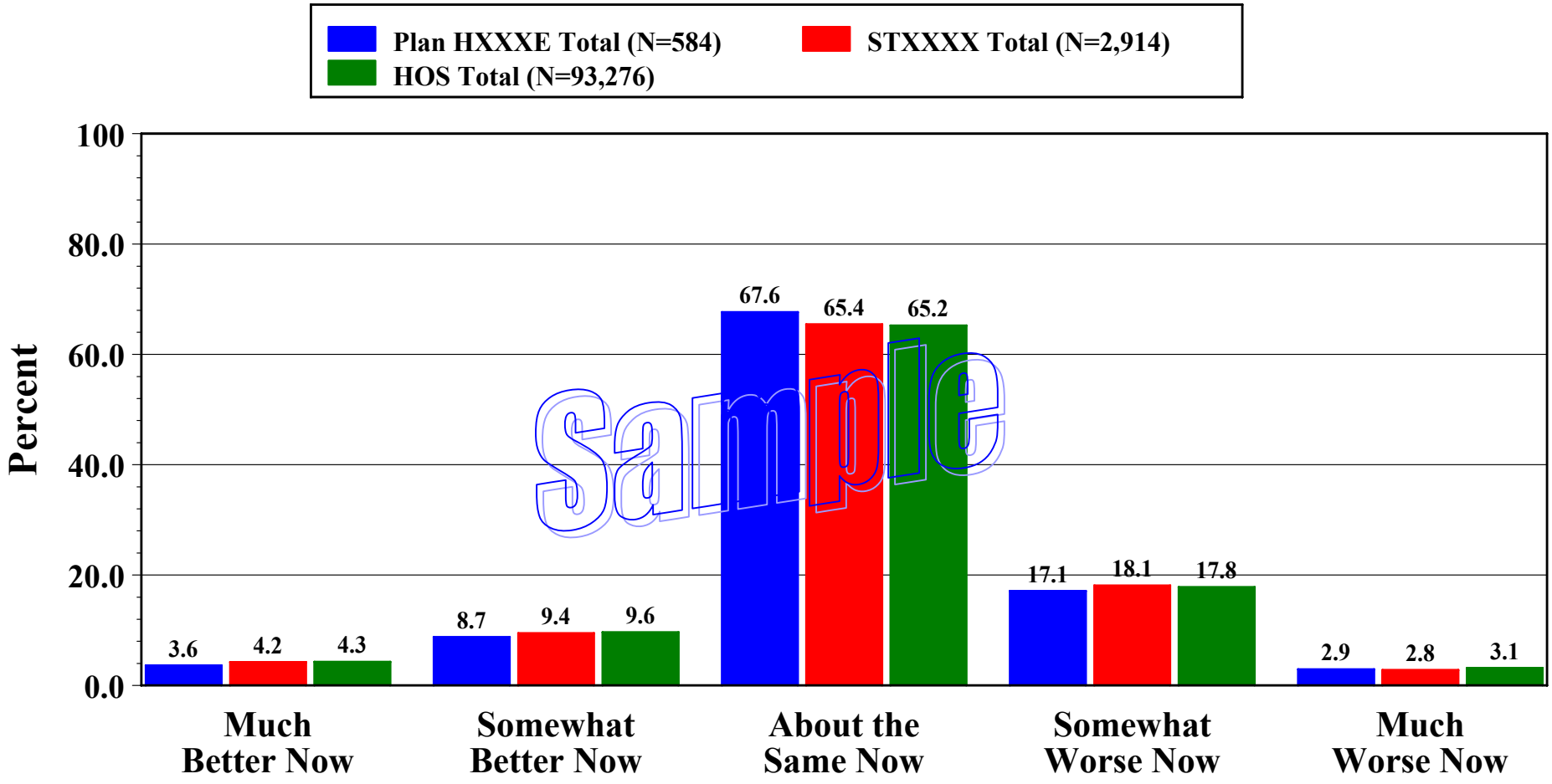
Data Source: Medicare Health Outcomes Survey Respondents
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 10: General Health Question for Plan HXXXE, STXXXX Total, and HOS Total



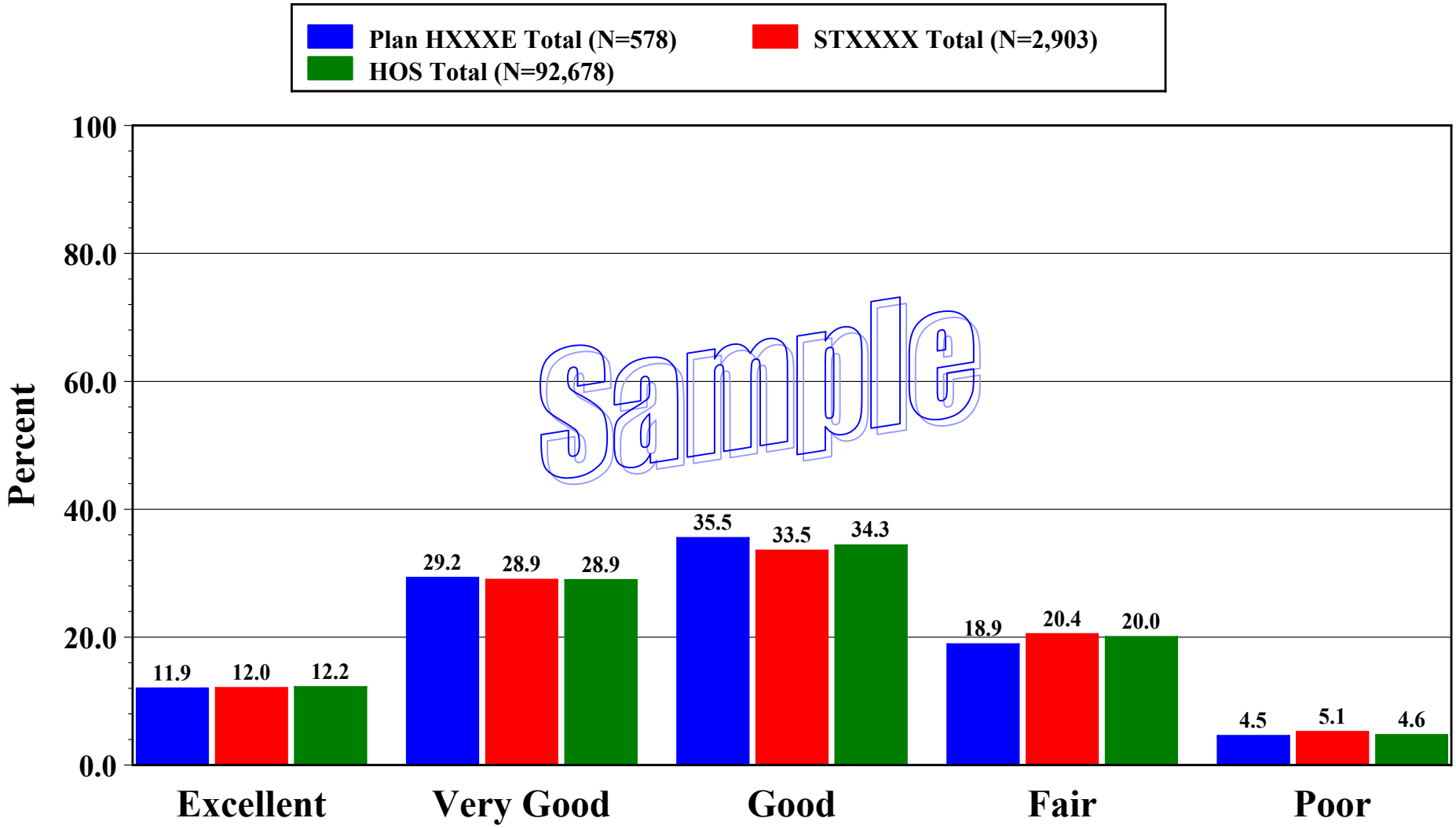
Data Source: Medicare Health Outcomes Survey Respondents
Responses to question #1: "In general, how would you say your health is:"
Individuals responding "Fair" or "Poor" are known to be at increased risk for near future hospitalization (i.e., within 6 months), use of mental health services, and/or mortality in five years. (Ware JE, Kosinski M, Keller SD. SF-36 Physical and Mental Health Summary Scales: A User's Manual. Boston, MA: The Health Institute, 1994.)
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 11: Health Transition Question for Plan HXXXE, STXXXX Total, and HOS Total



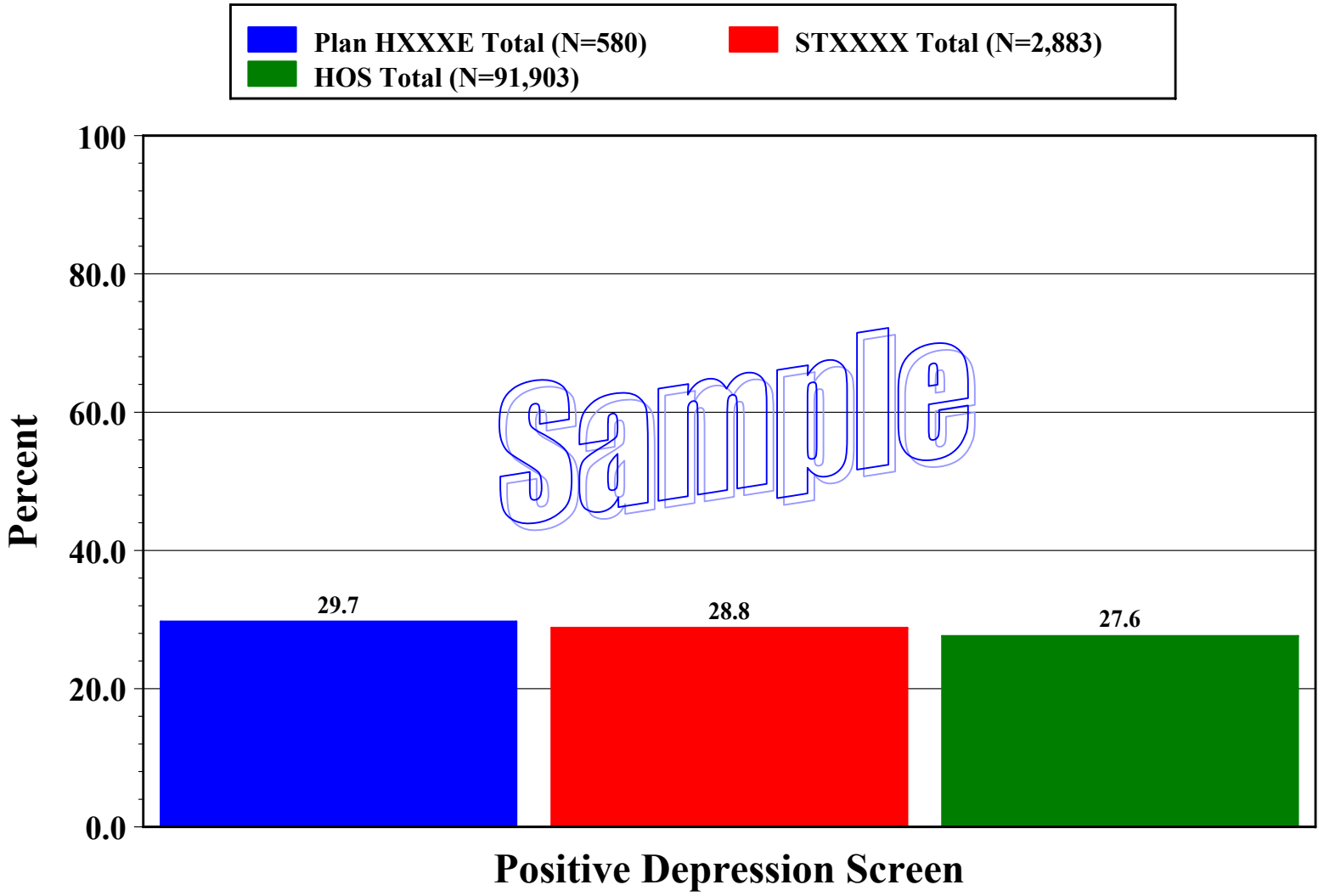
Data Source: Medicare Health Outcomes Survey Respondents
Responses to question #2: "Compared to one year ago, how would you rate your health in general now?"
Individuals responding "Somewhat Worse Now" or "Much Worse Now" are known to be at increased risk for near future hospitalization (i.e., within 6 months), use of mental health services, and/or mortality in five years. (Ware JE, Kosinski M, Keller SD. SF-36 Physical and Mental Health Summary Scales: A User's Manual. Boston, MA: The Health Institute, 1994.)
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 12: Comparative Health Question for Plan HXXXE, STXXXX Total, and HOS Total



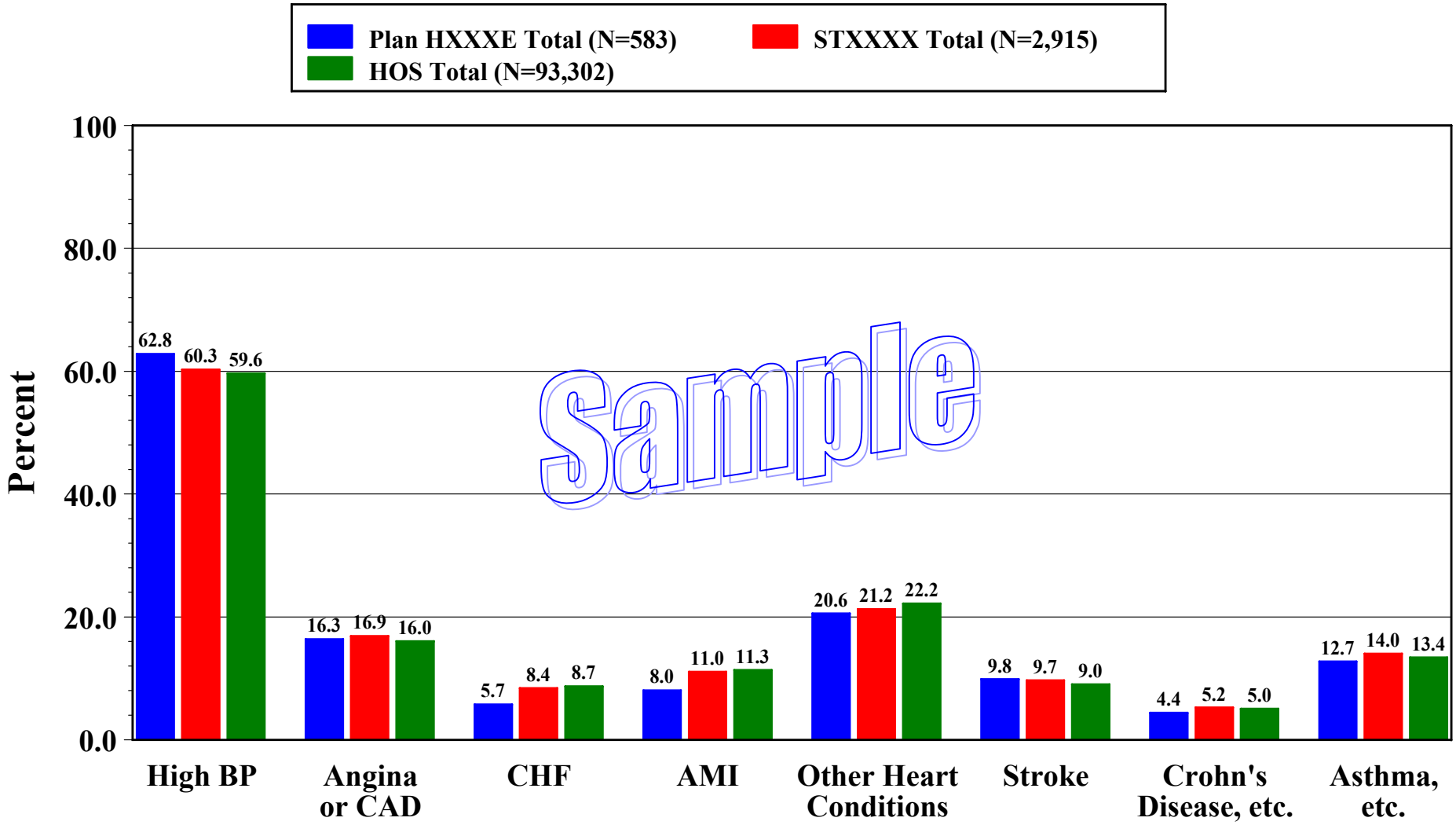
Data Source: Medicare Health Outcomes Survey Respondents
Responses to question #42: "In general, compared to other people your age, would you say your health is:"
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 13: Percent with Positive Depression Screen for Plan HXXXE, STXXXX Total, and HOS Total



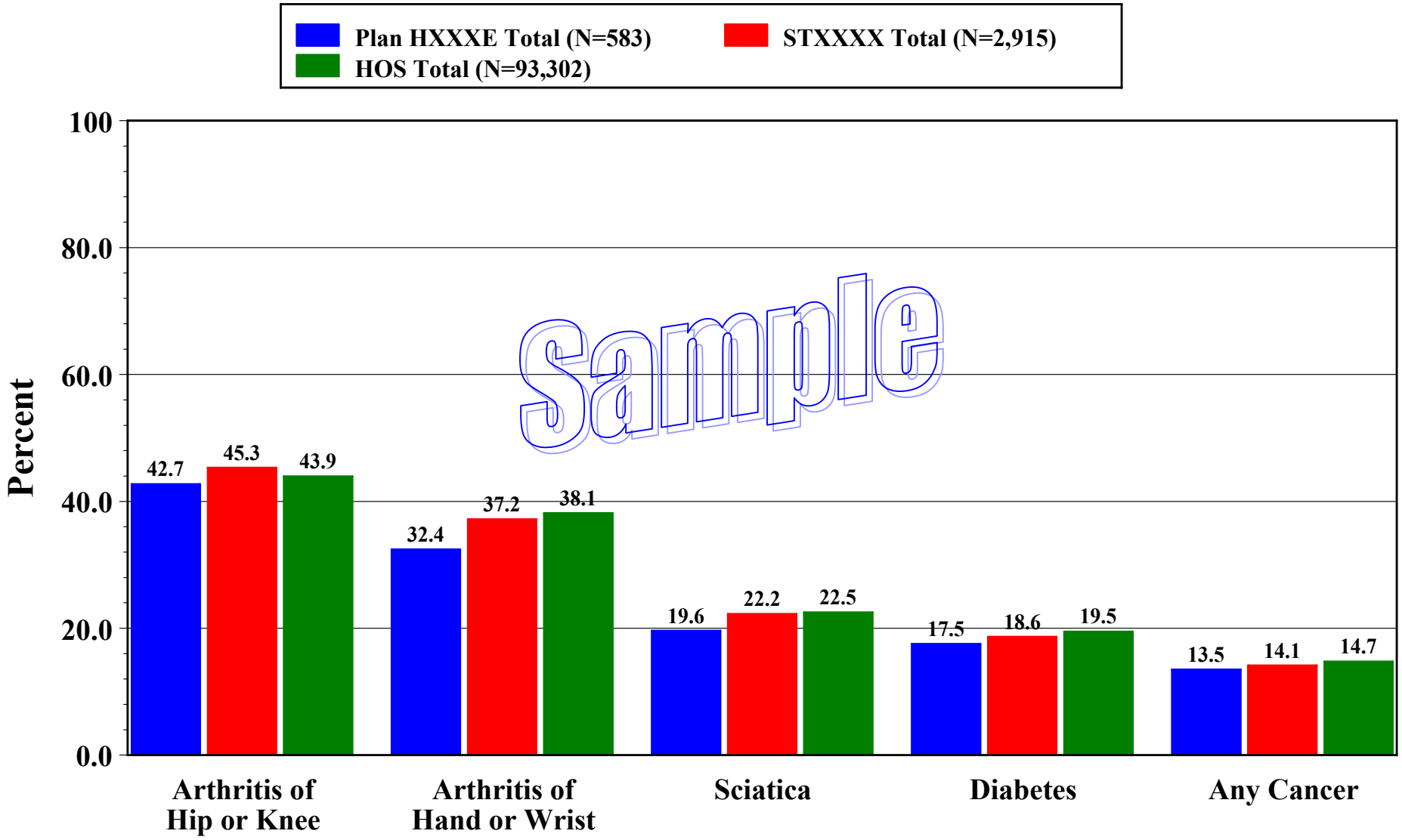
Data Source: Medicare Health Outcomes Survey Respondents
A beneficiary of the Medicare Health Outcomes Survey is considered to have a positive depression screen when he or she answers "Yes" to ANY of the three depression questions (numbers 39, 40, and 41).
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 14: Percent Distribution of Chronic Medical Conditions for Plan HXXXE, STXXXX Total, and HOS Total



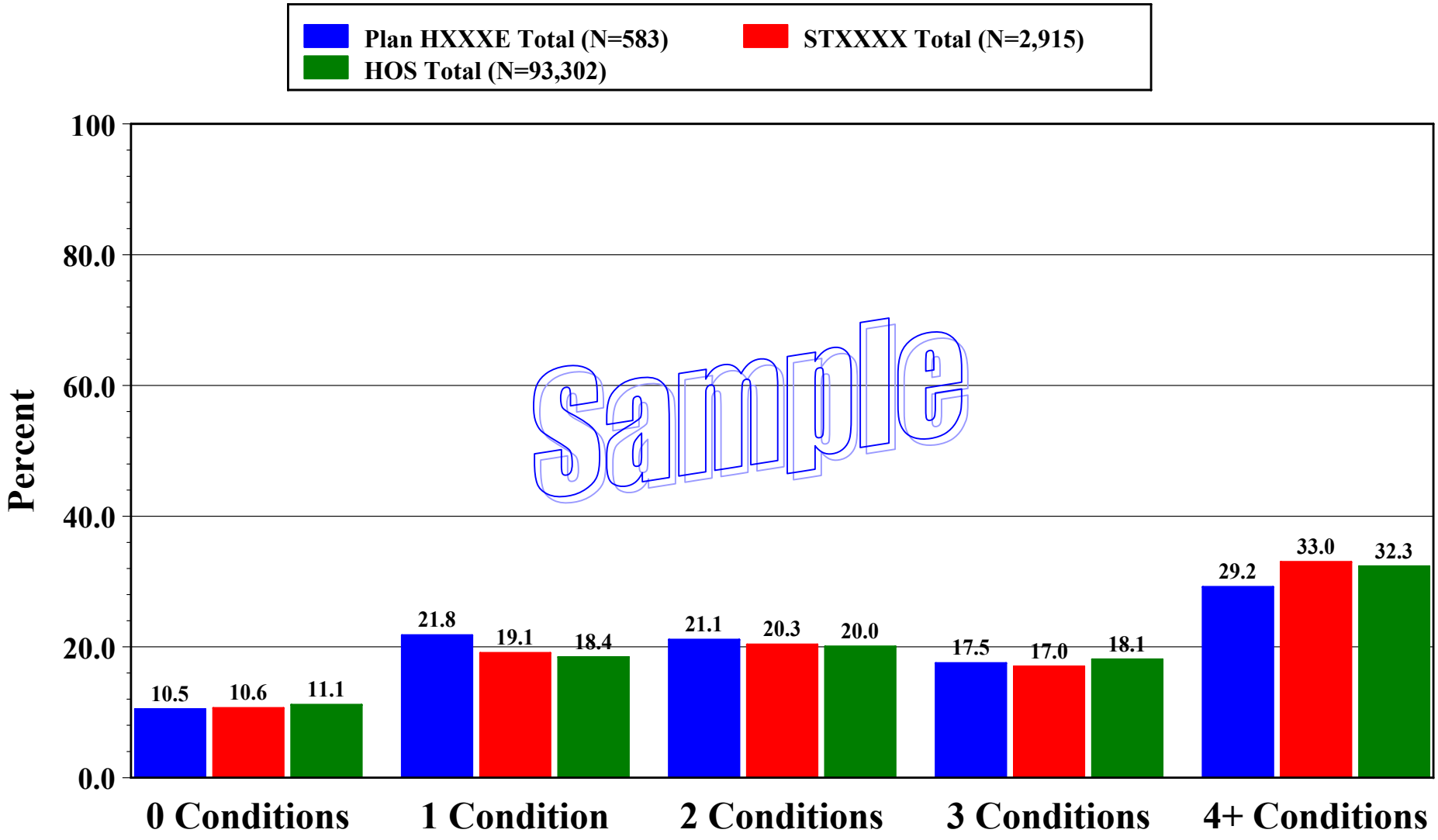
Data Source: Medicare Health Outcomes Survey Respondents
Asthma, etc. includes: asthma, emphysema, and COPD (Chronic Obstructive Pulmonary Disease).
Crohn's Disease, etc. includes: Crohn's Disease, ulcerative colitis, and inflammatory bowel disease.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 15: Percent Distribution of Chronic Medical Conditions (Continued) for Plan HXXXE, STXXXX Total, and HOS Total



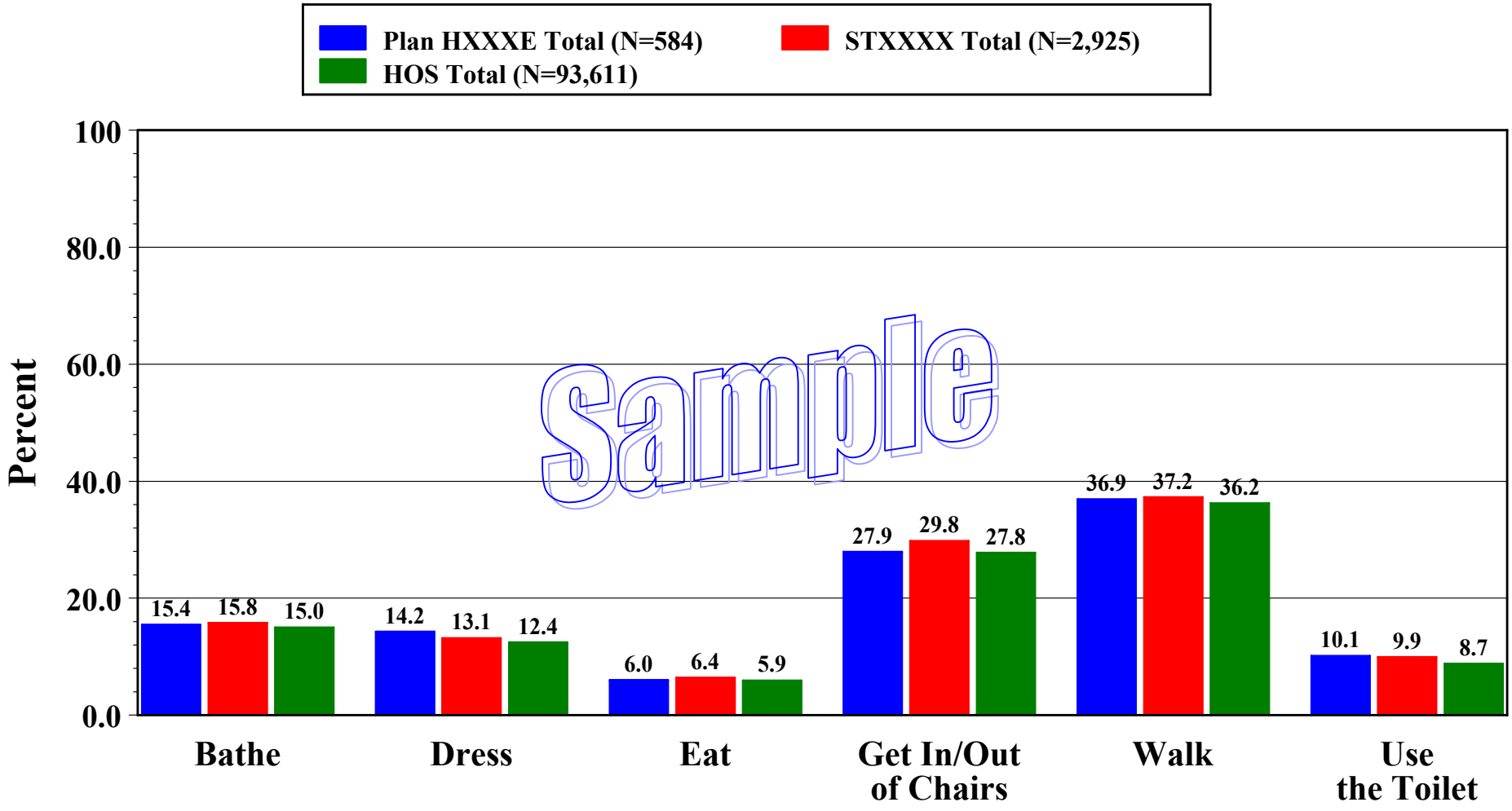
Data Source: Medicare Health Outcomes Survey Respondents
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 16: Frequency of Chronic Medical Conditions for Plan HXXXE, STXXXX Total, and HOS Total



Data Source: Medicare Health Outcomes Survey Respondents
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Percentages may not add to 100% due to rounding.

Figure 17: Percent Distribution of Impairment in Activities of Daily Living* for Plan HXXXE, STXXXX Total, and HOS Total



Data Source: Medicare Health Outcomes Survey Respondents

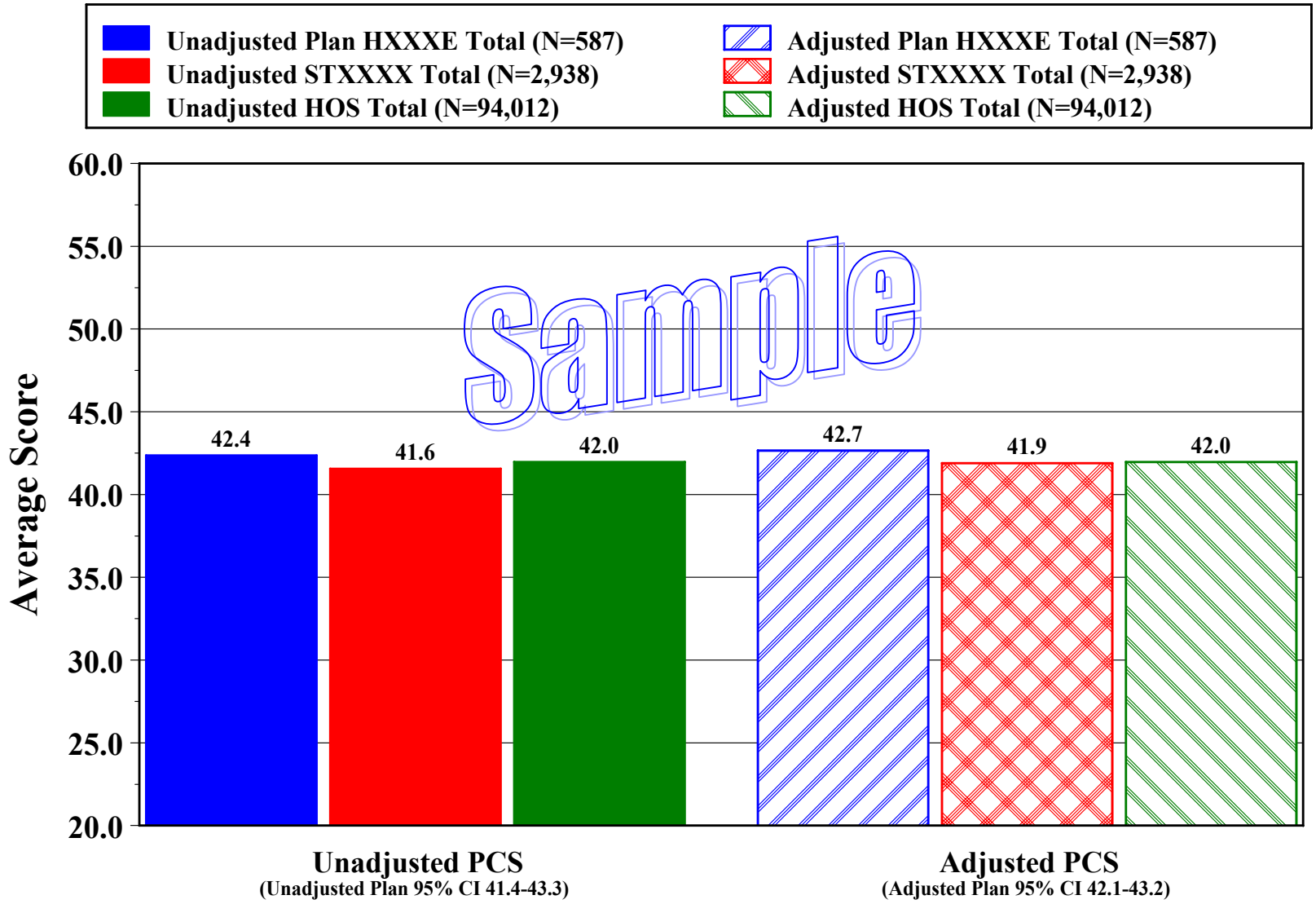
Responses to question #12: "Because of a health or physical problem, do you have any difficulty doing the following activities?"

Responses reporting difficulty or inability to do the activity were categorized as "Impaired."

*Adapted from: Adler GS. A Profile of the Medicare Current Beneficiary Survey. Health Care Financing Review, Vol. 15, No. 4 (Summer 1994): 153-163.

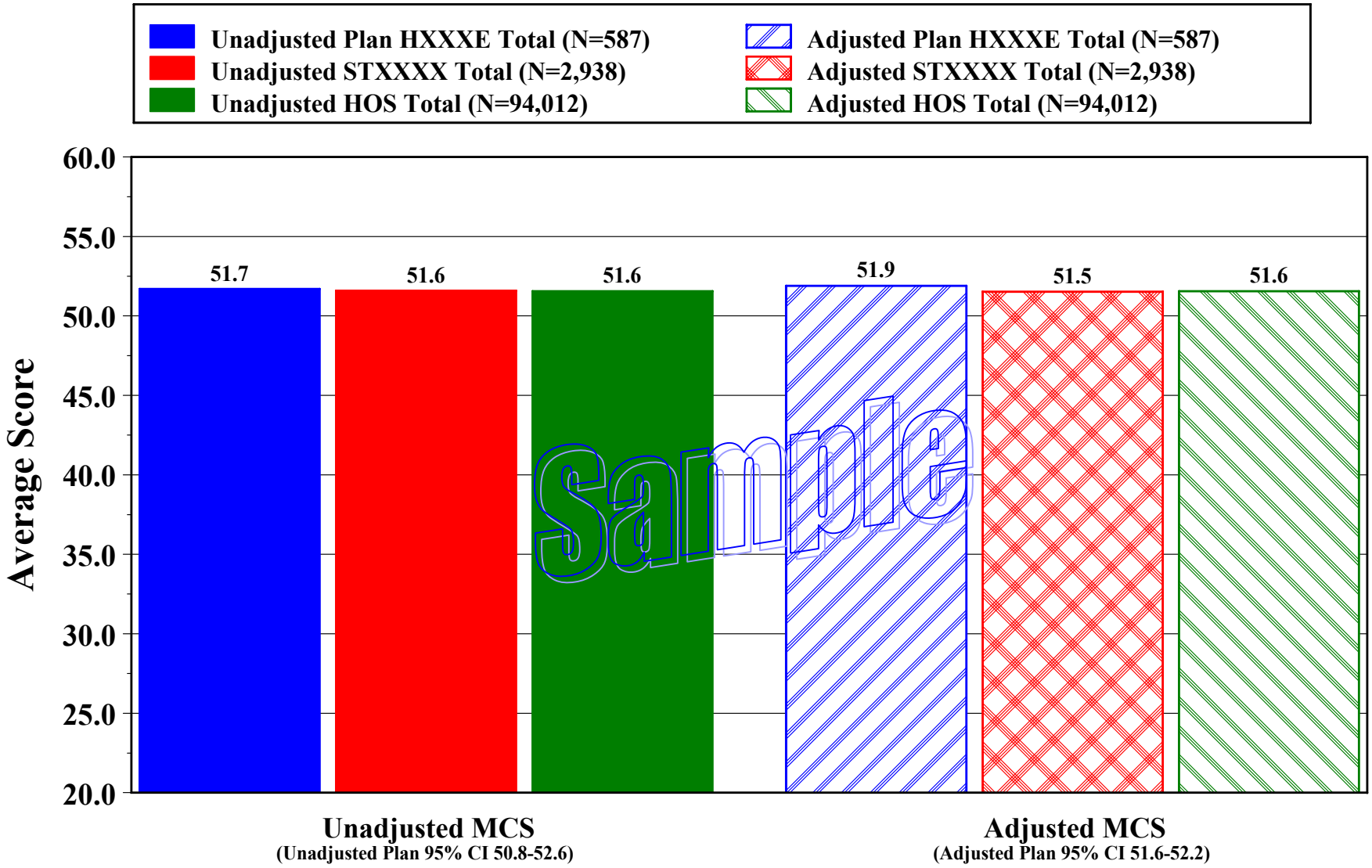
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 18: SF-36 Physical Component Summary (PCS) Scores for Plan HXXXE, STXXXX Total, and HOS Total



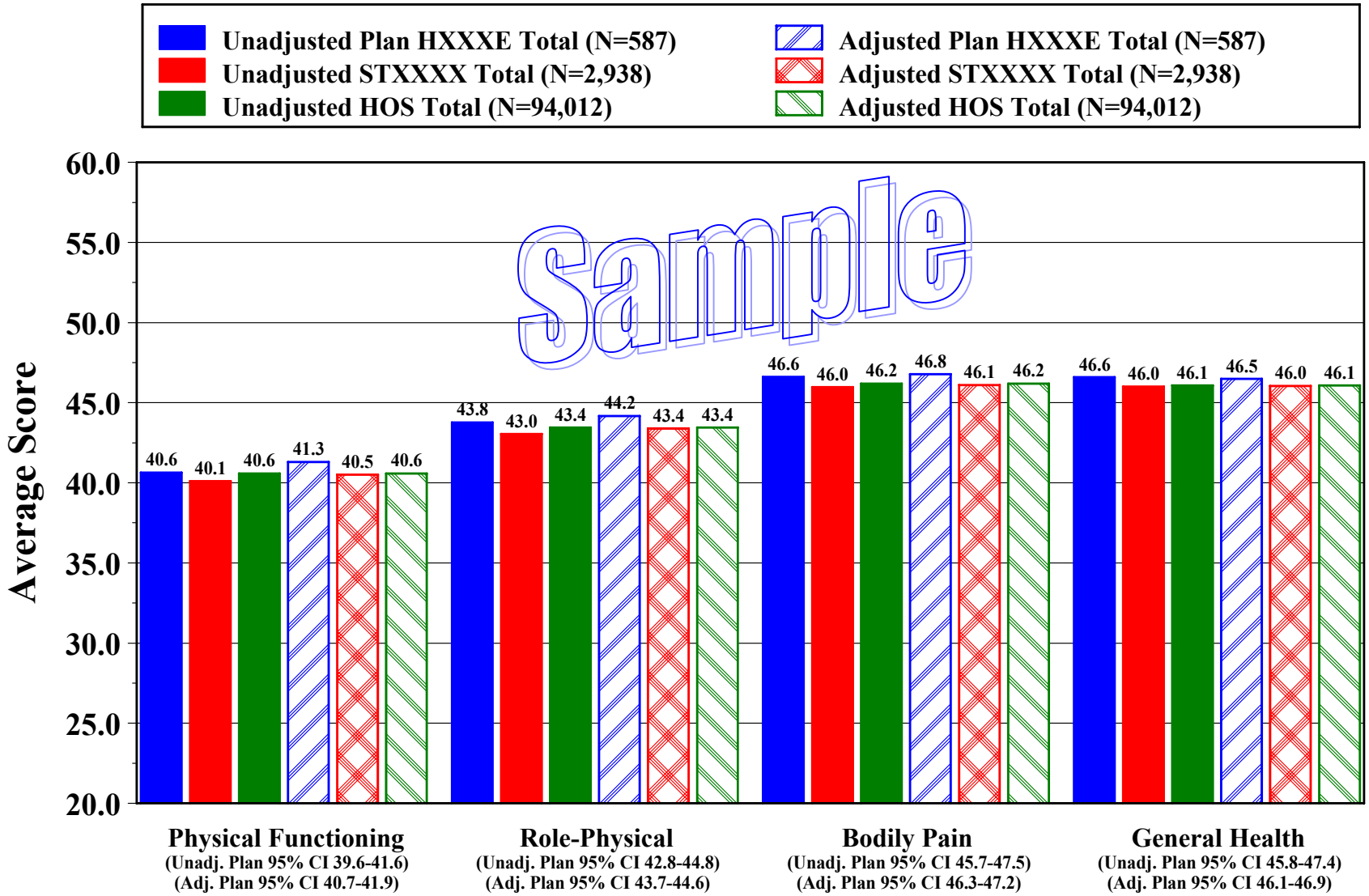
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 19: SF-36 Mental Component Summary (MCS) Scores for Plan HXXXE, STXXXX Total, and HOS Total



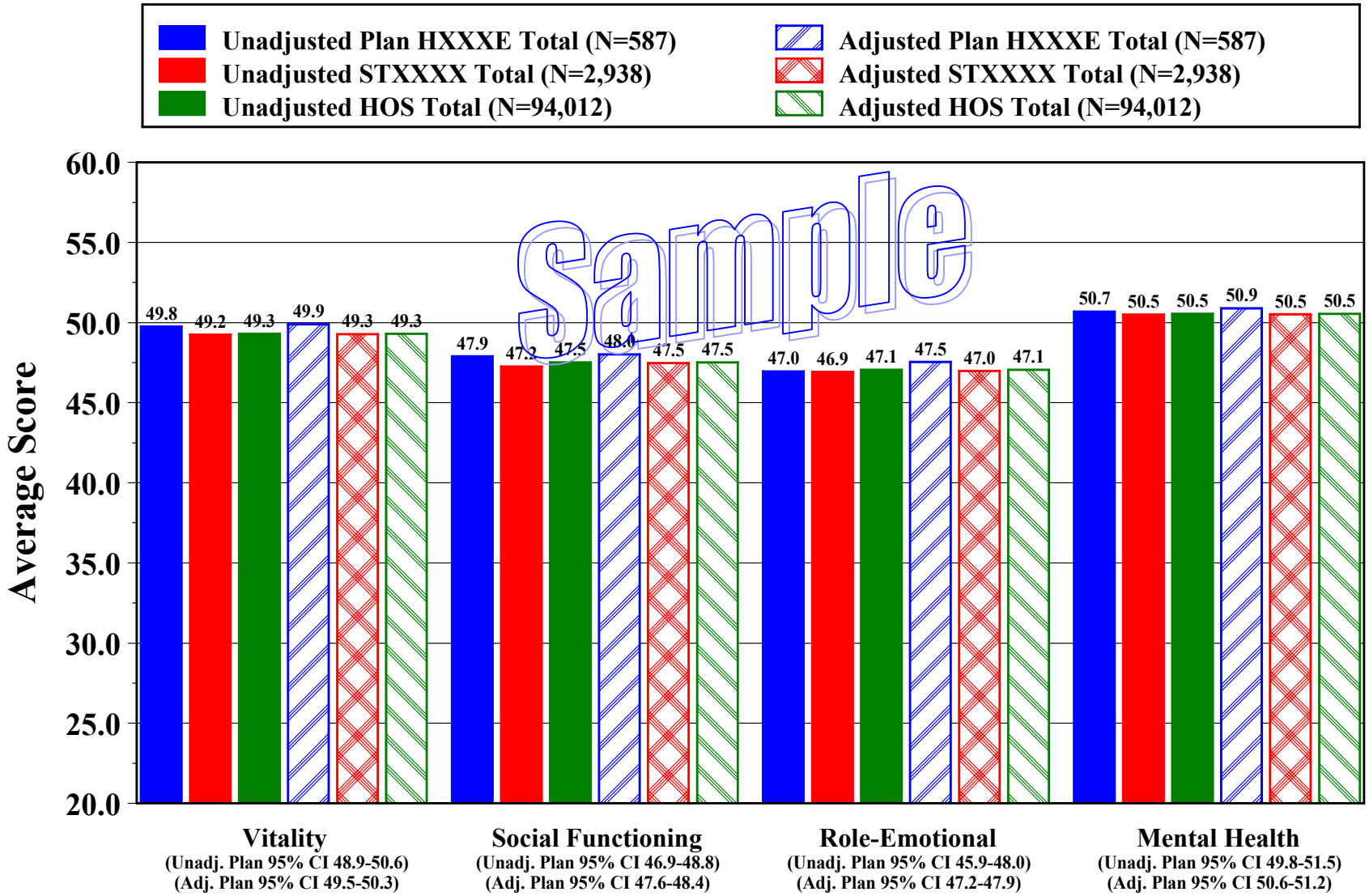
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 20: SF-36 Scale Scores Comprising the PCS for Plan HXXXE, STXXXX Total, and HOS Total



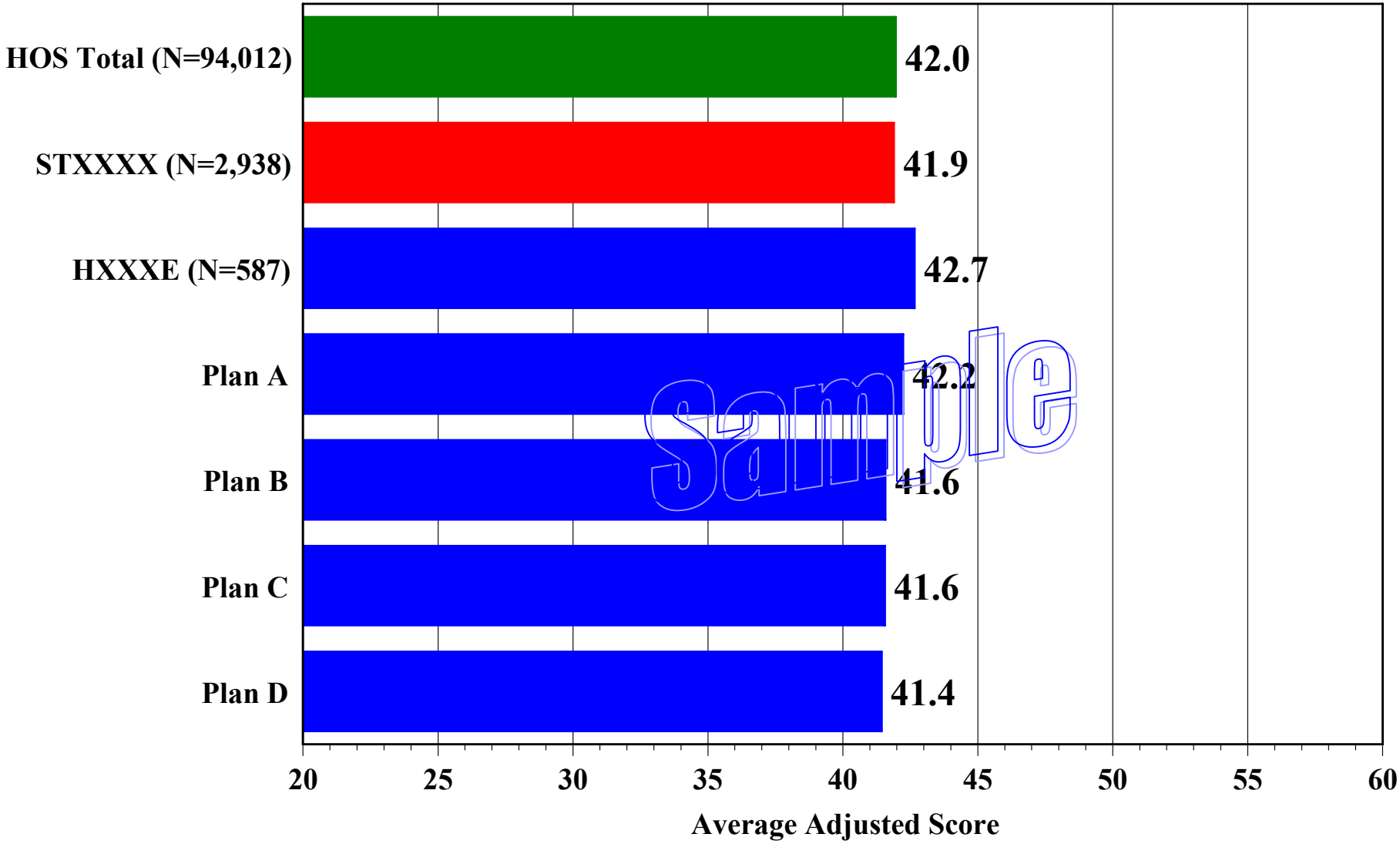
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 21: SF-36 Scale Scores Comprising the MCS for Plan HXXXE, STXXXX Total, and HOS Total



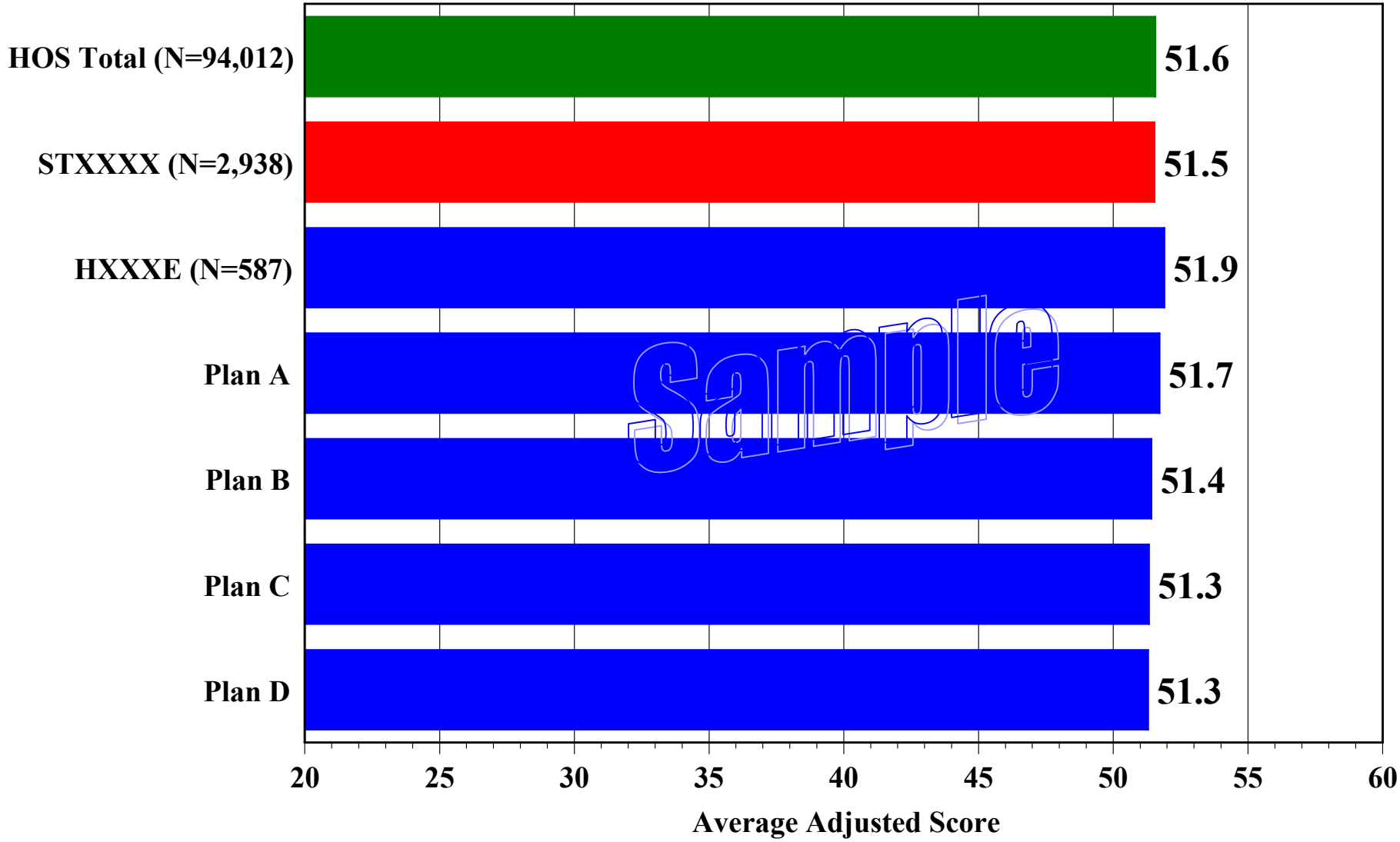
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.

Figure 22: Adjusted SF-36 Physical Component Summary Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



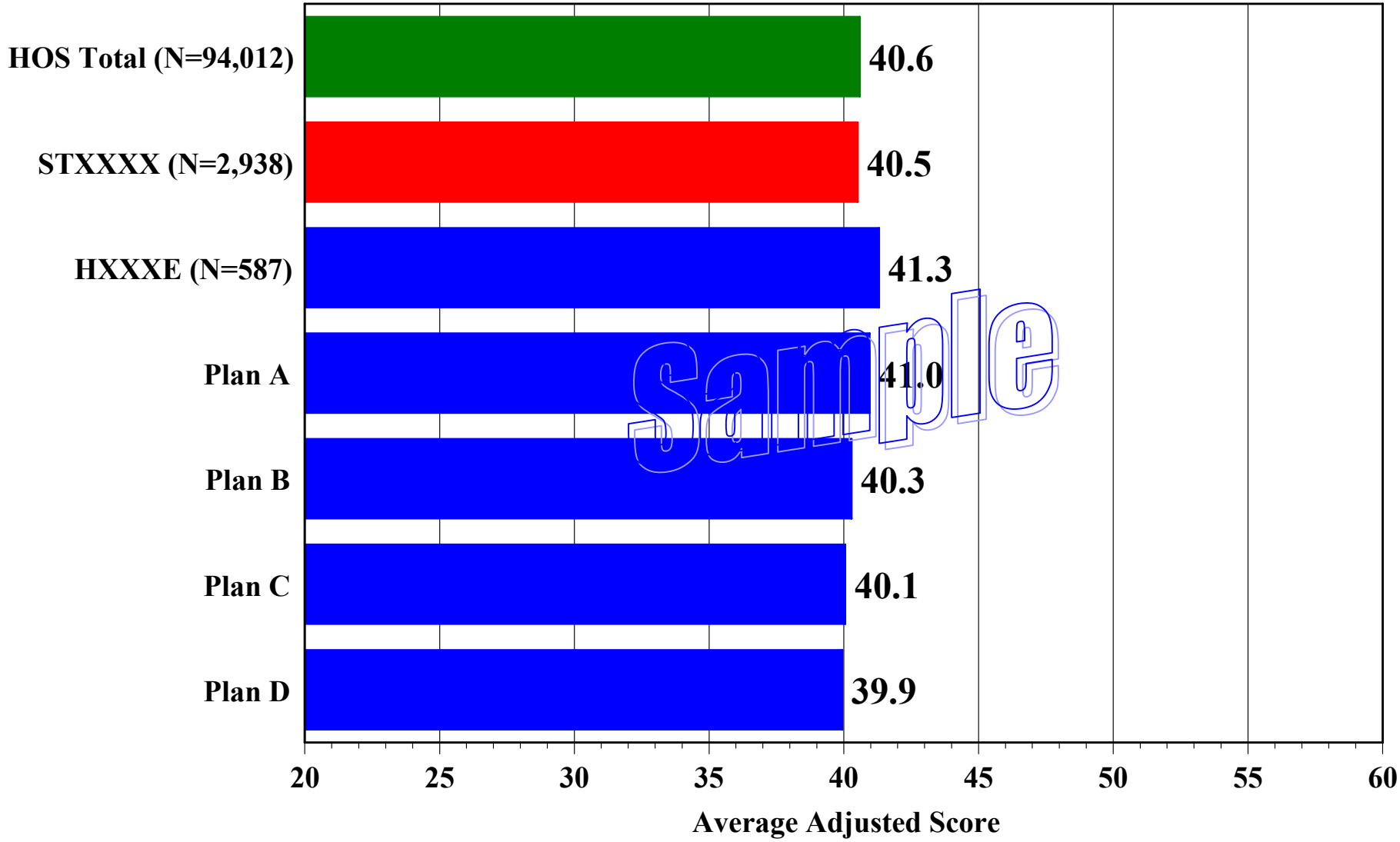
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 23: Adjusted SF-36 Mental Component Summary Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



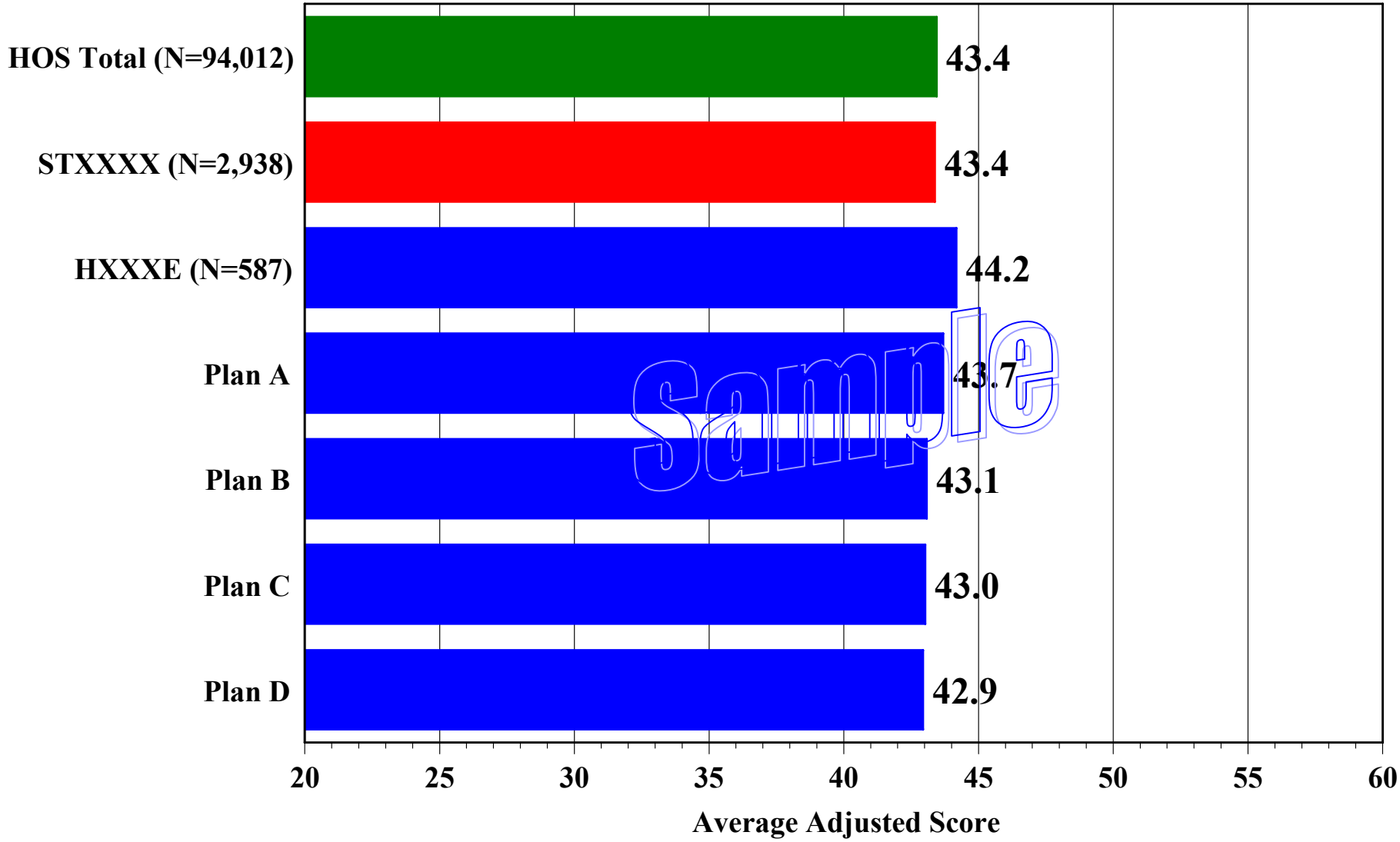
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 24: Adjusted SF-36 Physical Functioning Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



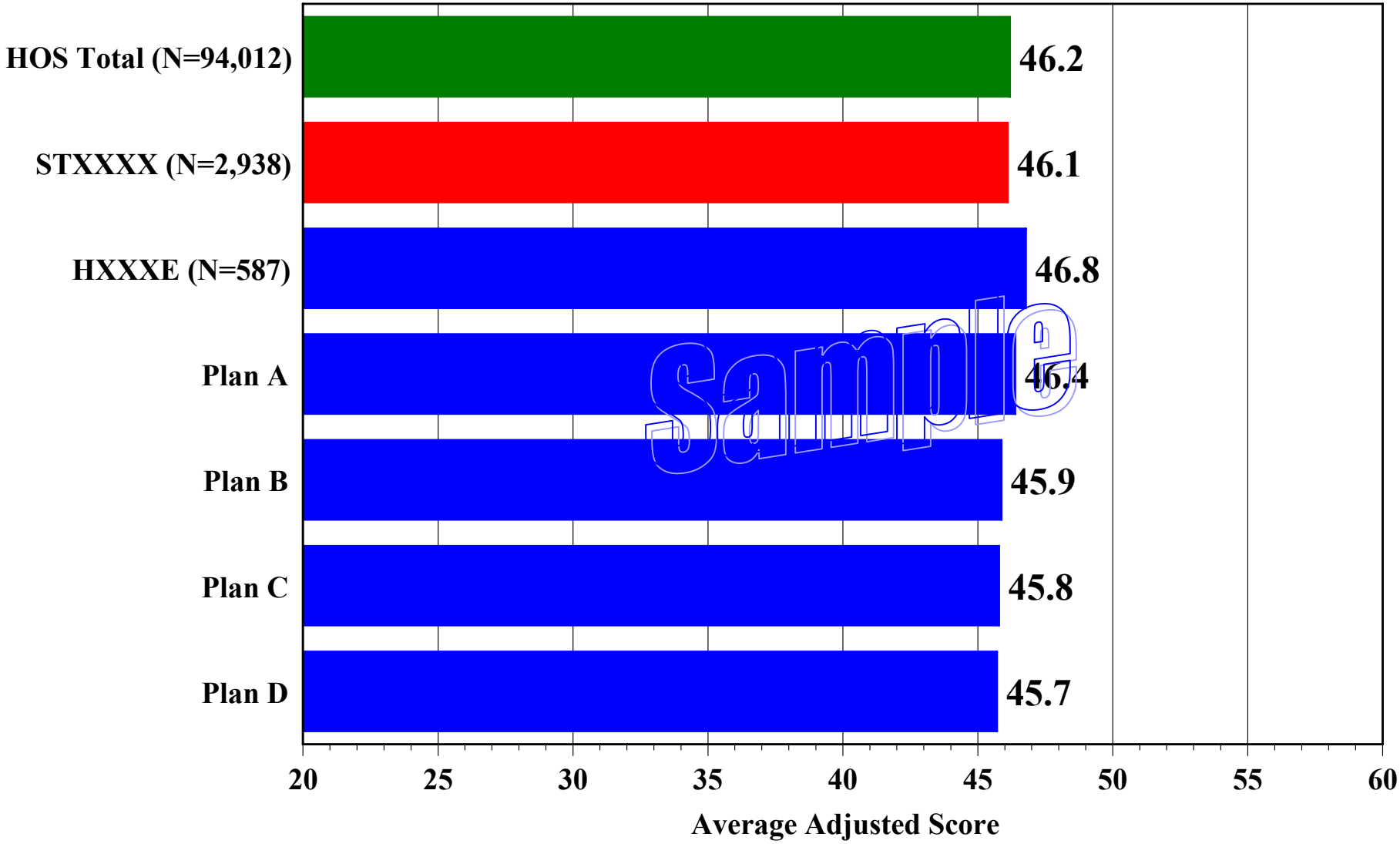
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 25: Adjusted SF-36 Role-Physical Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



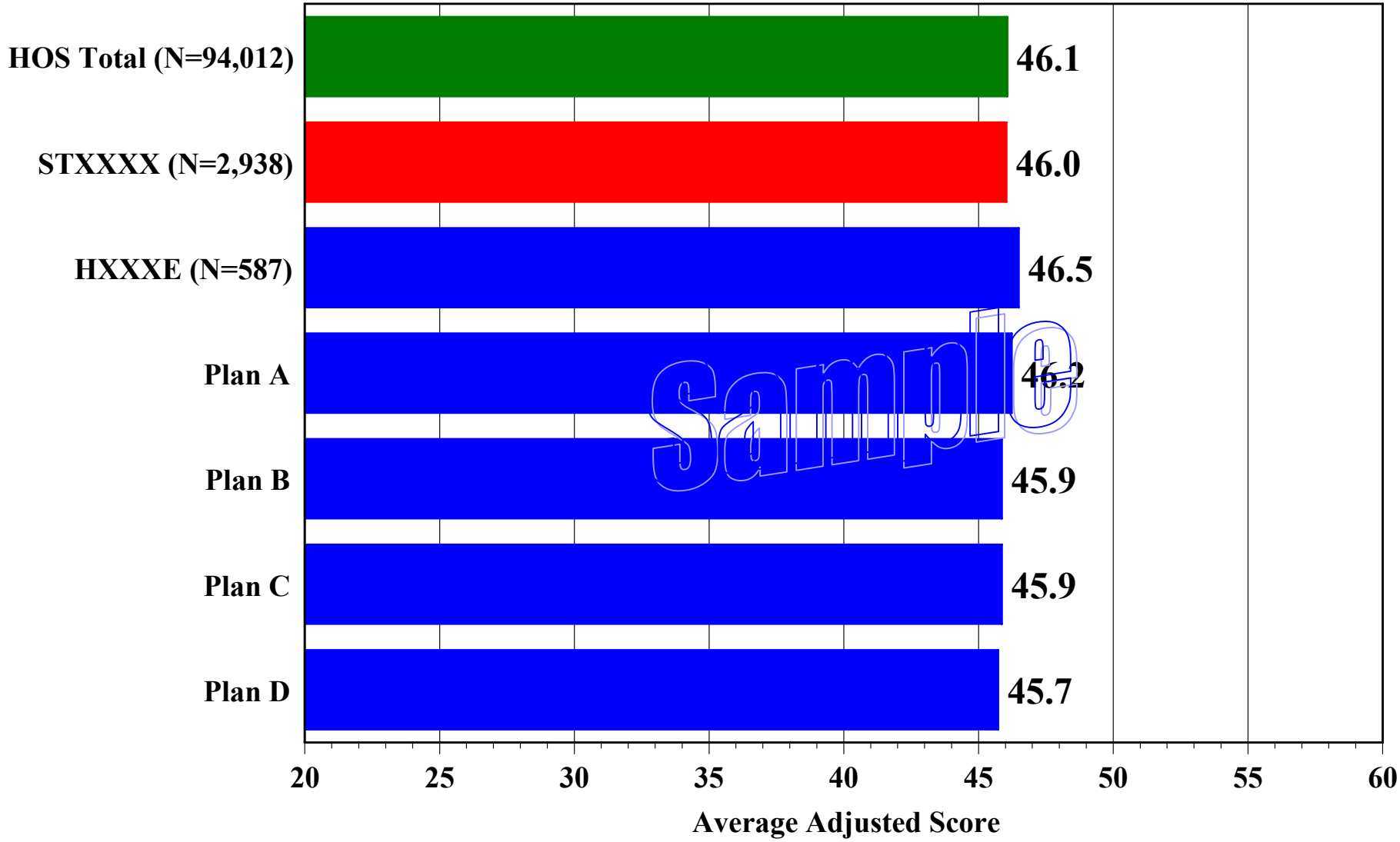
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 26: Adjusted SF-36 Bodily Pain Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



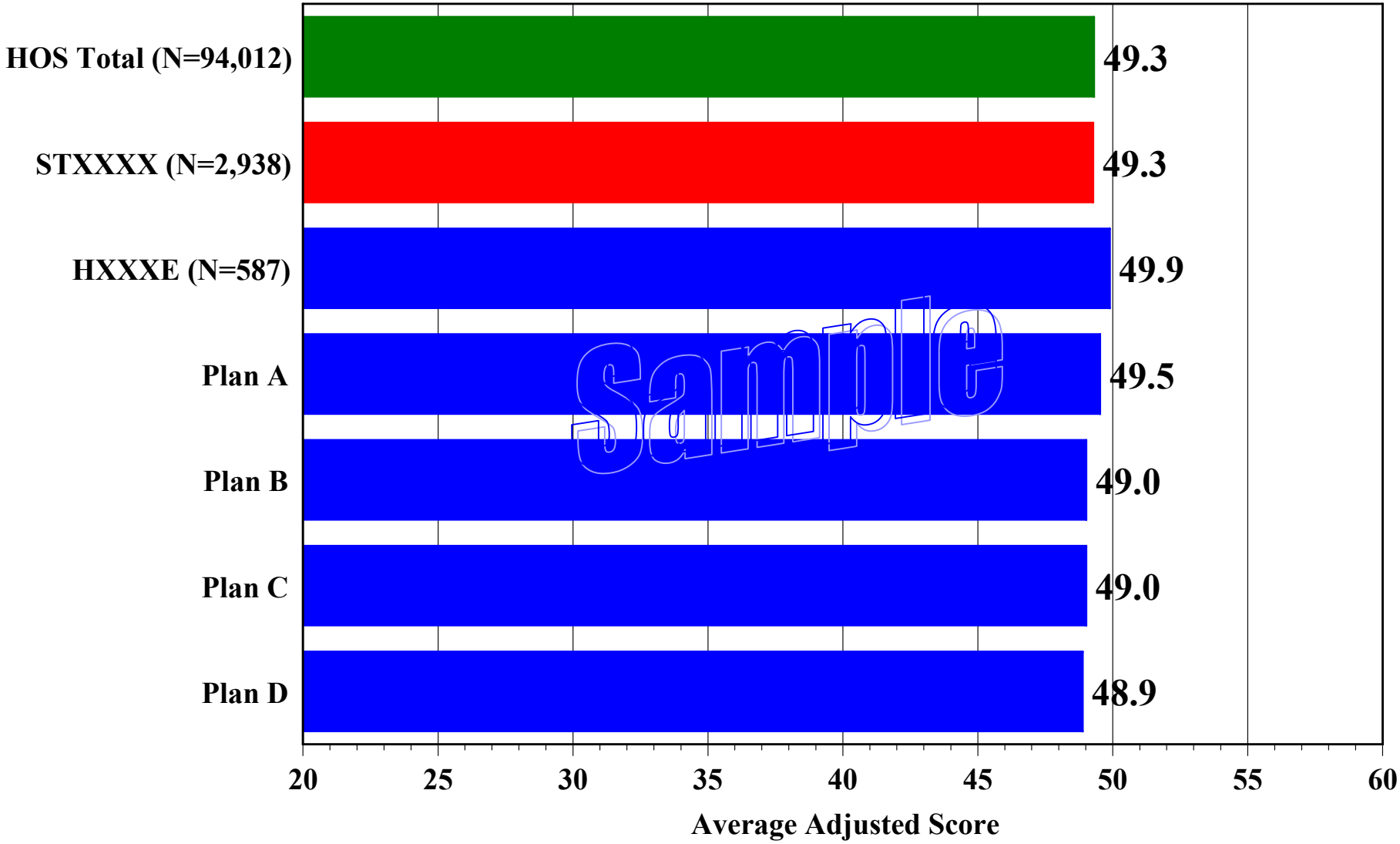
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 27: Adjusted SF-36 General Health Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



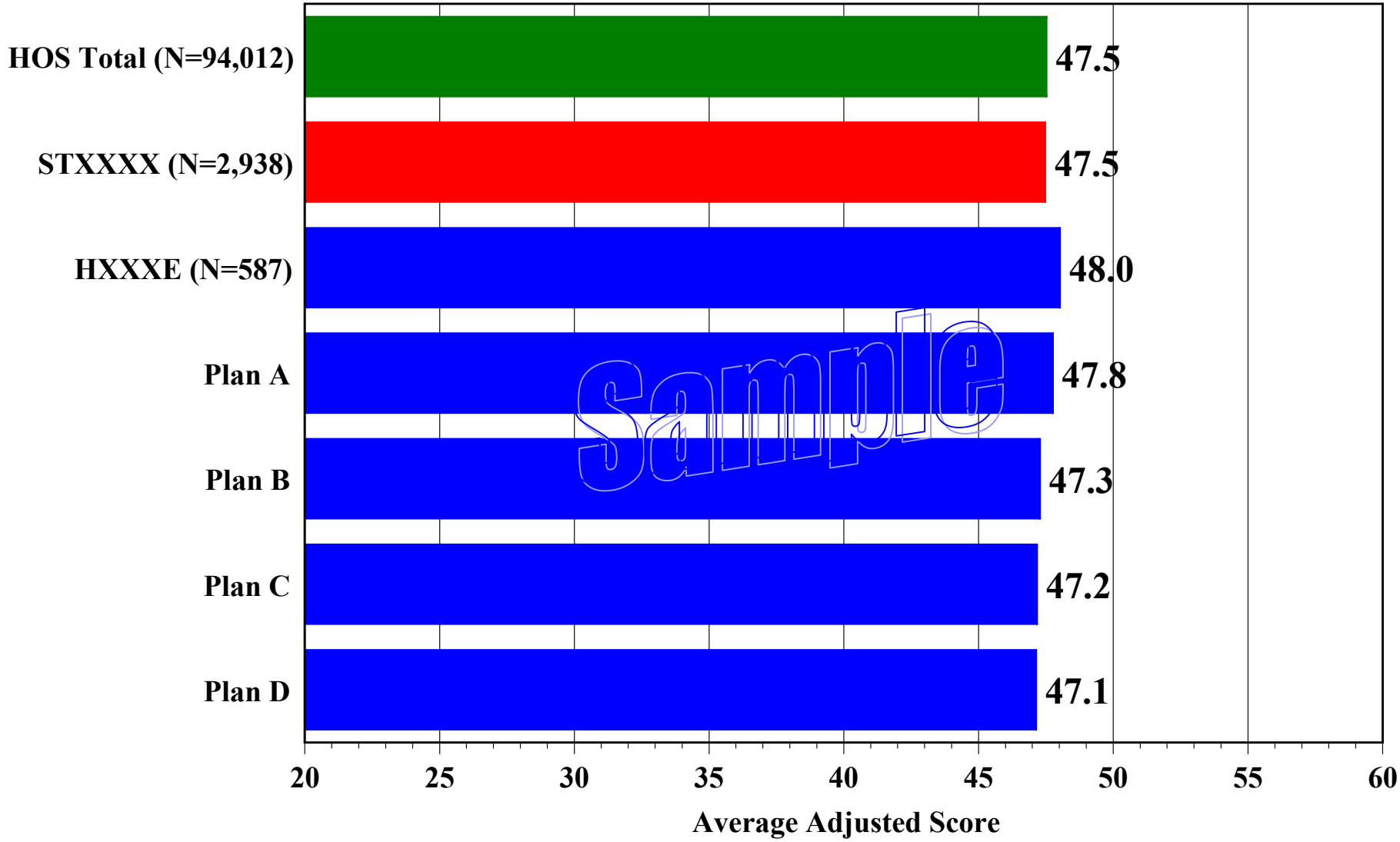
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 28: Adjusted SF-36 Vitality Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



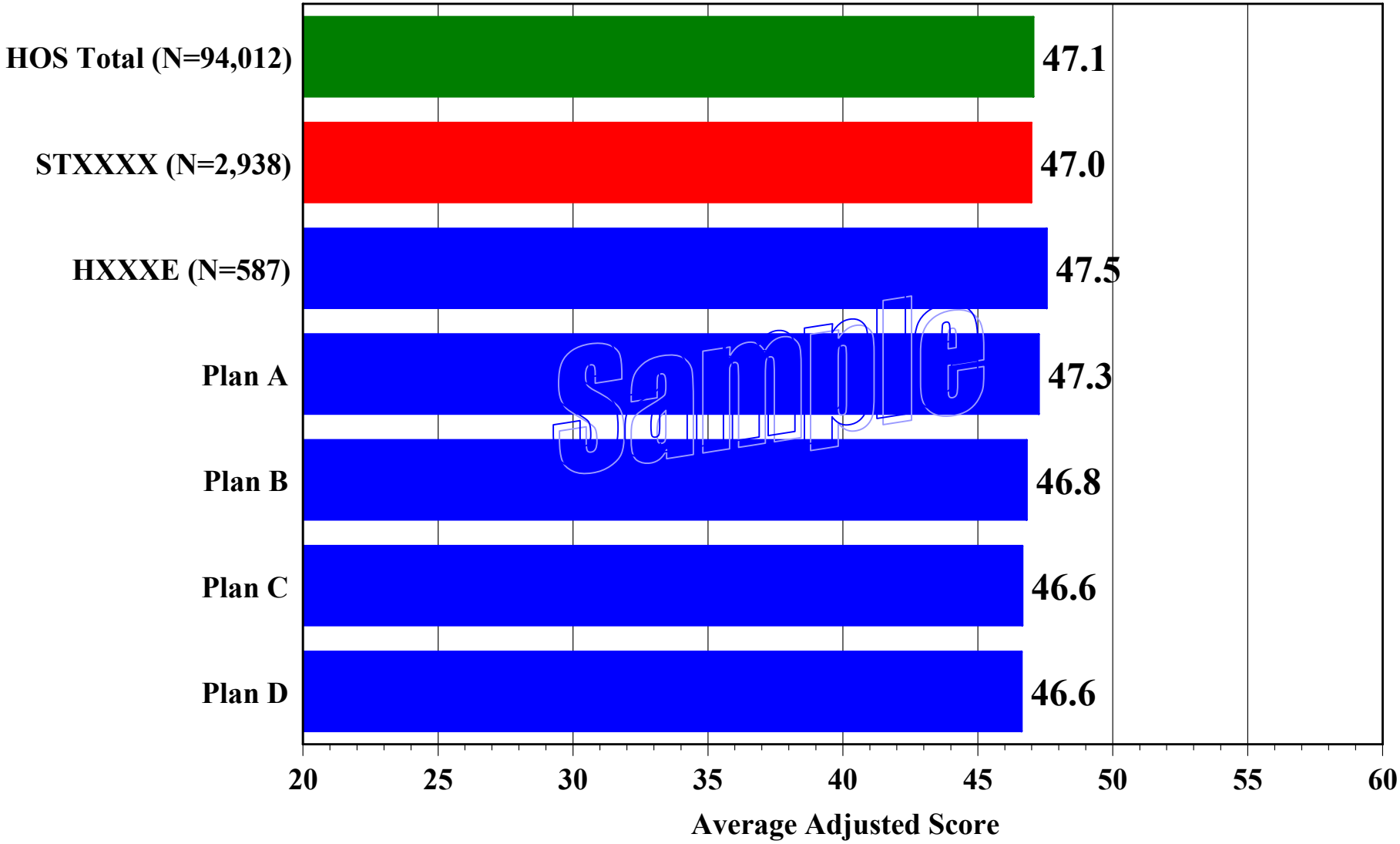
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 29: Adjusted SF-36 Social Functioning Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



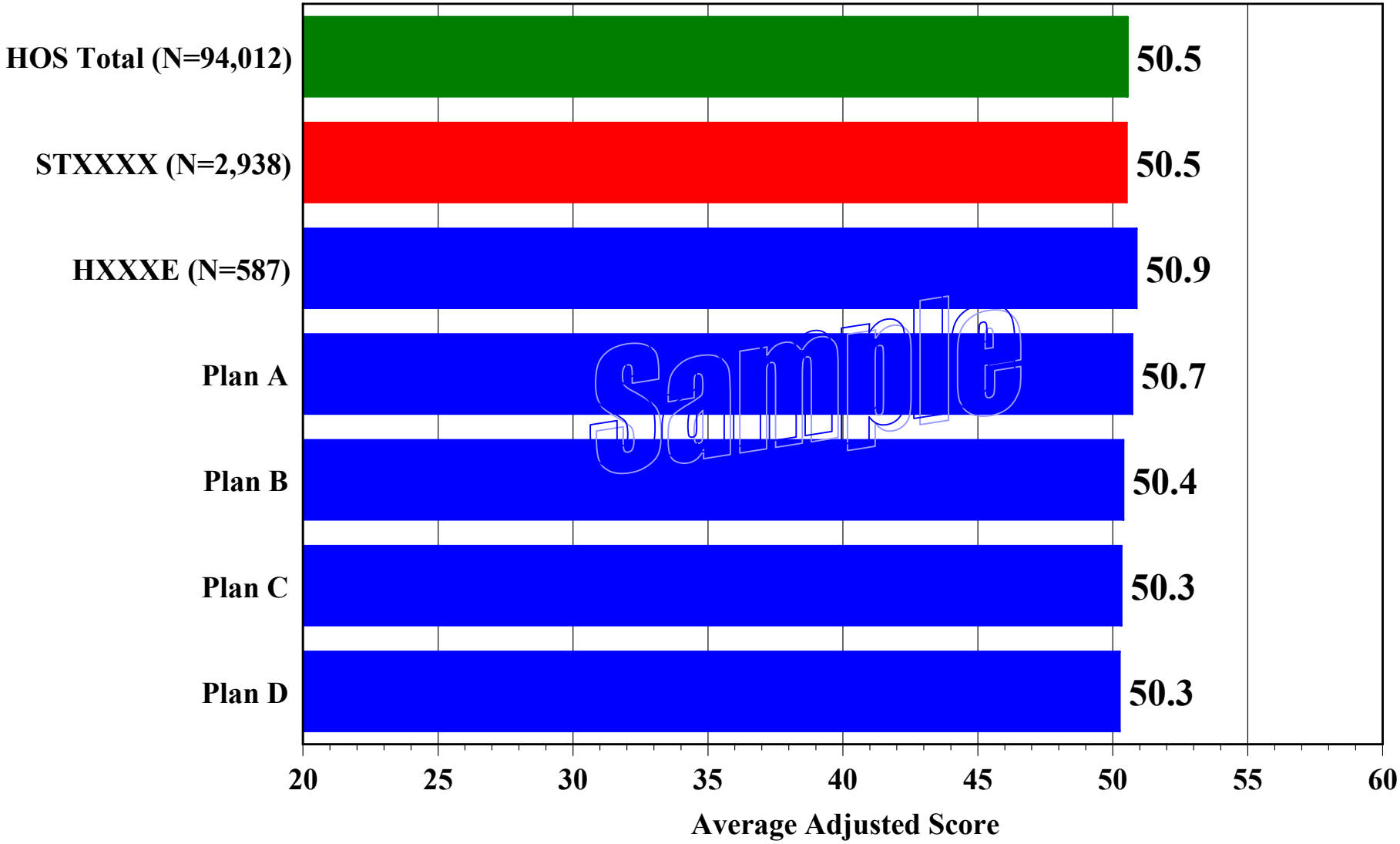
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 30: Adjusted SF-36 Role-Emotional Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



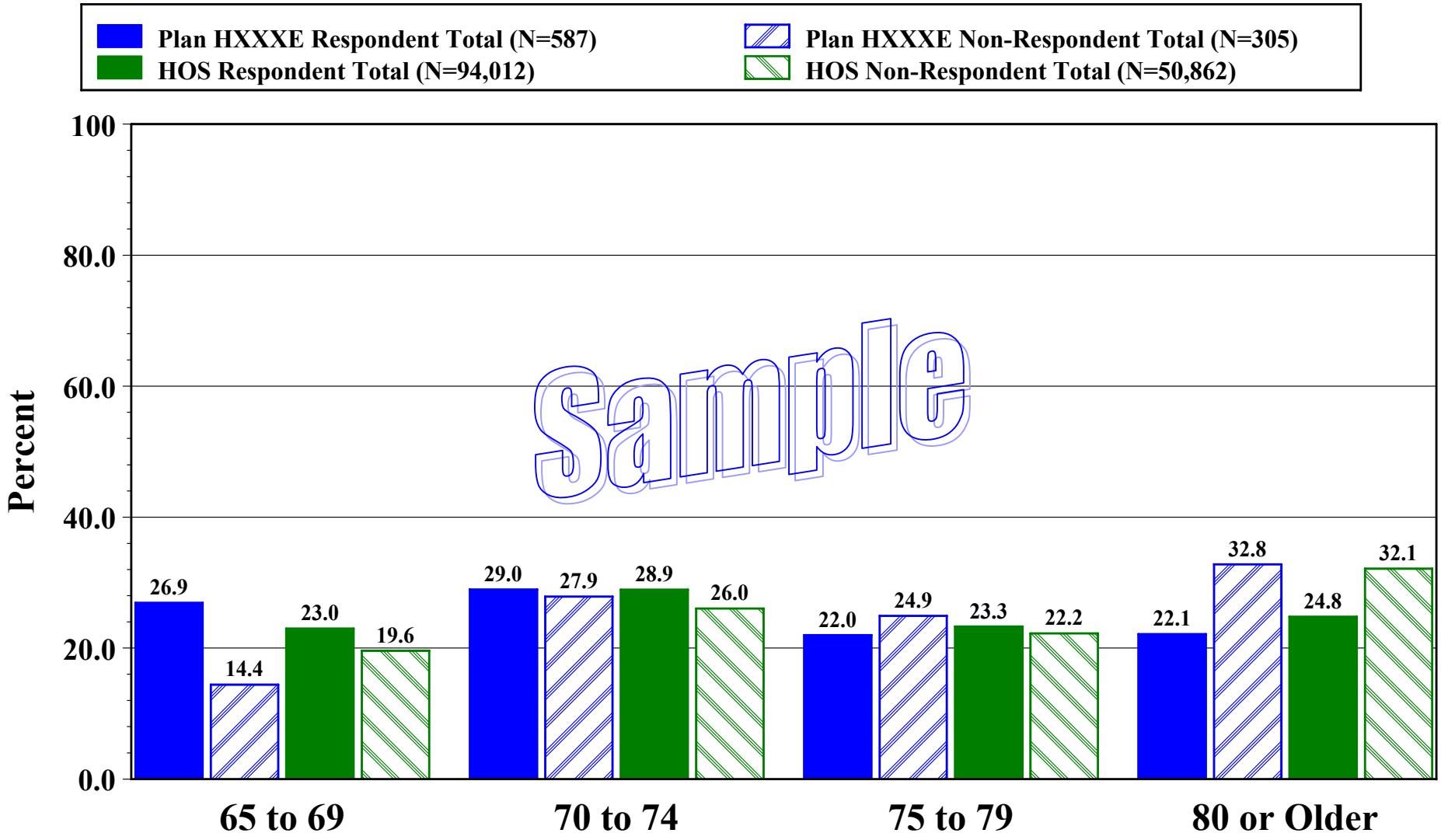
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 31: Adjusted SF-36 Mental Health Scale Scores for HOS Total, STXXXX Total, and STXXXX Plans in Rank Order



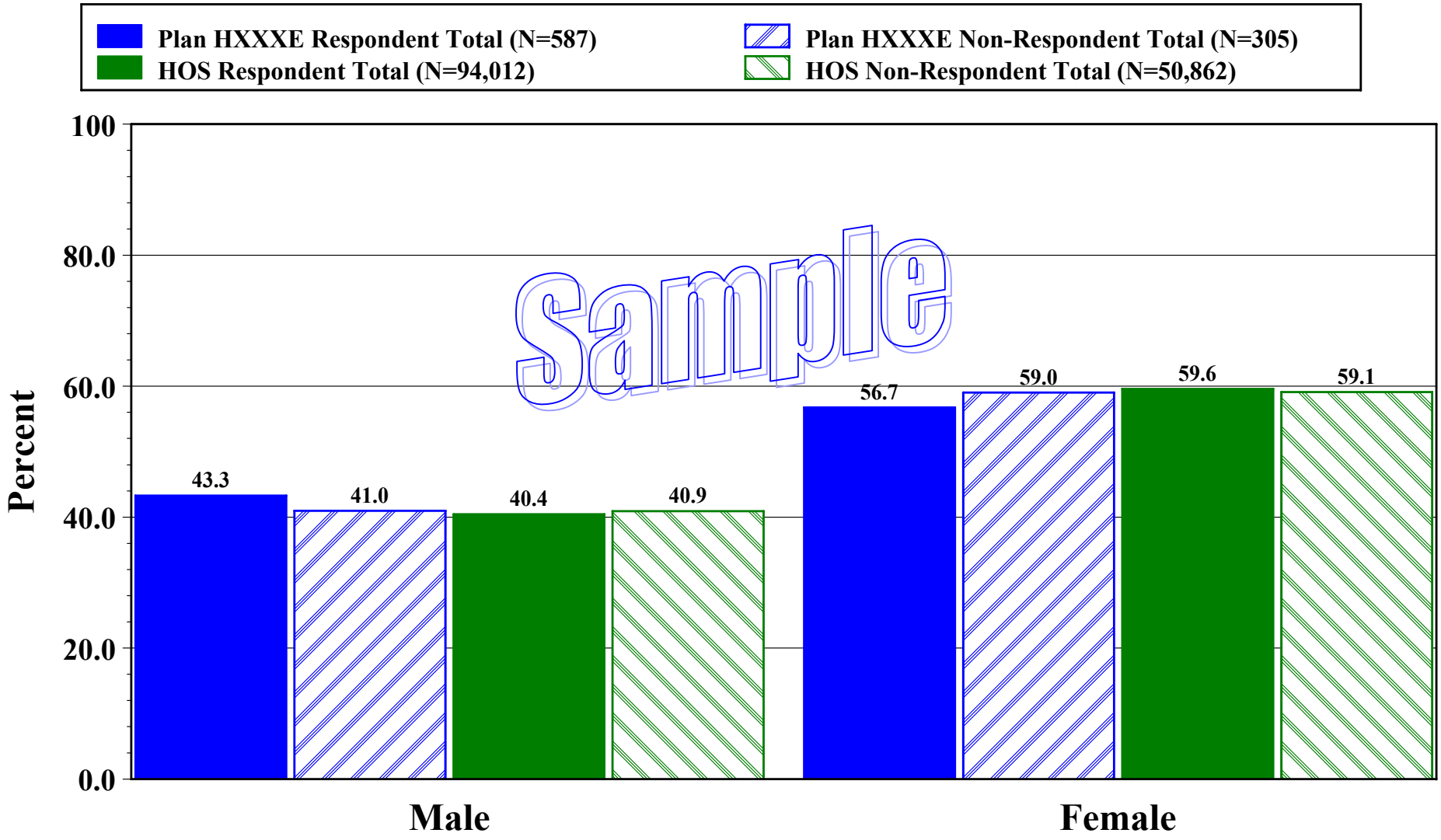
Scores were adjusted for demographics, chronic medical conditions, and HOS study design variables.
Sample is limited to eligible beneficiaries who are 65 or older and had PCS and MCS scores at Baseline.
Please note, the plan designated as "Plan A" in this figure does not necessarily correspond to "Plan A" in subsequent figures.

Figure 32: Percent Distribution of Age Group by Respondents and Non-Respondents for Plan HXXXE and HOS Total



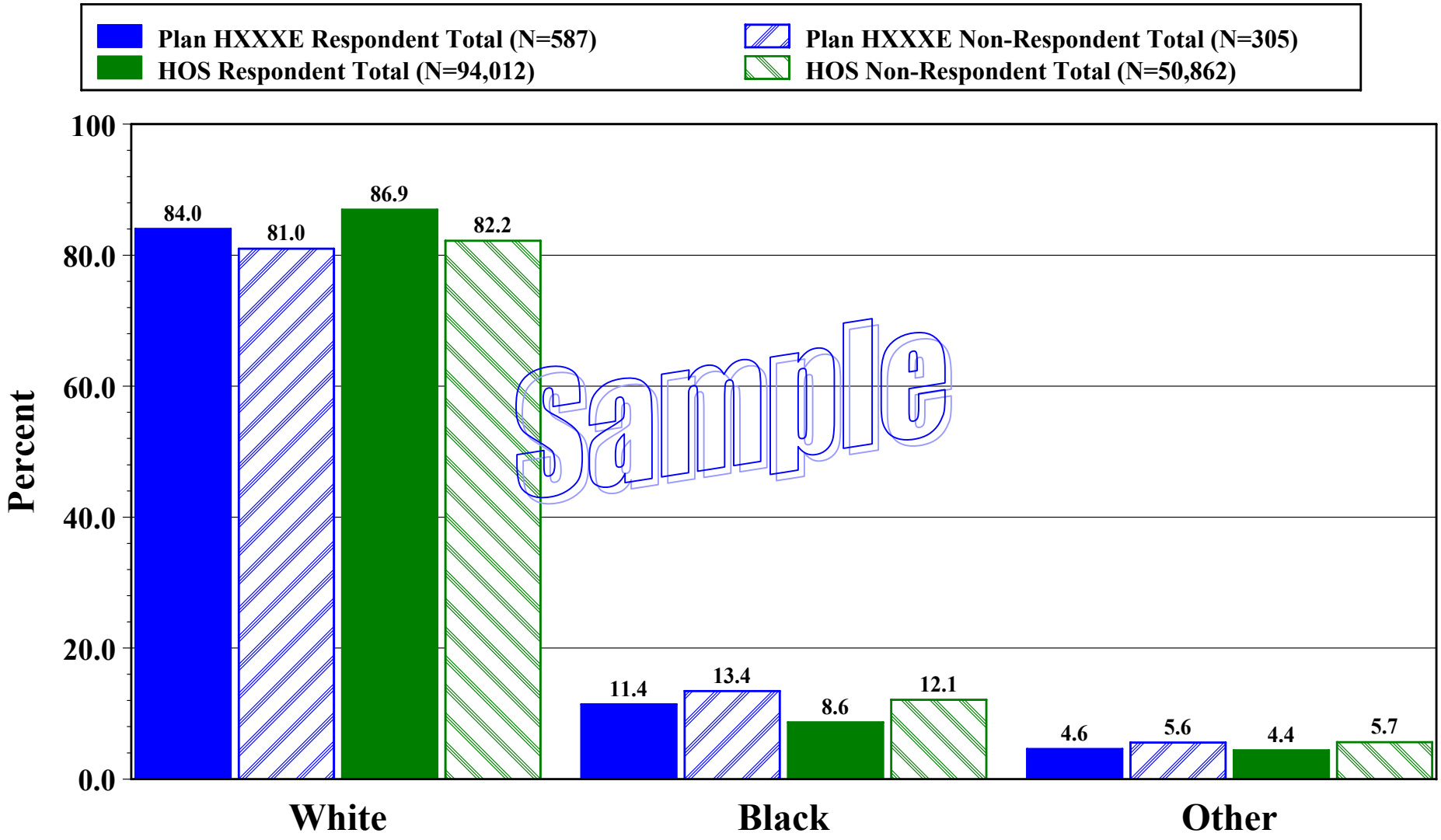
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older.
Percentages may not add to 100% due to rounding.

Figure 33: Percent Distribution of Gender by Respondents and Non-Respondents for Plan HXXXE and HOS Total



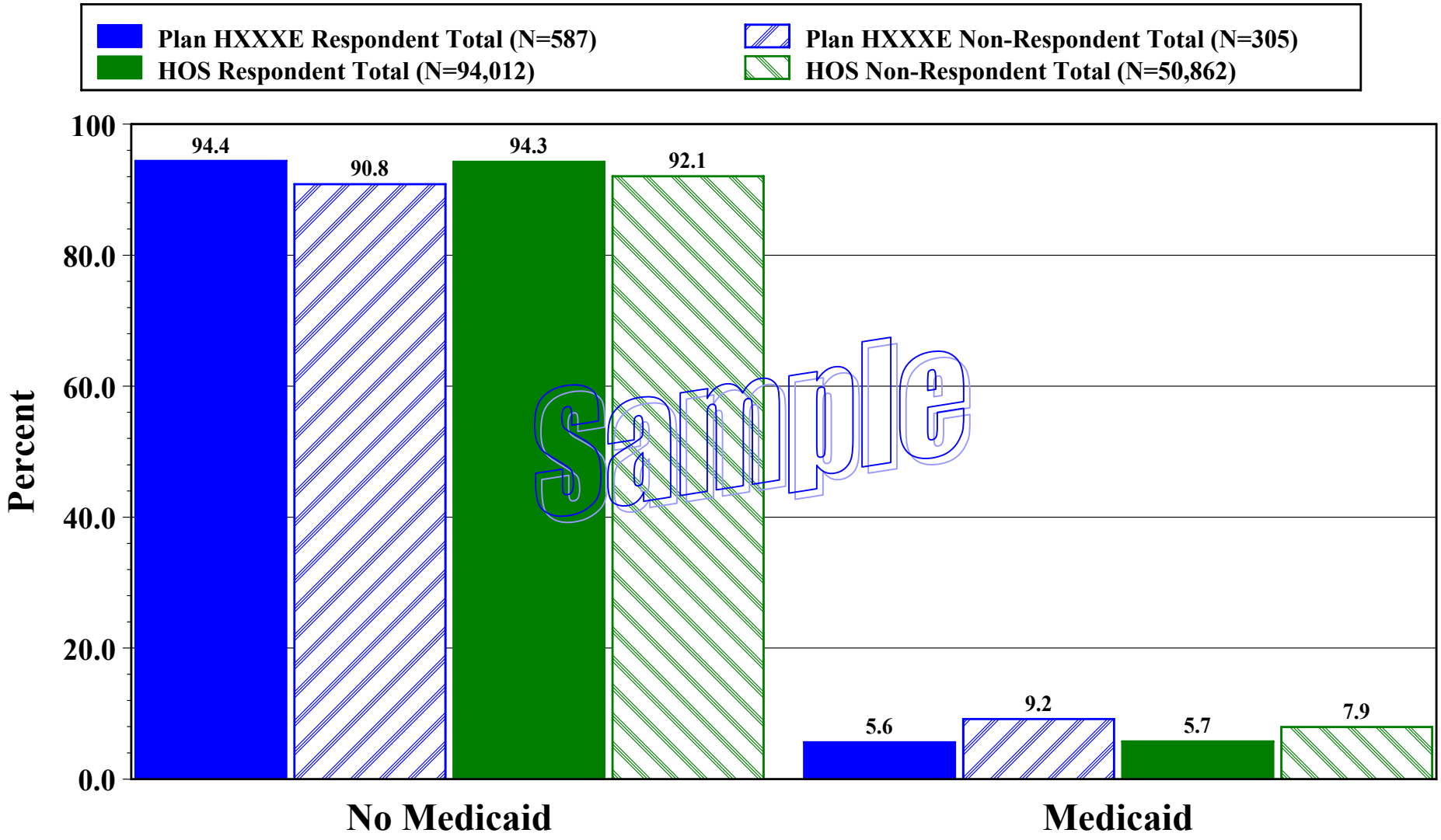
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older.
Percentages may not add to 100% due to rounding.

Figure 34: Percent Distribution of Race by Respondents and Non-Respondents for Plan HXXXE and HOS Total



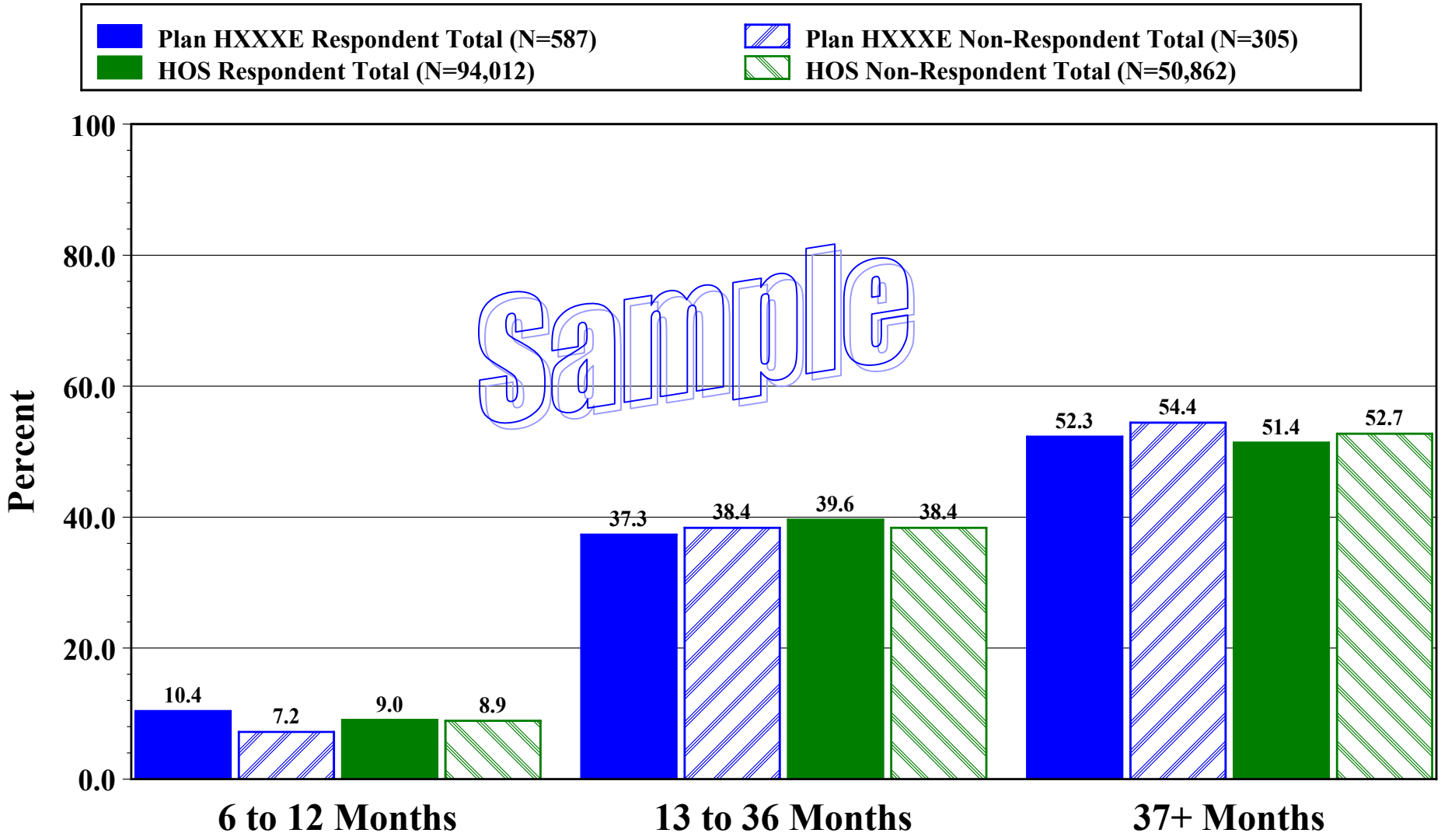
Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older.
Percentages may not add to 100% due to rounding.

Figure 35: Percent Distribution of Medicaid Status by Respondents and Non-Respondents for Plan HXXXE and HOS Total



Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older.
Percentages may not add to 100% due to rounding.

Figure 36: Percent Distribution of Enrollment Duration by Respondents and Non-Respondents for Plan HXXXE and HOS Total



Data Source: Centers for Medicare & Medicaid Services Medicare Enrollment Database
Sample is limited to eligible beneficiaries who are 65 or older.
Percentages may not add to 100% due to rounding.