



## **MEDICARE HEALTH OUTCOMES SURVEY (HOS)**

# **Understanding the Health Needs of Diverse Groups of Asian and Native Hawaiian or Other Pacific Islander Medicare Beneficiaries**

**Task Order # HHSM-500-2016-00039G**

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## Introduction

### Population

Asians and Native Hawaiians or Other Pacific Islanders (NHOPI) are two distinct and growing minority populations within the United States. Review of census data from 2000-2010 indicates that Asians and NHOPI are two of the fastest growing racial groups in the U.S., with Asians being the most rapidly growing minority overall. The term “Asian” refers to an individual with origins in the Far East, Indian Subcontinent, or Southeast Asia.<sup>1</sup> The term, “NHOPI” refers to a person with origins from Guam, Hawaii, the Pacific Islands, or Samoa.<sup>2</sup> The U.S. Asian population includes many detailed groups but the three largest in the U.S. Asian population are Chinese (23.9 percent), Asian Indian (21.4 percent), and Filipino (16.5 percent).<sup>3</sup> Similarly, the U.S. NHOPI population also includes many groups, which are classified into three major categories: Polynesian, Micronesian, and Melanesian. These classifications are based on geographic distinctions of the different islands of origin. For example, Native Hawaiians and Samoans are Polynesian while the Guamanian or Chamorro are Micronesian.<sup>1</sup>

Prior to the Office of Management and Budget (OMB) 1997 revision of the Standards for the Classification of Federal Data on Race and Ethnicity, Asians and NHOPI were classified as a single racial category, Asian /Pacific Islander (API).<sup>4</sup> This resulted in data that may not have accurately reflected the diversity of the many groups in each of the two major race categories. Though today there are more disaggregated health data available on Asians and NHOPI, analysis of each individual group is often limited by small sample sizes. This also poses challenges when examining the varying health status of detailed groups of Asians and NHOPI populations. Furthermore, age specific, disaggregated health data that focus on Asian and NHOPI individuals are scarce.<sup>5</sup>

In 2015, the Census Bureau estimated that there were 17.3 million Asians and 554,946 NHOPI in the U.S.<sup>3</sup> These estimates are equivalent to about 5 percent and 0.2 percent respectively of the total population.<sup>6</sup> The Asian population is found primarily in the West, with heaviest presence in California, followed by New York, Texas, New Jersey, and Illinois.<sup>1</sup> NHOPI are also most heavily concentrated in the West, with over half of the population (52 percent) in the states of California and Hawaii.<sup>2</sup>

Based on estimates from the 2015 American Community Survey (ACS), the median age for the Asian population is 37 years. Japanese had the highest median age at 50 years and Asian Indians had the lowest median age at 34 years. Individuals age 65 and over comprised 12 percent of the U.S. Asian population. Among older Asians, 27 percent were identified as Japanese and 8 percent were identified as Asian Indian.<sup>3</sup> It is anticipated that there will be substantial growth among the older Asian population, which is expected to more than double in size from 2010 to 2050.<sup>7</sup>

Among NHOPI, the median age in 2015 was 31 years. Median age across the NHOPI detailed groups ranged from 30 years for Samoans to 36 years for Native Hawaiians. Individuals age 65 years and over comprised 8 percent of the overall NHOPI population and a larger share of NHOPI beneficiaries were classified as Native Hawaiians (12 percent of the Native Hawaiian population) versus Samoan and Guamanian or Chamorro (6 percent each).<sup>3</sup>

## **Economics and Education**

Research has found economic differences between Asians and NHOPI and among detailed groups within each racial category. In 2015, the median income for U.S. Asians was \$77,368. Asian Indians earned a higher median income, while Vietnamese had a median income that was approximately forty-thousand dollars lower. In 2015, 65 percent of the Asian population was accounted for in the labor force of which 3 percent were unemployed. The poverty rate for Asians was 12 percent with variation among detailed groups. Among Asians, Chinese (15 percent) experienced the highest poverty rate, whereas Filipinos (7 percent) experienced a rate of poverty less than half that amount. The poverty rate among older Asians is at 13 percent.<sup>3</sup>

Approximately 87 percent of Asians reported obtaining a high school diploma or completing a greater level of education. Japanese reported the highest rates of high school completion, while Vietnamese reported lower rates. A bachelor's degree was obtained by more than half of Asians (52 percent). Among Asian Indians, 73 percent had obtained bachelor's degrees, while 29 percent of the Vietnamese population obtained a baccalaureate level of education.<sup>3</sup>

The median income for NHOPI households in 2015 was \$55,607. Of the total population, 67 percent were part of the work force and 6 percent were unemployed. A high percentage of NHOPI completed a high school education (88 percent), but only 16 percent had a bachelor's degree. The NHOPI poverty rate was 19 percent and among older NHOPI, the poverty rate was 12 percent.<sup>3</sup>

## **Factors with Potential to Influence Health**

There are many factors that can contribute to an individual's health status. One such factor is whether a person is foreign born or native to the U.S. Studies have shown that new immigrants have a tendency to be healthier than their counterparts in their country of origin and often U.S. natives as well. However, evidence has shown a proportional relationship between increasing years of living in the U.S. and the worsening health profile of immigrants.<sup>8</sup> Estimates from the 2015 ACS indicate that 46 percent of Asian males and 54 percent of Asian females were foreign born. Similar rates were reported by NHOPI, with 46 percent of males and 54 percent of females being born outside of the U.S.<sup>3</sup>

Though substantial proportions of Asians and NHOPI may originate from territories or countries where English is a predominant language, levels of English proficiency may vary. Approximately three quarters of Asians and two out of five NHOPI reported speaking a language other than English at home in 2015. Over a third of Asians (34 percent) in 2015 reported speaking English less than very well. Among Asians, nearly half of Vietnamese respondents indicated low levels of English proficiency. A much lower percentage of NHOPI (12 percent) reported speaking English less than very well.<sup>3</sup> Limitations in the English language can be a considerable barrier, particularly as it relates to health. Limited English proficiency can negatively influence the understanding of health issues and treatment, reduce health literacy, as well as impede access to medical care and preventative screenings.<sup>9,10,11</sup>

## Health and Healthcare

In the U.S., persons with disabilities are disproportionately covered by Medicaid and depending on the incapacity, are eligible for Medicare before age 65. In 2015, the disability rate for noninstitutionalized Asian civilians between the ages of 18-64, was 4 percent while Vietnamese and Filipino adults experienced a rate of disability at 6 percent. Comparatively, 10 percent of noninstitutionalized NHOPI civilians under 65 years of age reported having a disability, with a rate of 11 percent each for Native Hawaiians and Samoans.<sup>3</sup>

Health care coverage is instrumental in order to mitigate expenses related to healthcare needs. Based on figures from 2015, 73 percent of Asians had private health insurance. Roughly one quarter (26 percent) of the Asian population had public coverage, and 8 percent were uninsured. Among NHOPI, 63 percent had private health insurance, 36 percent had public coverage, and 10 percent were uninsured.<sup>3</sup>

Despite having considerably low uninsurance rates, mortality data on detailed Asian and NHOPI groups are limited. In 2014, the Centers for Disease Control and Prevention (CDC) National Vital Statistic Reporting System reported leading causes of death for the aggregated Asian and NHOPI (API) racial category. The top causes of death for this combined group were cancer, diseases of the heart, cerebrovascular disease (stroke), unintentional injuries, and diabetes. By comparison, the five leading causes of death for the entire U.S. population were diseases of the heart, cancer, chronic lower respiratory diseases, unintentional injuries, and stroke.<sup>12</sup>

Many challenges continue to exist with gathering valid and representative health data on detailed groups of Asians and NHOPI. Since the NHOPI population is relatively small, it is difficult to gather a sufficient sample size that can be representative of the population. Additionally, small sample sizes could potentially risk the anonymity of individuals participating in research or a survey. The lack of disaggregated health data on race and age may contribute to shortcomings in both understanding the unique health needs of these groups and addressing existing health differences. Thus, having access to reliable and specific health information made readily available through databases and national assessments like the Medicare Health Outcomes Survey (HOS) becomes beneficial in examining the health needs of diverse older populations.



## Methods

### Survey and Sample

The Medicare Health Outcomes Survey (HOS) is a national longitudinal survey that measures health plans' success in maintaining or improving beneficiaries' physical and mental health.<sup>13</sup> The HOS is the first patient-reported outcomes survey used in Medicare managed care. Each spring a random sample of Medicare beneficiaries is drawn and surveyed from each participating Medicare Advantage Organization (MAO) with a minimum of 500 enrollees (i.e., a survey is administered to a different baseline cohort, or group, each year). Two years later, the baseline respondents are surveyed again (i.e., follow up measurement). The HOS is a patient-reported survey with mail and, in those instances when beneficiaries fail to respond, telephone components. In April 2013, the HOS became the first large scale CMS survey to collect expanded measures of race, ethnicity, sex, primary language, and disability status. More information about the HOS is available at [www.HOSonline.org](http://www.HOSonline.org).

This report describes the health of Asian and Native Hawaiian or NHOPI respondents from the combined survey data in the HOS 2014-2016 Baseline Cohorts 16, 17, and 18. The HOS health status items were collected with the HOS 2.5 instrument for Cohort 16 and Cohort 17, and the HOS 3.0 instrument for Cohort 18.<sup>a</sup> The eligible sample for these analyses was derived from beneficiaries who completed the HOS survey in Baseline Cohort 16 (n= 272,936), Baseline Cohort 17 (n= 261,638), and Baseline Cohort 18 (n= 256,735). For the purposes of this report, a completed survey is defined as one that could be used to calculate a physical component summary (PCS) score or mental component summary (MCS) score. Eligible respondents (n= 791,309) included both beneficiaries age 65 years and older (n= 663,119) and beneficiaries under age 65 years who were classified as disabled (n= 128,190). In this report, age under 65 is used as a robust proxy for disability status, and successfully identifies 99.9 percent of beneficiaries who are classified by CMS administrative data as disabled with, and disabled without, End Stage Renal Disease (ESRD). For those beneficiaries who were respondents in more than one baseline cohort (n= 35,056), their first complete survey was used for these analyses. Of the remaining respondents in Baseline Cohorts 16–18 (n= 756,253), the analytic sample was drawn from beneficiaries who selected one or more Asian categories (n= 23,721) or one or more NHOPI race categories (n= 2,849) from the HOS self-reported race question. Excluded from the analytic sample were respondents who chose an Asian or NHOPI category and any other race (n= 3,625). In this report, results are presented by Asian and NHOPI totals and are stratified by Asian and NHOPI groups. The Asian category includes beneficiaries who self-identified as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or Other Asian. The Multi-Asian category includes respondents who selected more than one Asian racial group. The NHOPI category includes beneficiaries who self-identified as Native Hawaiian, Guamanian or Chamorro, Samoan, or Other Pacific Islander. Respondents who selected more than one NHOPI category were classified as Multi-Pacific Islander. Using ANOVA for continuous measures and the chi-square test for categorical measures, statistically significant differences (p-value <0.05) across groups are noted. Appendix tables are provided to show health status measures by detailed group and gender.

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<sup>a</sup> Where referenced, HOS questions are derived from the HOS 3.0.

## **Limitations and Sample Recommendations**

The analyses presented in this report use cross-sectional baseline data, not the longitudinal data that are available in the HOS. Therefore, trends and changes in health status are not presented in this report.

Disabled beneficiaries (less than 65 years old) are included in the analytic sample and all results presented for both Asian and NHOPI respondents. Disabled beneficiaries often report lower health status compared to beneficiaries age 65 years and older across most HOS health status measures. Analyses that use data aggregated from both disabled and older respondents should be interpreted with caution as a higher proportion of disabled respondents may result in lower health status estimates for some groups. Tables 1 and 2 show significant differences across Asian and NHOPI groups among beneficiaries under 65 years of age. Future descriptive analyses should consider stratifying results by age when response sizes permit. In addition, any predictive modeling of health status measures should control for disability status using the age category of under 65 years old.

The available sample sizes for some NHOPI groups, such as Guamanian or Chamorro, Samoan, and Multi-Pacific Islander, were small relative to other groups, such as Native Hawaiian and Other Pacific Islander. Low sample sizes reduce statistical power to detect differences by detailed racial groups. Additionally, when response sizes for any table cell are less than 11, they are not reportable per CMS guidelines to protect beneficiary privacy.<sup>14</sup>

## Results

### Demographics

Table 1 and Table 2 present demographics for Asian and NHOPI beneficiaries. HOS demographics in the tables are detailed by sub-categories within the CMS administrative variables of age, gender, and Medicaid status, and beneficiary reported variables of marital status, education, English proficiency, English spoken at home, and annual household income. The mean age for all Asian respondents was 73 years and the mean age for all NHOPI respondents was 67 years (not shown in tables). When excluding disabled beneficiaries less than 65, the observed mean age for respondents was 74 years for Asians and 73 years for NHOPI (not shown in tables). Therefore, the difference in mean age between the two populations was likely explained by the higher proportion of disabled beneficiaries among NHOPI compared to Asian beneficiaries. In general, disabled beneficiaries report poorer health status and have lower sociodemographic status compared to older beneficiaries who are not disabled.<sup>15</sup>

Table 1 shows significant differences across all demographic measures by Asian groups. A higher percentage of disabled beneficiaries was observed among Other Asian and Multi-Asian beneficiaries compared to other Asian groups. Among Japanese beneficiaries, 39.7 percent reported being 80 years or older, while only 10.8 percent of Asian Indian and 10.6 percent of Vietnamese beneficiaries were age 80 or older. Among Asian groups, the percentage of females ranged from 43.5 percent for Asian Indian to 64.3 percent for Filipino beneficiaries. Rates of marriage ranged widely from 74.1 percent of Asian Indians to only 47.4 percent of Japanese, and may have been influenced by the age distribution of the population. English spoken mainly at home was reported by 66.4 percent of Filipino beneficiaries compared to only 19.2 percent of Chinese beneficiaries.

**Table 1: Asian<sup>1</sup> beneficiary demographics**

Demographics	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Age</b>									
<65 <sup>2</sup>	1,701 ( 7.2%)	263 ( 8.9%)	242 ( 4.1%)	388 ( 6.7%)	194 ( 6.1%)	95 ( 5.6%)	189 ( 9.4%)	230 (15.3%)	100 (13.6%)
65-69	6,748 (28.5%)	1,074 (36.3%)	1,691 (28.9%)	1,401 (24.2%)	670 (21.2%)	567 (33.2%)	693 (34.4%)	437 (29.0%)	215 (29.2%)
70-74	5,936 (25.0%)	840 (28.4%)	1,346 (23.0%)	1,509 (26.1%)	553 (17.5%)	523 (30.6%)	600 (29.8%)	385 (25.6%)	180 (24.5%)
75-79	4,237 (17.9%)	466 (15.7%)	1,126 (19.2%)	1,142 (19.8%)	492 (15.6%)	319 (18.7%)	318 (15.8%)	249 (16.5%)	125 (17.0%)
80-84	2,875 (12.1%)	219 ( 7.4%)	844 (14.4%)	781 (13.5%)	549 (17.4%)	132 ( 7.7%)	155 ( 7.7%)	125 ( 8.3%)	70 ( 9.5%)
85+	2,224 ( 9.4%)	100 ( 3.4%)	605 (10.3%)	558 ( 9.7%)	705 (22.3%)	71 ( 4.2%)	59 ( 2.9%)	80 ( 5.3%)	46 ( 6.3%)
<b>Gender</b>									
Male	10,834 (45.7%)	1,674 (56.5%)	2,834 (48.4%)	2,066 (35.8%)	1,262 (39.9%)	839 (49.2%)	1,086 (53.9%)	758 (50.3%)	315 (42.8%)
Female	12,887 (54.3%)	1,288 (43.5%)	3,020 (51.6%)	3,713 (64.3%)	1,901 (60.1%)	868 (50.9%)	928 (46.1%)	748 (49.7%)	421 (57.2%)
<b>Marital Status</b>									
Married	14,500 (61.6%)	2,176 (74.1%)	3,944 (67.9%)	3,144 (54.8%)	1,488 (47.4%)	1,200 (70.7%)	1,319 (66.3%)	844 (56.5%)	385 (53.3%)
Widowed	2,729 (11.6%)	233 ( 7.9%)	555 ( 9.6%)	598 (10.4%)	481 (15.3%)	219 (12.9%)	265 (13.3%)	256 (17.1%)	122 (16.9%)
Divorced or Separated	4,831 (20.5%)	434 (14.8%)	1,091 (18.8%)	1,584 (27.6%)	829 (26.4%)	213 (12.6%)	253 (12.7%)	287 (19.2%)	140 (19.4%)
Never Married	1,464 ( 6.2%)	94 ( 3.2%)	221 ( 3.8%)	407 ( 7.1%)	339 (10.8%)	65 ( 3.8%)	154 ( 7.7%)	108 ( 7.2%)	76 (10.5%)
<b>Education</b>									
Did Not Graduate HS	6,861 (29.7%)	724 (25.1%)	2,286 (39.8%)	1,630 (28.8%)	355 (11.5%)	273 (16.3%)	807 (41.5%)	598 (42.6%)	188 (26.7%)
High School Graduate	4,959 (21.5%)	443 (15.4%)	1,108 (19.3%)	983 (17.4%)	1,144 (36.9%)	371 (22.1%)	516 (26.5%)	239 (17.0%)	155 (22.0%)
Some College	3,975 (17.2%)	338 (11.7%)	763 (13.3%)	979 (17.3%)	834 (26.9%)	290 (17.3%)	387 (19.9%)	224 (16.0%)	160 (22.7%)
4 Yr College Degree +	7,315 (31.7%)	1,376 (47.8%)	1,587 (27.6%)	2,062 (36.5%)	766 (24.7%)	743 (44.3%)	237 (12.2%)	343 (24.4%)	201 (28.6%)
<b>English Proficiency<sup>3</sup></b>									
Very Well	5,245 (31.4%)	948 (46.9%)	630 (15.5%)	1,659 (39.2%)	1,318 (56.8%)	183 (16.3%)	70 ( 5.1%)	230 (21.9%)	207 (40.8%)
Less than very well	11,450 (68.6%)	1,074 (53.1%)	3,435 (84.5%)	2,579 (60.9%)	1,001 (43.2%)	941 (83.7%)	1,300 (94.9%)	819 (78.1%)	301 (59.3%)
<b>English Spoken at Home<sup>3</sup></b>									
Yes	2,709 (47.7%)	436 (57.8%)	313 (19.2%)	748 (66.4%)	740 (93.4%)	147 (35.7%)	83 (21.1%)	144 (38.9%)	98 (49.5%)
No	2,970 (52.3%)	319 (42.3%)	1,320 (80.8%)	378 (33.6%)	52 ( 6.6%)	265 (64.3%)	310 (78.9%)	226 (61.1%)	100 (50.5%)
<b>Annual Household Income</b>									
Less than \$10,000	4,608 (20.6%)	549 (19.7%)	1,305 (23.7%)	1,175 (21.5%)	240 ( 8.2%)	302 (18.4%)	484 (25.1%)	388 (26.9%)	165 (24.4%)
\$10,000-\$19,999	4,646 (20.8%)	464 (16.7%)	1,400 (25.4%)	983 (18.0%)	383 (13.1%)	371 (22.6%)	652 (33.8%)	286 (19.9%)	107 (15.8%)
\$20,000-\$29,999	2,547 (11.4%)	315 (11.3%)	568 (10.3%)	579 (10.6%)	382 (13.0%)	232 (14.2%)	236 (12.2%)	153 (10.6%)	82 (12.1%)
\$30,000-\$49,999	3,194 (14.3%)	410 (14.7%)	627 (11.4%)	791 (14.5%)	582 (19.8%)	306 (18.7%)	202 (10.5%)	198 (13.7%)	78 (11.5%)
\$50,000 or More	3,802 (17.0%)	637 (22.9%)	831 (15.1%)	760 (13.9%)	878 (29.9%)	309 (18.9%)	116 ( 6.0%)	172 (11.9%)	99 (14.6%)
Don't Know	3,580 (16.0%)	408 (14.7%)	787 (14.3%)	1,170 (21.4%)	468 (16.0%)	119 ( 7.3%)	239 (12.4%)	244 (16.9%)	145 (21.5%)

Demographics	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Medicaid Status</b>									
Medicaid	9,684 (40.8%)	1,160 (39.2%)	2,613 (44.6%)	2,542 (44.0%)	371 (11.7%)	516 (30.3%)	1,297 (64.4%)	845 (56.1%)	340 (46.2%)
Non-Medicaid	14,032 (59.2%)	1,801 (60.8%)	3,240 (55.4%)	3,235 (56.0%)	2,792 (88.3%)	1,190 (69.8%)	717 (35.6%)	661 (43.9%)	396 (53.8%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

<sup>2</sup> Beneficiaries less than 65 years old are classified as disabled.

<sup>3</sup>English language is measured by two different questions across this 3 cohort sample: "How well do you speak English (very well, well, not well, or not at all)?" for Cohort 16 and Cohort 17 respondents, and "What language do you mainly speak at home (English, Spanish, Chinese, some other language)?" for Cohort 18.

Table 2 shows less significant variability across demographic measures by NHOPI groups, in part due to small sample sizes. There were significant differences in the percent of beneficiaries under the age of 65 across NHOPI groups. As was found with Asian beneficiaries, rates of marriage were significantly different among NHOPI groups, which may also be due to differences in age distribution. Levels of education below college graduate also varied significantly by detailed groups. NHOPI beneficiaries reporting the lowest level of education ranged from 24.8 percent to 57.6 percent for Native Hawaiian and Other Pacific Islander beneficiaries, respectively.

**Table 2: NHOPI<sup>1</sup> beneficiary demographics**

Demographics	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Age</b>						
<65 <sup>2</sup>	816 (28.6%)	174 (23.8%)	17 (24.6%)	67 (35.5%)	511 (29.1%)	47 (44.8%)
65-69	756 (26.5%)	169 (23.1%)	20 (29.0%)	51 (27.0%)	488 (27.8%)	28 (26.7%)
70-74	580 (20.4%)	175 (23.9%)	14 (20.3%)	37 (19.6%)	339 (19.3%)	15 (14.3%)
75-79	361 (12.7%)	119 (16.3%)	*	20 (10.6%)	206 (11.7%)	*
80-84	208 (7.3%)	63 (8.6%)	*	*	131 (7.4%)	*
85+	128 (4.5%)	32 (4.4%)	*	*	80 (4.6%)	*
<b>Gender</b>						
Male	1,255 (44.1%)	338 (46.2%)	34 (49.3%)	94 (49.7%)	744 (42.4%)	45 (42.9%)
Female	1,594 (56.0%)	394 (53.8%)	35 (50.7%)	95 (50.3%)	1,010 (57.6%)	60 (57.1%)
<b>Marital Status</b>						
Married	1,086 (39.0%)	282 (39.2%)	26 (40.0%)	93 (50.0%)	646 (37.7%)	39 (38.2%)
Widowed	705 (25.3%)	153 (21.3%)	17 (26.2%)	29 (15.6%)	479 (27.9%)	27 (26.5%)
Divorced or Separated	611 (21.9%)	174 (24.2%)	12 (18.5%)	48 (25.8%)	358 (20.9%)	19 (18.6%)
Never Married	*	110 (15.3%)	*	16 (8.6%)	232 (13.5%)	17 (16.7%)
<b>Education</b>						
Did Not Graduate HS	1,264 (46.4%)	173 (24.8%)	21 (32.3%)	75 (41.2%)	968 (57.6%)	27 (27.3%)
High School Graduate	863 (31.7%)	344 (49.2%)	24 (36.9%)	67 (36.8%)	382 (22.7%)	46 (46.5%)
Some College	426 (15.6%)	138 (19.7%)	*	*	219 (13.0%)	22 (22.2%)
4 Yr College Degree +	173 (6.4%)	44 (6.3%)	*	*	112 (6.7%)	*
<b>English Proficiency<sup>3</sup></b>						
Very Well	857 (43.6%)	362 (67.7%)	26 (54.2%)	46 (33.3%)	382 (32.5%)	41 (61.2%)
Less than very well	1,107 (56.4%)	173 (32.3%)	22 (45.8%)	92 (66.7%)	794 (67.5%)	26 (38.8%)
<b>English Spoken at Home<sup>3</sup></b>						
Yes	440 (57.1%)	*	*	27 (71.1%)	192 (38.5%)	*
No	331 (42.9%)	*	*	11 (29.0%)	307 (61.5%)	*
<b>Annual Household Income</b>						
Less than \$10,000	871 (32.8%)	150 (22.0%)	16 (26.2%)	49 (27.2%)	621 (37.9%)	35 (37.6%)
\$10,000-\$19,999	577 (21.8%)	148 (21.7%)	13 (21.3%)	35 (19.4%)	366 (22.4%)	15 (16.1%)
\$20,000-\$29,999	256 (9.7%)	76 (11.1%)	*	*	149 (9.1%)	*
\$30,000-\$49,999	*	99 (14.5%)	11 (18.0%)	23 (12.8%)	119 (7.3%)	*
\$50,000 or More	160 (6.0%)	79 (11.6%)	11 (18.0%)	*	61 (3.7%)	*
Don't Know	*	130 (19.1%)	*	45 (25.0%)	321 (19.6%)	27 (29.0%)

Demographics	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
Medicaid Status						
Medicaid	1,630 (57.2%)	312 (42.6%)	30 (43.5%)	108 (57.1%)	1,116 (63.6%)	64 (61.0%)
Non-Medicaid	1,219 (42.8%)	420 (57.4%)	39 (56.5%)	81 (42.9%)	638 (36.4%)	41 (39.1%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

<sup>2</sup> Beneficiaries less than 65 years old are classified as disabled.

<sup>3</sup> English language is measured by two different questions across this 3 cohort sample: "How well do you speak English (very well, well, not well, or not at all)?" for Cohort 16 and Cohort 17 respondents, and "What language do you mainly speak at home (English, Spanish, Chinese, some other language)?" for Cohort 18.

## Physical and Mental Component Summary Scores

### *Definition of Measures*

- The HOS health status measures are the physical component summary (PCS) score and the mental component summary (MCS) score. These scores are calculated from the VR-12 (Questions 1-7 in the 2015 HOS 3.0) which asks respondents about their usual activities and how they would rate their health. 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 PCS and MCS scores have a range of 0 through 100 (higher being better).
- The VR-12 is a barometer of physical and mental health status. Concepts included in the measures are: physical functioning, role limitations due to physical problems (role-physical), bodily pain, general health, vitality, role limitations due to emotional problems (role-emotional), social functioning, and mental health.
- For the PCS 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 MCS 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.

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Table 3 and Table 4 show the mean unadjusted PCS and MCS scores for Asian and NHOPI beneficiaries. Asian beneficiaries reported a mean PCS of 40.2 and mean MCS of 49.6, and NHOPI beneficiaries reported a mean PCS of 36.0 and mean MCS of 45.1. There were fewer respondents among NHOPI compared to Asian beneficiaries; therefore, the mean scores across NHOPI beneficiaries had greater variability as evidenced by larger standard deviations (SD).

Among Asian groups in Table 3, PCS mean scores ranged from 37.9 to 42.8 for Other Asian and Korean beneficiaries respectively. MCS mean scores ranged from 47.4 to 52.4 for Other Asian and Japanese beneficiaries respectively.

**Table 3: Mean unadjusted PCS and MCS scores among Asians<sup>1</sup>**

	Total Asian Mean (SD)	Asian Indian Mean (SD)	Chinese Mean (SD)	Filipino Mean (SD)	Japanese Mean (SD)	Korean Mean (SD)	Vietnamese Mean (SD)	Other Asian Mean (SD)	Multi-Asian Mean (SD)
PCS	40.2 (11.2)	39.4 (11.2)	40.4 (11.1)	39.9 (11.2)	42.0 (11.5)	42.8 (10.0)	38.7 (10.4)	37.9 (11.5)	38.3 (11.3)
MCS	49.6 (11.3)	50.6 (11.7)	48.6 (11.6)	50.0 (10.8)	52.4 (10.8)	49.1 (10.5)	47.7 (10.7)	47.4 (12.2)	49.1 (11.8)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). ANOVA was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

For NHOPI beneficiaries in Table 4, PCS mean scores ranged from 34.1 to 38.6 for Samoan and Native Hawaiians respectively. MCS mean scores ranged from 43.6 to 48.2 also for Samoan and Native Hawaiians respectively.

**Table 4: Mean unadjusted PCS and MCS scores among a diverse group of NHOPI<sup>1</sup>**

	Total NHOPI Mean (SD)	Native Hawaiian Mean (SD)	Guamanian or Chamorro Mean (SD)	Samoan Mean (SD)	Other Pacific Islander Mean (SD)	Multi-Pacific Islander Mean (SD)
PCS	36.0 (11.8)	38.6 (11.6)	37.7 (13.2)	34.1 (11.7)	35.1 (11.7)	34.8 (11.1)
MCS	45.1 (13.1)	48.2 (12.8)	47.3 (13.4)	43.6 (11.6)	43.8 (13.2)	45.9 (12.6)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). ANOVA was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

PCS and MCS scores are not case-mix adjusted for this beneficiary-level report. Case-mix adjustment of PCS and MCS scores is done to enable plan-level comparisons between MAOs in other reports.

## 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>16</sup> This measure is found in Question 1 of the HOS.
- 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 of the HOS.

General self-rated health status is a valid and reliable method for assessing health across different populations.<sup>17</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 future hospitalization, use of mental health services, and mortality.<sup>18, 19</sup>



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Table 5 shows estimates for self-rated general health, and physical and mental health compared to one year ago. For overall self-rated general health, two-thirds of Asians responded they were in “Excellent” to “Good” health, while one-third reported “Fair” or “Poor” health. There were significant differences in self-reported general health among Asian groups. For example, 24.5 percent of Japanese respondents reported “Fair” or “Poor” health, compared to 43.9 percent of Vietnamese and 41.9 percent of Other Asian respondents.

**Table 5: Self-rated general and comparative health status among Asians<sup>1</sup>**

Self-Rated Health	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>General Health</b>									
Excellent to Good	15,479 (66.3%)	1,976 (67.6%)	3,505 (60.9%)	3,949 (69.9%)	2,356 (75.5%)	1,240 (73.2%)	1,112 (56.1%)	861 (58.1%)	480 (66.4%)
Fair or Poor	7,855 (33.7%)	947 (32.4%)	2,255 (39.1%)	1,702 (30.1%)	766 (24.5%)	453 (26.8%)	869 (43.9%)	620 (41.9%)	243 (33.6%)
<b>Comparative Physical Health</b>									
Much Better to About the Same	16,721 (71.4%)	2,142 (73.3%)	3,711 (64.0%)	4,594 (80.6%)	2,408 (77.3%)	1,151 (68.4%)	1,236 (62.0%)	976 (65.2%)	503 (70.3%)
Slightly Worse or Much Worse	6,697 (28.6%)	780 (26.7%)	2,084 (36.0%)	1,105 (19.4%)	706 (22.7%)	532 (31.6%)	758 (38.0%)	520 (34.8%)	212 (29.7%)
<b>Comparative Mental Health</b>									
Much Better to About the Same	19,124 (82.2%)	2,420 (83.6%)	4,489 (77.9%)	4,895 (86.9%)	2,728 (88.5%)	1,360 (80.8%)	1,494 (75.0%)	1,146 (77.0%)	592 (82.3%)
Slightly Worse or Much Worse	4,135 (17.8%)	474 (16.4%)	1,277 (22.1%)	740 (13.1%)	353 (11.5%)	323 (19.2%)	498 (25.0%)	343 (23.0%)	127 (17.7%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Compared to one year ago, 71.4 percent of Asian beneficiaries reported “Much Better” to “About the Same” physical health, and 28.6 percent reported “Slightly Worse” or “Much Worse” physical health. Differences in comparative physical health among Asian beneficiaries were significant. For example, 80.6 percent of Filipinos reported “Much Better” to “About the Same” physical health compared to 62.0 percent of Vietnamese beneficiaries.

Asian beneficiaries reported high levels of mental health compared to one year ago. Table 5 shows that 82.2 percent of Asian respondents reported “Much Better” to “About the Same,” and 17.8 percent reported “Slightly Worse” or “Much Worse” mental health compared to one year ago. Even though significant differences were found across Asian groups, all groups had at least three-quarters of respondents reporting “Much Better” to “About the Same” comparative mental health status.

Table 6 shows that among NHOPI respondents, 50.6 percent reported “Excellent” to “Good” general health and 49.4 percent reported “Fair” or “Poor” health. Those identifying as Other Pacific Islanders reported particularly low general health status, with 55.7 percent indicating “Fair” or “Poor” health. Differences were significant across NHOPI groups.

**Table 6: Self Rated General and Comparative Health Status among NHOPI<sup>1</sup>**

Self-Rated Health	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>General Health</b>						
Excellent to Good	1,411 (50.6%)	452 (63.1%)	37 (55.2%)	102 (55.1%)	761 (44.3%)	59 (56.7%)
Fair or Poor	1,380 (49.4%)	264 (36.9%)	30 (44.8%)	83 (44.9%)	958 (55.7%)	45 (43.3%)
<b>Comparative Physical Health</b>						
Much Better to About the Same	1,879 (67.1%)	530 (74.4%)	50 (74.6%)	131 (70.8%)	1,096 (63.3%)	72 (69.2%)
Slightly Worse or Much Worse	921 (32.9%)	182 (25.6%)	17 (25.4%)	54 (29.2%)	636 (36.7%)	32 (30.8%)
<b>Comparative Mental Health</b>						
Much Better to About the Same	*	573 (81.3%)	*	140 (76.1%)	1,270 (74.0%)	79 (77.5%)
Slightly Worse or Much Worse	*	132 (18.7%)	*	44 (23.9%)	447 (26.0%)	23 (22.5%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

According to estimates in Table 6, 67.1 percent of NHOPI reported “Much Better” to “About the Same” comparative physical health, and 32.9 percent reported “Slightly Worse” or “Much Worse” physical health. Only Other Pacific Islander beneficiaries had less than two-thirds of respondents reporting the top categories of comparative physical health. However, differences among groups remained significant.

Table 6 also shows levels of comparative mental health for NHOPI beneficiaries. Significant differences were reported across NHOPI groups. Among reportable groups, 81.3 percent of Native Hawaiians selected the top categories of comparative mental health compared to 74.0 percent of Other Pacific Islanders.

## Depression

### *Definition of Measure*

- The HOS includes two questions (Questions 39a and 39b) that serve as a screening measure for depression. 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 beneficiary is considered to have a positive depression screen when he or she scores three points or greater across both depression questions.

Individuals with a positive depression screen may be at risk for depressive disorders. Depression is undetected and under-diagnosed in the majority of the older Medicare population and is an important health problem that has been linked to poor health outcomes.<sup>20, 21</sup> Additionally, depression is significantly associated with other psychological dysfunction, as well as the presence of common chronic medical conditions, such as diabetes.<sup>22, 23</sup>

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The next two tables show differences for the incidence of positive depression screens between Asians and NHOPI. According to Table 7, a large majority of Asians reported “Not at all” for both depression screening questions, and only 15.6 percent of Asians had a positive depression screen. However, there were significant differences across Asian groups in responses to the two screening questions and the depression screen. Fewer than one in ten Japanese had a positive depression screen (9.6 percent), but one in four Other Asians had a positive depression screen (25.2 percent).

**Table 7: Frequency of positive depression screen responses among Asians<sup>1</sup>**

Depression Screen	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Little interest or pleasure in doing things in past two weeks</b>									
Not at all (+0)	14,432 (63.1%)	1,834 (64.1%)	3,423 (60.7%)	3,663 (65.8%)	2,305 (75.7%)	1,029 (62.3%)	1,008 (52.0%)	773 (52.5%)	397 (56.6%)
Several days (+1)	4,834 (21.1%)	477 (16.7%)	1,444 (25.6%)	1,048 (18.8%)	427 (14.0%)	402 (24.3%)	544 (28.1%)	344 (23.4%)	148 (21.1%)
More than half the days (+2)	2,106 (9.2%)	305 (10.7%)	498 (8.8%)	498 (8.9%)	157 (5.2%)	138 (8.4%)	244 (12.6%)	188 (12.8%)	78 (11.1%)
Nearly every day (+3)	1,510 (6.6%)	247 (8.6%)	275 (4.9%)	360 (6.5%)	157 (5.2%)	83 (5.0%)	141 (7.3%)	168 (11.4%)	79 (11.3%)
<b>Feeling down, depressed, or hopeless in past two weeks</b>									
Not at all (+0)	16,140 (70.7%)	2,053 (71.6%)	3,965 (70.9%)	4,067 (73.2%)	2,414 (79.0%)	1,118 (67.4%)	1,195 (61.5%)	846 (57.9%)	482 (68.6%)
Several days (+1)	4,120 (18.0%)	428 (14.9%)	1,118 (20.0%)	859 (15.5%)	439 (14.4%)	379 (22.9%)	451 (23.2%)	322 (22.0%)	124 (17.6%)
More than half the days (+2)	1,579 (6.9%)	230 (8.0%)	348 (6.2%)	388 (7.0%)	107 (3.5%)	102 (6.2%)	195 (10.0%)	160 (11.0%)	49 (7.0%)
Nearly every day (+3)	1,000 (4.4%)	156 (5.4%)	161 (2.9%)	245 (4.4%)	96 (3.1%)	59 (3.6%)	102 (5.2%)	133 (9.1%)	48 (6.8%)
<b>Depression Screen*</b>									
Positive	3,512 (15.6%)	510 (18.1%)	729 (13.1%)	833 (15.2%)	290 (9.6%)	229 (14.0%)	407 (21.3%)	364 (25.2%)	150 (21.9%)
Negative	19,036 (84.4%)	2,314 (81.9%)	4,827 (86.9%)	4,649 (84.8%)	2,718 (90.4%)	1,408 (86.0%)	1,505 (78.7%)	1,081 (74.8%)	534 (78.1%)

Note: HOS Baseline Cohorts 16, 17, and 18 (n= 756,253). Due to rounding sum of cells may not equal 100 percent. A positive depression screen is defined as scoring 3 points or greater on the sum total of the two depression questions listed. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in first cohort in which they appear for all table analyses.

Table 8 shows that nearly one in three NHOPI beneficiaries screened positive for depression with significant differences across groups. The rate of positive depression screens was 42.3 percent for Samoans compared to 19.6 percent for Native Hawaiians.

**Table 8: Frequency of positive depression screen responses among NHOPI<sup>1</sup>**

Depression Screen	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Little interest or pleasure in doing things in past two weeks</b>						
Not at all (+0)	1,242 (45.1%)	407 (58.5%)	34 (51.5%)	65 (35.1%)	694 (40.5%)	42 (43.3%)
Several days (+1)	676 (24.5%)	151 (21.7%)	16 (24.2%)	45 (24.3%)	445 (26.0%)	19 (19.6%)
More than half the days (+2)	*	74 (10.6%)	*	29 (15.7%)	290 (16.9%)	14 (14.4%)
Nearly every day (+3)	*	64 (9.2%)	*	46 (24.9%)	283 (16.5%)	22 (22.7%)
<b>Feeling down, depressed, or hopeless in past two weeks</b>						
Not at all (+0)	1,404 (51.1%)	451 (64.0%)	38 (55.1%)	86 (46.7%)	775 (45.9%)	54 (52.9%)
Several days (+1)	663 (24.1%)	140 (19.9%)	13 (18.8%)	42 (22.8%)	438 (26.0%)	30 (29.4%)
More than half the days (+2)	*	56 (7.9%)	*	27 (14.7%)	247 (14.6%)	*
Nearly every day (+3)	*	58 (8.2%)	*	29 (15.8%)	227 (13.5%)	*
<b>Depression Screening</b>						
Positive	854 (31.7%)	135 (19.6%)	21 (31.8%)	77 (42.3%)	586 (35.2%)	35 (36.8%)
Negative	1,844 (68.3%)	554 (80.4%)	45 (68.2%)	105 (57.7%)	1,080 (64.8%)	60 (63.2%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. A positive depression screen is defined as scoring 3 points or greater on the sum total of the two depression questions listed. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

## Pain

### *Definition of Measure*

- The HOS includes questions to measure self-reported pain over the previous seven days. Question 36 asks how much pain interfered with day-to-day activities and question 37 asks how often pain kept the beneficiary from socializing. Both Questions 36 and 37 have five possible categorical responses. Question 36 responses include, “Not at all,” “A little bit,” “Somewhat,” “Quite a bit,” or “Very much.” Question 37 responses include, “Never,” “Rarely,” “Sometimes,” “Often,” or “Always.”

Self-reported pain is common among older adults. Without proper pain management, opioid abuse<sup>24, 25</sup> and alcohol abuse<sup>26</sup> are increasing in this population as they attempt to control their pain. Pain screening is the initial step in establishing an appropriate pain management program for older beneficiaries. In fact, The Joint Commission requires assessment of pain when clinically indicated for patients in accredited hospitals, clinics, and long-term care facilities.<sup>27</sup> Similar to their counterparts age 65 and older, self-reported pain has a high incidence among persons with disabilities. A 2008 survey of Medicare beneficiaries found that when compared to older Medicare beneficiaries, there were four times as many disabled beneficiaries who reported

severe or very severe pain in prior weeks.<sup>28</sup> Often, due to the disability itself, pain results as a secondary condition.<sup>29</sup>

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Table 9 shows that 83.6 percent of Asians reported that pain interfered with daily activities “Not at all” to “Somewhat” over the previous seven days, and 16.4 percent reported that pain interfered with daily activities “Quite a bit” or “Very Much.” Differences were significant across Asian groups for both measures. Only 9.1 percent of Japanese respondents reported that pain interfered with daily activities “Quite a bit” or “Very Much,” compared to 24.4 percent of Other Asian respondents.

**Table 9: Extent pain interfered with daily activities and socializing among Asians<sup>1</sup>**

Pain Questions	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Pain Interfering with Daily Activities</b>									
Not at all to Somewhat	19,279 (83.6%)	2,334 (80.1%)	4,859 (86.1%)	4,538 (80.9%)	2,790 (90.9%)	1,470 (88.7%)	1,585 (80.7%)	1,119 (75.6%)	584 (81.3%)
Quite a bit or Very much	3,774 (16.4%)	580 (19.9%)	782 (13.9%)	1,069 (19.1%)	280 ( 9.1%)	188 (11.3%)	380 (19.3%)	361 (24.4%)	134 (18.7%)
<b>Pain Interfering with Socializing</b>									
Never to Sometimes	20,567 (89.4%)	2,486 (85.3%)	5,143 (91.4%)	4,973 (88.9%)	2,897 (94.5%)	1,511 (91.1%)	1,708 (87.1%)	1,218 (82.4%)	631 (88.5%)
Often or Always	2,449 (10.6%)	430 (14.7%)	482 ( 8.6%)	624 (11.1%)	169 ( 5.5%)	148 ( 8.9%)	254 (12.9%)	260 (17.6%)	82 (11.5%)

Note: HOS Baseline Cohorts 16, 17, and 18 (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 10 shows 65.6 percent of NHOPI reported that pain had interfered with their daily activities “Not at all” to “Somewhat” during the previous seven days, and about 34.5 percent reported that pain had interfered with daily activities “Quite a bit” or “Very Much.” As with Asians, differences among NHOPI were significant. For example, 23.4 percent of Native Hawaiian respondents reported that pain had interfered with daily activities “Quite a bit” or “Very Much,” compared to 39.4 percent of Other Pacific Islander respondents.

**Table 10: Extent pain interfered with daily activities and socializing among NHOPI<sup>1</sup>**

Pain Questions	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoa n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Pain Interfering with Daily Activities</b>						
Not at all to Somewhat	1,816 (65.6%)	542 (76.6%)	51 (76.1%)	117 (63.6%)	1,035 (60.6%)	71 (67.6%)
Quite a bit or Very much	957 (34.5%)	166 (23.4%)	16 (23.9%)	67 (36.4%)	674 (39.4%)	34 (32.4%)

Pain Questions	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Pain Interfering with Socializing</b>						
Never to Sometimes	2,100 (75.5%)	606 (85.6%)	57 (82.6%)	134 (73.2%)	1,222 (71.0%)	81 (79.4%)
Often or Always	682 (24.5%)	102 (14.4%)	12 (17.4%)	49 (26.8%)	498 (29.0%)	21 (20.6%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 9 demonstrates that among Asian beneficiaries, 89.4 percent reported that pain “Never” to “Sometimes” kept them from socializing, while 10.6 percent reported that pain “Often” or “Always” interfered with socialization. Again, significant differences were seen across Asian groups. Only 5.5 percent of Japanese respondents reported the top categories of pain interfering with socializing, compared to 17.6 percent of Other Asian respondents.

In Table 10, approximately three-quarters of NHOPI reported “Never” to “Sometimes” and one-quarter reported that pain “Often” or “Always” interfered with socialization. Among NHOPI groups, 14.4 percent of Native Hawaiians and 29.0 percent of Other Pacific Islanders reported the top categories of pain interfering with socializing. Statistically significant differences were observed across NHOPI groups when examining whether pain interfered with socialization.

## Chronic Medical Conditions

### *Definition of Measure*

- The HOS includes 15 chronic disease measures that assess health across the beneficiary lifespan. These measures are found in Questions 20-34 of the HOS. This report presents seven of the chronic condition measures found in the HOS including, hypertension, arthritis of the hip or knee, arthritis of the hand or wrist, diabetes, sciatica, osteoporosis, and depression.

For older adults, chronic medical conditions reduce the quality of life, accelerate a decline in functioning, and can lead to conflicting medical advice.<sup>30</sup> The increased cost associated with chronic disease is an important factor driving overall Medicare spending.<sup>31</sup> According to the U.S. Department of Health and Human Services, two out of three adults over the age of 65 have multiple chronic conditions and the need for coordinated care.<sup>32</sup> Medicare beneficiaries with multiple chronic conditions account for more than three times the average per capita costs, with over 140 billion dollars in total spending in 2010.<sup>33</sup>

### *How are Asians and Native Hawaiians or Other Pacific Islanders Doing?*

The seven most prevalent chronic conditions among Asian and NHOPI beneficiaries were examined. Table 11 and Table 12 show that hypertension, arthritis of the hip or knee, arthritis of the hand or wrist, and diabetes are the most prevalent chronic conditions reported by both groups.

Table 11 shows the prevalence of these seven chronic conditions and the total number of chronic conditions (based on 15 measures collected by the HOS) for Asian beneficiaries. The prevalence of chronic conditions across Asian beneficiaries ranged from 65.1 percent reporting hypertension to 15.4 percent reporting depression. The prevalence of the seven chronic conditions and the total number of chronic conditions were significantly different among Asian groups with four or more conditions reported by 22.2 percent of Korean respondents compared to 39.8 percent of Other Asian respondents.



**Table 11: Number of most prevalent chronic conditions among Asians<sup>1</sup>**

Prevalent Chronic Conditions	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Prevalent Conditions</b>									
Hypertension	15,163 (65.1%)	1,843 (62.9%)	3,568 (62.2%)	4,227 (74.4%)	1,915 (61.7%)	888 (53.0%)	1,341 (68.0%)	925 (62.6%)	456 (63.7%)
Arthritis - Hip or Knee	8,765 (38.0%)	1,262 (43.4%)	2,169 (38.4%)	2,445 (43.5%)	824 (26.7%)	451 (27.1%)	740 (37.8%)	595 (40.5%)	279 (39.1%)
Arthritis - Hand or Wrist	7,329 (31.9%)	877 (30.3%)	1,747 (31.0%)	2,114 (37.7%)	807 (26.2%)	412 (24.9%)	629 (32.2%)	517 (35.2%)	226 (31.8%)
Diabetes	7,698 (33.2%)	1,230 (42.1%)	1,597 (28.2%)	2,099 (37.2%)	847 (27.3%)	431 (25.7%)	620 (31.4%)	580 (39.3%)	294 (41.1%)
Sciatica	5,451 (23.8%)	720 (25.0%)	1,363 (24.2%)	1,380 (24.7%)	483 (15.7%)	313 (18.9%)	582 (30.1%)	429 (29.4%)	181 (25.5%)
Osteoporosis	6,079 (26.6%)	601 (20.8%)	1,913 (34.1%)	1,420 (25.4%)	791 (25.8%)	346 (20.9%)	517 (27.1%)	307 (21.1%)	184 (26.2%)
Depression	3,555 (15.4%)	495 (17.0%)	657 (11.6%)	813 (14.4%)	366 (11.8%)	243 (14.6%)	421 (21.6%)	420 (28.6%)	140 (19.5%)
<b>Number of Chronic Conditions</b>									
No conditions	2,726 (11.6%)	300 (10.1%)	775 (13.3%)	448 ( 7.8%)	421 (13.4%)	312 (18.5%)	221 (11.0%)	167 (11.1%)	82 (11.2%)
One condition	4,345 (18.4%)	503 (17.0%)	1,163 (20.0%)	881 (15.3%)	651 (20.7%)	397 (23.5%)	381 (19.0%)	254 (16.9%)	115 (15.7%)
Two or three conditions	8,492 (36.0%)	1,097 (37.1%)	1,950 (33.5%)	2,184 (38.0%)	1,207 (38.4%)	605 (35.8%)	711 (35.4%)	482 (32.1%)	256 (35.0%)
Four or more conditions	8,026 (34.0%)	1,057 (35.7%)	1,933 (33.2%)	2,230 (38.8%)	862 (27.4%)	375 (22.2%)	693 (34.5%)	597 (39.8%)	279 (38.1%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Total for "yes" responses reported for each chronic condition. Number of chronic conditions based on 15 measures collected by the HOS. Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 12 shows the prevalence of seven chronic conditions and the total number of conditions (based on 15 measures collected by the HOS) among NHOPI beneficiaries. As observed in Asians, hypertension was the most prevalent condition reported by NHOPI, although there were no significant differences across NHOPI groups. The prevalence of diabetes across NHOPI groups also was not significantly different. More than one-third of NHOPI reported a previous diagnosis of depression, more than twice the prevalence found in Asians. Half of all NHOPI reported four or more chronic conditions. Differences in the largest number of chronic conditions across NHOPI groups were significant, with 40.6 percent of Guamanian or Chamorro and 54.0 percent of Other Pacific Islander beneficiaries reporting four or more conditions.

**Table 12: Number of most prevalent chronic conditions among NHOPI<sup>1</sup>**

Prevalent Chronic Conditions	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Prevalent Conditions</b>						
Hypertension	2,017 (72.3%)	519 (73.0%)	43 (63.2%)	132 (71.7%)	1,245 (72.2%)	78 (75.7%)
Arthritis - Hip or Knee	1,335 (48.1%)	237 (33.2%)	26 (38.8%)	100 (54.3%)	927 (54.2%)	45 (44.6%)
Arthritis - Hand or Wrist	1,142 (41.2%)	240 (33.5%)	26 (37.7%)	75 (41.7%)	761 (44.6%)	40 (39.6%)
Diabetes	1,178 (42.3%)	278 (39.0%)	28 (41.2%)	82 (45.3%)	748 (43.5%)	42 (41.2%)
Sciatica	987 (35.9%)	181 (25.6%)	19 (27.9%)	72 (40.2%)	685 (40.4%)	30 (29.7%)
Osteoporosis	565 (20.6%)	97 (13.7%)	11 (16.2%)	28 (15.6%)	410 (24.2%)	19 (19.2%)
Depression	936 (33.7%)	163 (23.0%)	22 (31.9%)	52 (28.3%)	661 (38.7%)	38 (37.3%)
<b>Number of Chronic Conditions</b>						
No conditions	*	73 (10.1%)	*	17 ( 9.0%)	108 ( 6.2%)	*
One condition	*	94 (13.0%)	*	14 ( 7.4%)	211 (12.1%)	*
Two or three conditions	862 (30.4%)	255 (35.2%)	28 (40.6%)	62 (33.0%)	484 (27.6%)	33 (31.7%)
Four or more conditions	1,427 (50.3%)	302 (41.7%)	28 (40.6%)	95 (50.5%)	948 (54.0%)	54 (51.9%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Total for “yes” responses reported for each chronic condition. Number of chronic conditions based on 15 measures collected by the HOS. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

## Activities of Daily Living

### *Definition of Measures*

- Activities of daily living (ADL) refer to a set of common daily tasks that are necessary for personal self-care and independent living.<sup>34</sup> ADLs include bathing, dressing, eating, getting in or out of chairs, walking, and using the toilet. These measures are found in Question 10 of the HOS. Impairment with ADLs is defined as beneficiaries who reported either difficulty with 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>35, 36</sup> IADLs include preparing meals, managing money, and taking medications. These measures are found in Question 11 of the HOS. For IADLs, impairment is defined as beneficiaries 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 ability to perform these tasks is predictive of current disease status and mortality risk.<sup>37, 38</sup> Difficulties with ADLs are strongly associated with increasing age and with disability status.<sup>39, 40</sup> A study of the Medicare population showed that the total median healthcare costs per year increased as the number of ADL difficulties increased, even after adjustment for sociodemographic characteristics and comorbidities.<sup>41</sup>

There are three IADLs in the HOS that examine reported difficulty with the performance of tasks of independence. In comparison to the ADLs, IADLs are considered to recognize earlier changes in functioning, and can be used as an indication of the need for intervention or further medical work-up.<sup>42</sup>

### *How are Asians and Native Hawaiians or Other Pacific Islanders Doing?*

Table 13 highlights the prevalence of impairments in performing the six ADLs for Asian beneficiaries. Impairment rates reported for ADLs ranged from 29.3 percent for walking to 8.3 percent for eating.

Table 13 shows that there were significant differences by ADL impairment for each of the Asian groups. Table 13 also shows Asian respondents who reported zero, one, two, and three or more ADL impairments. Two-thirds of Asian beneficiaries reported no difficulties with ADLs, while 15.8 percent reported three or more ADL impairments. Significant differences in number of impairments were found across all groups. For example, 74.2 percent of Korean respondents reported no ADL impairments, compared to 56.4 percent of Other Asian respondents.

**Table 13: Impairments in Activities of Daily Living (ADL) among Asians<sup>1</sup>**

ADLs	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>ADL Impairments</b>									
Walking	6,840 (29.3%)	930 (31.8%)	1,523 (26.4%)	1,831 (32.3%)	821 (26.4%)	360 (21.4%)	595 (30.0%)	561 (37.8%)	219 (30.6%)
Getting in/out of chairs	4,436 (19.0%)	579 (19.9%)	1,064 (18.5%)	1,148 (20.3%)	499 (16.0%)	204 (12.1%)	396 (20.1%)	398 (26.8%)	148 (20.6%)
Bathing	3,946 (16.9%)	460 (15.7%)	1,012 (17.5%)	956 (16.8%)	404 (13.0%)	204 (12.2%)	388 (19.6%)	380 (25.6%)	142 (19.9%)
Dressing	3,304 (14.2%)	421 (14.4%)	785 (13.6%)	828 (14.6%)	336 (10.8%)	145 (8.6%)	341 (17.2%)	322 (21.7%)	126 (17.5%)
Using the toilet	2,792 (12.0%)	347 (11.9%)	669 (11.6%)	665 (11.7%)	297 (9.5%)	137 (8.1%)	284 (14.3%)	290 (19.4%)	103 (14.2%)
Eating	1,932 (8.3%)	199 (6.8%)	439 (7.6%)	467 (8.3%)	192 (6.2%)	113 (6.7%)	238 (12.0%)	221 (14.9%)	63 (8.8%)
<b>Number of ADL Impairments</b>									
Zero ADLs	15,530 (66.0%)	1,867 (63.5%)	4,005 (68.9%)	3,621 (63.3%)	2,199 (70.4%)	1,256 (74.2%)	1,285 (64.3%)	845 (56.4%)	452 (62.1%)
One ADL	2,725 (11.6%)	401 (13.6%)	558 (9.6%)	757 (13.2%)	341 (10.9%)	175 (10.3%)	221 (11.1%)	186 (12.4%)	86 (11.8%)
Two ADLs	1,553 (6.6%)	198 (6.7%)	351 (6.0%)	432 (7.5%)	205 (6.6%)	83 (4.9%)	129 (6.5%)	100 (6.7%)	55 (7.6%)
Three or More ADLs	3,716 (15.8%)	475 (16.2%)	901 (15.5%)	914 (16.0%)	380 (12.2%)	179 (10.6%)	365 (18.3%)	367 (24.5%)	135 (18.5%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Total for "yes" responses reported for each ADL impairment. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 14 shows rates of difficulty across each of the six ADLs reported by NHOPI respondents. Significant differences were found across all ADL impairments by groups. Table 14 also shows that fewer than half of NHOPI respondents reported having no difficulty with ADLs. Significant differences across NHOPI groups were found for zero, one, and three or more ADLs, but there were no significant differences found across NHOPI groups for reporting two ADL impairments. Three or more ADL impairments were reported by 43.8 percent of Samoan respondents compared to 20.2 percent of Native Hawaiian respondents.

**Table 14: Impairments in Activities of Daily Living (ADL) among NHOPI<sup>1</sup>**

ADLs	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>ADL Impairments</b>						
Walking	1,350 (48.5%)	284 (40.2%)	24 (35.3%)	106 (58.2%)	894 (51.9%)	42 (40.0%)
Getting in/out of chairs	963 (34.7%)	180 (25.4%)	18 (26.5%)	84 (46.2%)	648 (37.8%)	33 (32.0%)
Bathing	794 (28.6%)	151 (21.2%)	13 (19.7%)	79 (43.2%)	522 (30.5%)	29 (27.9%)
Dressing	722 (26.0%)	128 (18.0%)	15 (22.1%)	70 (38.0%)	483 (28.3%)	26 (25.0%)
Using the toilet	*	106 (14.9%)	*	62 (34.1%)	392 (23.0%)	20 (19.4%)
Eating	*	63 ( 8.9%)	*	35 (19.3%)	257 (15.1%)	13 (12.6%)
<b>Number of Impairments</b>						
Zero ADLs	1,312 (46.5%)	401 (55.8%)	39 (57.4%)	72 (38.9%)	745 (42.7%)	55 (52.4%)
One ADL	*	104 (14.5%)	*	16 ( 8.6%)	255 (14.6%)	*
Two ADLs	*	68 ( 9.5%)	*	16 ( 8.6%)	178 (10.2%)	*
Three or More ADLs	836 (29.7%)	145 (20.2%)	17 (25.0%)	81 (43.8%)	565 (32.4%)	28 (26.7%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Total for "yes" responses reported for each ADL impairment. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Similar patterns of differences were reported across the three IADLs in Table 15 and Table 16. Table 15 shows that significant differences were reported by Asian groups across the three IADLs.

**Table 15: Impairments in Instrumental Activities of Daily Living (IADL) among Asians<sup>1</sup>**

IADLs	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
Preparing Meals	3,064 (14.8%)	475 (19.4%)	851 (16.3%)	618 (11.9%)	239 ( 8.9%)	175 (11.3%)	337 (19.3%)	270 (21.7%)	99 (15.8%)
Managing Money	2,442 (11.7%)	337 (13.1%)	558 (11.0%)	637 (12.4%)	157 ( 5.7%)	152 ( 9.7%)	271 (15.4%)	233 (18.4%)	97 (14.9%)
Taking Medication as Prescribed	2,040 ( 9.2%)	255 ( 9.1%)	491 ( 8.9%)	448 ( 8.2%)	176 ( 6.1%)	120 ( 7.4%)	228 (12.1%)	244 (17.7%)	78 (11.4%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Total for “yes” responses reported for each IADL impairment. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 16 shows that significant differences were reported for “Preparing meals” and “Taking medication as prescribed,” but no significant differences were found for “Managing money” across NHOPI groups.

**Table 16: Impairments in Instrumental Activities of Daily Living (IADL) among NHOPI<sup>1</sup>**

IADLs	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
Preparing Meals	*	90 (14.4%)	*	53 (36.1%)	438 (28.8%)	17 (18.9%)
Managing Money	*	106 (16.5%)	*	33 (20.6%)	279 (18.1%)	12 (12.4%)
Taking Medication as Prescribed	478 (18.1%)	100 (14.8%)	11 (17.2%)	41 (23.7%)	314 (19.3%)	12 (12.1%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Total for “yes” responses reported for each IADL impairment. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

## 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 of the HOS.
- 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 of the HOS.
- 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 beneficiary from usual activities. The measure is found in Question 14 of the HOS.

Healthy Days Measures provide key information on the functional status of vulnerable sub-populations, and are used to assess the Health-Related Quality of Life<sup>43</sup> across the U.S.

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>44</sup> The CDC HRQOL program considers 14 or more unhealthy days in the past 30 days as an indicator of poor well-being.<sup>45</sup>

*How are Asians and Native Hawaiians or Other Pacific Islanders Doing?*

Significant differences were found in people who reported 14 or more physically unhealthy days in the past 30 days among Asian and NHOPI. Table 17 shows that 18.5 percent of Asians reported 14 or more physically unhealthy days in the past 30 days. Among Asian groups, 14.8 percent of Korean and 14.9 percent of Japanese beneficiaries reported 14 or more unhealthy days in the past 30 days, compared to 27.9 percent of Other Asians beneficiaries.

**Table 17: Distributions of healthy days measures among Asians<sup>1</sup>**

Unhealthy Days and Limitations	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Number of Physically Unhealthy Days</b>									
None	12,157 (53.8%)	1,500 (53.1%)	3,155 (55.9%)	2,845 (52.3%)	1,935 (65.0%)	946 (57.9%)	822 (42.3%)	631 (43.8%)	323 (47.4%)
1-13 Unhealthy Days	6,246 (27.6%)	737 (26.1%)	1,508 (26.7%)	1,603 (29.5%)	597 (20.1%)	446 (27.3%)	737 (37.9%)	409 (28.4%)	209 (30.7%)
14-30 Unhealthy Days	4,187 (18.5%)	586 (20.8%)	984 (17.4%)	995 (18.3%)	443 (14.9%)	242 (14.8%)	386 (19.8%)	402 (27.9%)	149 (21.9%)
<b>Number of Mentally Unhealthy Days</b>									
None	14,575 (64.4%)	1,939 (68.6%)	3,586 (63.3%)	3,623 (66.4%)	2,189 (73.6%)	1,065 (65.2%)	1,052 (54.0%)	740 (51.4%)	381 (56.6%)
1-13 Unhealthy Days	5,029 (22.2%)	481 (17.0%)	1,314 (23.2%)	1,198 (21.9%)	497 (16.7%)	387 (23.7%)	595 (30.5%)	383 (26.6%)	174 (25.9%)
14-30 Unhealthy Days	3,011 (13.3%)	405 (14.3%)	763 (13.5%)	637 (11.7%)	289 (9.7%)	181 (11.1%)	302 (15.5%)	316 (22.0%)	118 (17.5%)
<b>Days with Activity Limitations</b>									
None	15,173 (66.9%)	1,902 (67.1%)	3,963 (69.9%)	3,616 (66.3%)	2,296 (76.3%)	1,099 (67.2%)	1,093 (56.5%)	783 (53.8%)	421 (61.5%)
1-13 Unhealthy Days	4,148 (18.3%)	479 (16.9%)	956 (16.9%)	1,028 (18.9%)	363 (12.1%)	350 (21.4%)	524 (27.1%)	299 (20.5%)	149 (21.8%)
14-30 Unhealthy Days	3,355 (14.8%)	455 (16.0%)	749 (13.2%)	808 (14.8%)	352 (11.7%)	186 (11.4%)	318 (16.4%)	373 (25.6%)	114 (16.7%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

The distribution of physically unhealthy days in Table 18 shows that 36.4 percent of NHOPI beneficiaries reported 14 or more unhealthy days in the past month. Even though the difference in 1-13 physically unhealthy days was not significant across NHOPI groups, there were

significant differences in the 14-30 day category, with 26.3 percent of Native Hawaiians and 40.5 percent of Other Pacific Islanders reporting 14 or more physically unhealthy days.

**Table 18: Distributions of healthy days measures among NHOPI<sup>1</sup>**

Unhealthy Days and Limitations	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Number of Physically Unhealthy Days</b>						
None	1,036 (38.6%)	338 (49.7%)	27 (42.2%)	61 (34.1%)	572 (34.4%)	38 (38.4%)
1-13 Unhealthy Days	670 (25.0%)	163 (24.0%)	15 (23.4%)	49 (27.4%)	417 (25.1%)	26 (26.3%)
14-30 Unhealthy Days	977 (36.4%)	179 (26.3%)	22 (34.4%)	69 (38.5%)	672 (40.5%)	35 (35.4%)
<b>Number of Mentally Unhealthy Days</b>						
None	1,271 (47.5%)	386 (56.8%)	33 (51.6%)	73 (41.5%)	733 (44.4%)	46 (45.1%)
1-13 Unhealthy Days	638 (23.9%)	149 (21.9%)	13 (20.3%)	50 (28.4%)	401 (24.3%)	25 (24.5%)
14-30 Unhealthy Days	764 (28.6%)	145 (21.3%)	18 (28.1%)	53 (30.1%)	517 (31.3%)	31 (30.4%)
<b>Days with Activity Limitations</b>						
None	*	407 (59.1%)	*	77 (43.3%)	723 (43.9%)	48 (47.5%)
1-13 Unhealthy Days	*	121 (17.6%)	*	39 (21.9%)	336 (20.4%)	22 (21.8%)
14-30 Unhealthy Days	863 (32.2%)	161 (23.4%)	21 (32.8%)	62 (34.8%)	588 (35.7%)	31 (30.7%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 17 shows that 13.3 percent of Asians reported being mentally unhealthy for 14 or more days. Significant differences were found across Asian groups, with 9.7 percent of Japanese and 22.0 percent of Other Asians reporting 14 or more mentally unhealthy days.

Table 18 shows that 28.6 percent of NHOPI had 14 or more mentally unhealthy days in the past month. Significant differences were found across NHOPI groups, with 21.3 percent of Native Hawaiian and 31.3 percent of Other Pacific Islander beneficiaries reporting 14 or more mentally unhealthy days.

Table 17 and Table 18 also present total days with any activity limitations in the past 30 days. Patterns of differences seen in the individual measures were maintained in the measure of days with activity limitations. Among Asians, Table 17 shows significant differences across groups, with 11.4 percent of Korean and 11.7 percent of Japanese beneficiaries reporting 14 or more days of any activity limitations, compared to 25.6 percent of Other Asian beneficiaries who reported 14 or more days of any activity limitations. Significant differences were also found across NHOPI groups for 14 or more days of activity limitations. Among NHOPI groups, 23.4 percent of Native Hawaiians reported days with activity limitations, compared to 35.7 percent of Other Pacific Islanders and 34.8 percent of Samoan beneficiaries.



## Body Mass Index

### Definition of Measures

- Self-reported height and weight values are used to calculate BMI, a measure that correlates with the amount of body fat in adult men and women. BMI is derived from Questions 55 and 56 of the HOS.
- BMI is calculated as:  $BMI = [\text{weight in pounds} / (\text{height in inches})^2] \times 703$ , which uses the height and weight to produce the standard measure of  $\text{kg}/\text{m}^2$  units.

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>46</sup> Being overweight (BMI 25-29.9) or obese has been shown to accelerate the aging process.<sup>47</sup> A BMI under 18.5 is considered underweight.<sup>48</sup> Rapid weight loss often indicates an underlying disease and can accelerate the loss of muscle mass, which naturally occurs with the aging process.<sup>49</sup>

### How are Asians and Native Hawaiians or Other Pacific Islanders doing?

Table 19 shows that 10.0 percent of Asians were obese, with significant differences across groups. Obesity among Asian groups ranged from 5.5 percent for Korean beneficiaries to 16.6 percent for Other Asian beneficiaries. The distribution of underweight was also significantly different, with the pattern of obesity being reversed across Asian groups.

**Table 19: Distribution of BMI categories among Asians<sup>1</sup>**

BMI Category <sup>2</sup>	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
Underweight	1,116 ( 5.1%)	87 ( 3.1%)	322 ( 6.1%)	234 ( 4.4%)	201 ( 6.7%)	82 ( 5.1%)	128 ( 7.0%)	34 ( 2.4%)	28 ( 4.1%)
Normal	11,705 (53.3%)	1,244 (44.4%)	3,230 (61.3%)	2,569 (47.8%)	1,625 (53.9%)	948 (59.5%)	1,165 (64.0%)	610 (43.7%)	314 (45.9%)
Overweight	6,924 (31.5%)	1,050 (37.5%)	1,417 (26.9%)	1,920 (35.8%)	878 (29.1%)	476 (29.9%)	420 (23.1%)	520 (37.3%)	243 (35.5%)
Obese	2,205 (10.0%)	419 (15.0%)	304 ( 5.8%)	646 (12.0%)	311 (10.3%)	88 ( 5.5%)	107 ( 5.9%)	231 (16.6%)	99 (14.5%)

Note: HOS Baseline Cohorts 16, 17, and 18 (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

<sup>2</sup> BMI is calculated as:  $BMI = [\text{weight in pounds} / (\text{height in inches})^2] \times 703$ , which uses the height and weight to produce the standard measure of  $\text{kg}/\text{m}^2$  units. BMI categories include: underweight (<18.5), normal (18.5-24.9), overweight (25-29.9), and obese (30 and above).

Table 20 shows that 41.2 percent of NHOPI beneficiaries were obese, and 75.1 percent of NHOPI were overweight or obese. The distribution of obesity among the NHOPI population was significantly different, ranging from 33.8 percent in Guamanian or Chamorro to 71.6 percent in Samoan beneficiaries. Few NHOPI respondents in the underweight category make group comparisons unreliable.

**Table 20: Distribution of BMI categories among NHOPI<sup>1</sup>**

BMI Category <sup>2</sup>	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
Underweight	50 ( 1.9%)	17 ( 2.5%)	*	*	28 ( 1.7%)	*
Normal	604 (23.0%)	139 (20.1%)	*	*	417 (26.0%)	*
Overweight	889 (33.9%)	229 (33.1%)	27 (41.5%)	30 (17.8%)	580 (36.2%)	23 (24.5%)
Obese	1,079 (41.2%)	306 (44.3%)	22 (33.8%)	121 (71.6%)	578 (36.1%)	52 (55.3%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

<sup>2</sup> BMI is calculated as: BMI = [weight in pounds / (height in inches)<sup>2</sup>] x 703, which uses the height and weight to produce the standard measure of kg/m<sup>2</sup> units. BMI categories include: underweight (<18.5), normal (18.5-24.9), overweight (25-29.9), and obese (30 and above).

## 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 53 of the HOS.
- Sleep quality is a self-reported measure that rates the overall sleep quality during the past month. The measure is found in Question 54 of the HOS.

Two new sleep questions in the 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, rather than past week measures, in order to capture more chronic sleep disturbances. The PSQI has a high test-retest reliability and good validity in patients with insomnia.<sup>50</sup>

There is substantial evidence linking insufficient sleep duration and poor sleep quality to mental and physical health morbidity and mortality.<sup>51</sup> Various epidemiologic findings associate sleep duration with obesity, diabetes, impaired glucose tolerance, hypertension, and mortality. People who report fair or poor health are less likely to overestimate sleep hours and report shorter sleep hours on average than those with better self-rated health.<sup>52</sup> These observations may provide a basis for future studies on weight control interventions and maintenance of daily routines in sleep habits to increase the quantity and quality of sleep.

### *How are Asians and Native Hawaiians or Other Pacific Islanders Doing?*

Table 21 and Table 22 show hours of actual sleep and overall sleep quality over the past month for Asians and NHOPI. These estimates were based on data from *Baseline Cohort 18* only; therefore, fewer responses were available for comparison and results should be considered with caution.

Table 21 shows that “7-8 hours” of sleep was reported by 35.4 percent, and “Less than 5 hours” of sleep was reported by 13.4 percent of Asian beneficiaries. Across Asian groups, there were significant differences for hours of actual sleep. Table 21 also shows that 41.9 percent of Asian Indians reported getting the ideal “7-8 hours” compared to 25.7 percent Vietnamese beneficiaries. Table 21 also shows that 9.1 percent of Korean beneficiaries reported “Less than 5

hours” of sleep, compared to 19.4 percent of Vietnamese beneficiaries. The distribution of sleep quality was also significantly different for the most extreme categories, with 29.0 percent of Multi-Asian beneficiaries reporting “Very good” sleep compared to 15.6 percent of Chinese beneficiaries; and 6.3 percent of Vietnamese reporting “Very bad” sleep, compared to 2.3 percent of Filipino beneficiaries.

**Table 21: Distributions of sleep duration and quality among Asians,<sup>1</sup> HOS Baseline Cohort 18**

Sleep Questions	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Hours of Actual Sleep</b>									
Less than 5 hours	904 (13.4%)	113 (12.4%)	211 (12.3%)	214 (14.5%)	85 (10.5%)	51 ( 9.1%)	120 (19.4%)	78 (17.7%)	32 (14.7%)
5 – 6 hours	3,165 (47.0%)	371 (40.8%)	783 (45.8%)	784 (53.2%)	370 (45.8%)	262 (47.0%)	326 (52.8%)	176 (40.0%)	93 (42.7%)
7 – 8 hours	2,383 (35.4%)	381 (41.9%)	642 (37.5%)	433 (29.4%)	312 (38.7%)	226 (40.5%)	159 (25.7%)	151 (34.3%)	79 (36.2%)
9 or more hours	283 ( 4.2%)	45 ( 4.9%)	74 ( 4.3%)	43 ( 2.9%)	40 ( 5.0%)	19 ( 3.4%)	13 ( 2.1%)	35 ( 8.0%)	14 ( 6.4%)
<b>Overall Sleep Quality</b>									
Very good	1,415 (20.9%)	201 (22.1%)	268 (15.6%)	340 (22.8%)	225 (27.7%)	116 (20.5%)	111 (17.8%)	91 (20.6%)	63 (29.0%)
Fairly good	4,048 (59.7%)	556 (61.1%)	1,017 (59.0%)	955 (64.0%)	458 (56.5%)	339 (59.9%)	372 (59.6%)	235 (53.3%)	116 (53.5%)
Fairly bad	1,056 (15.6%)	129 (14.2%)	346 (20.1%)	163 (10.9%)	106 (13.1%)	94 (16.6%)	102 (16.3%)	91 (20.6%)	25 (11.5%)
Very bad	265 ( 3.9%)	24 ( 2.6%)	92 ( 5.3%)	34 ( 2.3%)	22 ( 2.7%)	17 ( 3.0%)	39 ( 6.3%)	24 ( 5.4%)	13 ( 6.0%)

Note: HOS Baseline Cohort 18 (n= 256,735). Due to rounding sum of cells may not equal 100 percent. Chi-square test was used to test for statistical significance across Asian groups.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

Table 22 shows the distribution of NHOPI responses across the two sleep questions. The ideal “7-8 hours” of sleep was reported by 29.6 percent of NHOPI beneficiaries, compared to 19.8 percent who reported getting “Less than 5 hours” of sleep. There were no significant differences found across NHOPI groups for hours of actual sleep; however, low numbers of respondents across NHOPI groups make comparisons unreliable. Among NHOPI groups, Other Pacific Islanders had reportable response sizes across all categories, with 28.5 percent reporting “7-8 hours” of sleep, and 21.1 percent reporting “Less than 5 hours” of sleep.

“Very good” sleep was reported by 20.0 percent and “Very bad” sleep was reported by 8.7 percent of NHOPI beneficiaries. There were significant differences across NHOPI groups for “Very bad” sleep quality. Other Pacific Islanders had reportable response sizes across all categories, with 18.7 percent reporting “Very good,” and 10.8 percent reporting “Very bad” sleep.

**Table 22: Distributions of sleep duration and quality among NHOPI,<sup>1</sup> HOS *Baseline Cohort 18***

Sleep Questions	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Hours of Actual Sleep</b>						
Less than 5 hours	166 (19.8%)	*	*	*	117 (21.1%)	11 (29.7%)
5 – 6 hours	*	91 (49.7%)	*	22 (50.0%)	237 (42.8%)	13 (35.1%)
7 – 8 hours	248 (29.6%)	62 (33.9%)	*	11 (25.0%)	158 (28.5%)	*
9 or more hours	*	*	*	*	42 ( 7.6%)	*
<b>Overall Sleep Quality</b>						
Very good	168 (20.0%)	41 (22.3%)	*	12 (27.9%)	104 (18.7%)	*
Fairly good	*	113 (61.4%)	*	21 (48.8%)	266 (47.8%)	20 (54.1%)
Fairly bad	*	*	*	*	127 (22.8%)	*
Very bad	73 ( 8.7%)	*	*	*	60 (10.8%)	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohort 18* (n= 256,735). Due to rounding sum of cells may not equal 100 percent. Chi-square/Fisher's Exact test was used to test for statistical significance across NHOPI groups.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

## NCQA HEDIS Measures

The Medicare HOS includes four Effectiveness of Care measures that are part of the National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS<sup>®</sup>): Management of Urinary Incontinence in Older Adults (MUI), Physical Activity in Older Adults (PAO), Fall Risk Management (FRM), and Osteoporosis Testing in Older Women (OTO).<sup>53 54</sup> HEDIS process measures gauge how well an MAO manages the quality of care of its beneficiaries age 65 years or older. For this report, the results for three of the HEDIS measures (PAO, FRM, and OTO) were calculated using the three merged *Baseline Cohorts 16 - 18*, while one measure (MUI) was calculated using *Baseline Cohorts 16 and 17*. HEDIS rates are typically calculated and reported at the MAO contract level; therefore, caution should be used when interpreting beneficiary-level HEDIS rates as they are influenced by the effectiveness of care provided at the individual MAO level. HEDIS measures may reflect healthcare differences, rather than health status differences, as reported by beneficiaries. More information about HEDIS measures found in the HOS is available at [www.HOSonline.org](http://www.HOSonline.org).

Table 23 shows HEDIS rates for older Asians (65 or over) which varied by measure and differed significantly across all groups. Though 55.2 percent of Asians reported discussing urinary incontinence with their healthcare providers, only 33.9 percent received treatment for incontinence. Differences across Asian groups were significant for discussing urinary incontinence, with 63.2 percent of Other Asian compared to 43.2 percent of Multi-Asian beneficiaries reporting having discussed urinary incontinence with their providers. Rates for receiving treatment for incontinence also differed significantly across Asian beneficiaries, with 41.5 percent of Other Asians compared to 31.6 percent of Filipinos reporting treatment for incontinence.

Discussing physical activity with a medical provider was reported by 57.8 percent, and having received physical activity advice from a provider was reported by 55.7 percent of older Asians. Rates for both measures were significantly different across groups. Discussing physical activity ranged from 61.5 percent for Asian Indian, to 54.2 percent for both Chinese and Korean beneficiaries. Rates for receiving physical activity advice ranged from 61.9 percent for Vietnamese, to 48.0 percent for Japanese beneficiaries.

Discussing fall risk with a medical provider was reported by 30.6 percent, and managing fall risk was reported by 66.6 percent of Asian beneficiaries. Again, rates differed significantly across Asian groups for both measures. Discussing fall risk ranged from 39.3 percent for Multi-Asian to 26.0 percent for Japanese beneficiaries. Rates for managing fall risk ranged from 70.5 for Filipino to 52.2 percent for Korean beneficiaries.

The risk for osteoporosis increases with age for female beneficiaries. Two-thirds of Asian women reported having received a bone density test to check for osteoporosis. Again, significant differences were noted across groups, ranging from 79.1 percent for Japanese, to 58.0 percent for Other Asian beneficiaries reporting testing for osteoporosis.

**Table 23: Healthcare Effectiveness Data and Information Set (HEDIS)<sup>1</sup> estimates among a diverse group of Asians**

HEDIS <sup>1</sup>	Total Asian n (%)	Asian Indian n (%)	Chinese n (%)	Filipino n (%)	Japanese n (%)	Korean n (%)	Vietnamese n (%)	Other Asian n (%)	Multi-Asian n (%)
<b>Management of Urinary Incontinence (MUI)<sup>2</sup></b>									
Discussing UI	1,775 (55.2%)	204 (62.2%)	419 (52.9%)	464 (53.5%)	268 (56.4%)	95 (49.7%)	143 (60.1%)	134 (63.2%)	48 (43.2%)
Receiving UI Treatment	1,086 (33.9%)	120 (36.6%)	256 (32.3%)	273 (31.6%)	154 (32.8%)	64 (33.5%)	96 (40.5%)	88 (41.5%)	35 (31.8%)
<b>Physical Activity in Older Adults (PAO)</b>									
Discussing PA	11,388 (57.8%)	1,515 (61.5%)	2,643 (54.2%)	2,923 (60.2%)	1,542 (57.2%)	754 (54.2%)	1,014 (60.9%)	676 (58.3%)	321 (55.3%)
Advising PA	11,265 (55.7%)	1,452 (57.9%)	2,706 (52.9%)	3,070 (61.0%)	1,302 (48.0%)	689 (48.7%)	1,043 (61.9%)	659 (56.2%)	344 (58.2%)
<b>Fall Risk Management (FRM)</b>									
Discussing FR	3,437 (30.6%)	368 (32.0%)	892 (30.4%)	878 (29.9%)	485 (26.0%)	161 (26.2%)	288 (37.1%)	234 (36.7%)	131 (39.3%)
Managing FR	4,212 (66.6%)	463 (65.2%)	1,080 (67.3%)	1,147 (70.5%)	581 (62.3%)	165 (52.2%)	335 (68.4%)	296 (68.4%)	145 (67.8%)
<b>Osteoporosis Testing in Older Women (OTO)</b>									
	7,706 (66.5%)	765 (67.2%)	1,910 (68.8%)	2,085 (61.6%)	1,377 (79.1%)	458 (59.3%)	505 (61.9%)	352 (58.0%)	254 (71.6%)

Note: HOS Baseline Cohorts 16, 17, and 18 (n= 634,914). Chi-square test for row differences for groups with reportable HEDIS rates.

<sup>1</sup> HEDIS measures apply only to the respondents ≥ 65 years of age.

<sup>2</sup> Cohorts 16 and 17 only (n= 438,820).

Table 24 shows HEDIS rates for older NHOPI beneficiaries ( $\geq 65$  years of age). Among these older NHOPI beneficiaries, 63.9 percent reported discussing urinary incontinence with their providers, and 36.8 percent reported receiving treatment for urinary incontinence. For the two groups with sufficient response sizes to report the measures, 69.2 percent of Other Pacific Islanders discussed urinary incontinence with their providers, compared to 55.7 percent of Native Hawaiians. Rates for receiving treatment for urinary incontinence followed the same pattern, with 42.9 percent of Other Pacific Islanders reporting the measure, compared to 27.2 percent of Native Hawaiians.

Discussing physical activity was reported by 56.7 percent, and having received physical activity advice from a provider was reported by 57.1 percent of older NHOPI. Rates for discussing physical activity were not significantly different across reportable groups. However, rates for having received physical activity advice were significantly different, with 64.3 percent of Samoan, 58.7 percent of Other Pacific Islander, and 52.1 percent of Native Hawaiian beneficiaries reporting the measure.

Discussing fall risk was reported by 42.3 percent, and managing fall risk was reported by 67.1 percent of older NHOPI beneficiaries. For the two groups with sufficient response sizes to report the measures, 45.3 percent of Other Pacific Islanders discussed risk of falls with their providers, compared to 35.4 percent of Native Hawaiians. There were no significant differences between the two groups in the management of fall risk.

Osteoporosis testing was reported by 60.0 percent of NHOPI with sufficient response sizes. Rates between Other Pacific Islanders and Native Hawaiians were not significantly different.

**Table 24: Healthcare Effectiveness Data and Information Set (HEDIS)<sup>1</sup> estimates among a diverse group of NHOPI**

HEDIS <sup>1</sup>	Total NHOPI n (%)	Native Hawaiian n (%)	Guamanian or Chamorro n (%)	Samoan n (%)	Other Pacific Islander n (%)	Multi-Pacific Islander n (%)
<b>Management of Urinary Incontinence (MUI)<sup>2</sup></b>						
Discussing UI	191 (63.9%)	64 (55.7%)	NA	NA	127 (69.2%)	NA
Receiving UI Treatment	110 (36.8%)	31 (27.2%)	NA	NA	79 (42.9%)	NA
<b>Physical Activity in Older Adults (PAO)</b>						
Discussing PA	974 (56.7%)	282 (56.1%)	NA	64 (58.2%)	628 (56.8%)	NA
Advising PA	1,003(57.1%)	268 (52.1%)	NA	72 (64.3%)	663 (58.7%)	NA
<b>Fall Risk Management (FRM)</b>						
Discussing FR	424 (42.3%)	107 (35.4%)	NA	NA	317 (45.3%)	NA
Managing FR	489 (67.1%)	131 (66.2%)	NA	NA	358 (67.4%)	NA
<b>Osteoporosis Testing in Older Women (OTO)</b>						
	642 (60.0%)	180 (58.6%)	NA	NA	462 (64.3%)	NA

Note: HOS Baseline Cohorts 16, 17, and 18 (n= 634,914). NA indicates that the denominator for the measure is less than 100 respondents and the HEDIS rate is not calculated. Chi-square test for row differences for groups with reportable HEDIS rates.

<sup>1</sup> HEDIS measures apply only to the respondents  $\geq 65$  years of age.

<sup>2</sup> HOS Baseline Cohorts 16 and 17 only (n= 438,820).

## Conclusions

This report provides an enhanced understanding of the health needs of diverse groups of Asian and NHOPI Medicare beneficiaries. Since 2013, the Medicare HOS has been reporting disaggregated results for distinct Asian and NHOPI groups. The HOS collects sufficient data to analyze the health status of Asian and NHOPI Medicare Part C and D beneficiaries by these distinct groups. Appendix tables contained in this report provide additional information about the health status of Asian and NHOPI groups by gender.

Data from the 2013-2015 HOS *Baseline Cohorts 16, 17, and 18* demonstrate that within Asian and NHOPI groups there was significant variation in health status across many measures including: self-rated general health, positive depression screen, days with activity limitations, and prevalence of obesity for Asians and NHOPI. One-third of Asians (33.7 percent) reported fair or poor health, but rates ranged significantly from 24.5 percent for Japanese to 43.9 percent for Vietnamese beneficiaries. Nearly half of NHOPI beneficiaries (49.4 percent) rated their health as fair or poor with significant differences reported across NHOPI groups, ranging from 36.9 percent for Native Hawaiians to 55.7 percent for Other Pacific Islanders. While only 15.6 percent of Asians screened positive for depression, there were significant differences across groups. Fewer than one in ten Japanese had a positive depression screen (9.6 percent), but one in four (25.2 percent) Other Asians had a positive depression screen. Rates of positive depression screens for NHOPI beneficiaries (31.7 percent) also varied significantly, from 42.3 percent for Samoans to 19.6 percent for Native Hawaiians, and differed significantly across all NHOPI groups. Only 14.8 percent of Asians reported the highest category of activity limitations, but there were significant differences across Asian groups. Approximately one-third of NHOPI beneficiaries (32.2 percent) reported 14 or more days with activity, with rates ranging from 23.4 percent for Native Hawaiians to 35.7 percent for Other Pacific Islanders. The prevalence of obesity among NHOPI beneficiaries was 41.2 percent compared to only 10.0 percent among Asians. Rates of obesity for Asian groups varied significantly from 5.5 percent for Koreans to 16.6 percent for Other Asians. Significant variation in the distribution of obesity was also found across NHOPI respondents, ranging from 33.8 percent of Guamanian or Chamorro compared to 71.6 percent of Samoan beneficiaries.

The HHS demographic data collection standards provide additional granularity for Asian and NHOPI racial groups, Hispanic or Latino ethnicity, sex, primary language, and disability status collected in population health surveys. This added level of detail enhances the ability of public health professionals to identify and monitor the health and health care status of diverse population groups. The findings presented in this report demonstrate that stratifying health data for detailed Asian and NHOPI groups reveals unique and significant differences otherwise masked by aggregate analyses. The Medicare HOS provides CMS with an important data resource for tracking the health status of Medicare Advantage beneficiaries to address disparities in diverse groups. OMH welcomes feedback from stakeholders on these analyses. Feedback and any requests for more detailed analyses can be submitted to [HealthEquityTA@cms.hhs.gov](mailto:HealthEquityTA@cms.hhs.gov).



## Appendix Tables

### Health Status by Gender

Gender is a key social determinant of health in addition to race.<sup>55</sup> CMS administrative data on gender make it possible to stratify self-reported race by gender. Gender affects behavior and lifestyle, both of which can affect overall health.<sup>56</sup> This can be manifested in various ways, such as influencing the risk factors an individual is exposed to or the accessibility of healthcare.<sup>57</sup>

Gender differences in health status and use of health services are well documented. Women constitute a majority of beneficiaries in Medicare Advantage plans (note: beneficiaries with disabilities under 65 are majority male, and beneficiaries age 65 and older are majority female in the HOS sample), and differences in wealth, income, and education may influence the use and quality of care women receive relative to men.<sup>58, 59, 60, 61</sup> A gender gap exists as health differences continue to disproportionately affect female Medicare beneficiaries.<sup>62</sup> The following tables present HOS results on health status by gender for detailed groups of Asians and detailed groups of NHOPI. The results by gender for the HOS total are also provided for comparison to Asian and NHOPI respondents.

**Table 25: PCS and MCS (unadjusted) for Asian and NHOPI groups<sup>1</sup> by gender**

Race	PCS Mean (SD)	MCS Mean (SD)
HOS Total	38.0 (12.8)	50.4 (12.2)
Male	38.9 (12.6)	50.9 (12.0)
Female	37.3 (12.8)	50.1 (12.3)
Asian	40.2 (11.2)	49.6 (11.3)
Male	41.4 (10.7)	49.9 (11.1)
Female	39.1 (11.4)	49.3 (11.5)
Asian Indian	39.4 (11.2)	50.6 (11.7)
Male	41.2 (10.8)	51.6 (11.0)
Female	37.0 (11.2)	49.3 (12.4)
Chinese	40.4 (11.1)	48.6 (11.6)
Male	41.6 (10.6)	49.1 (11.1)
Female	39.2 (11.4)	48.1 (12.0)
Filipino	39.9 (11.2)	50.0 (10.8)
Male	41.0 (11.0)	50.0 (11.0)
Female	39.3 (11.3)	50.0 (10.7)
Japanese	42.0 (11.5)	52.4 (10.8)
Male	43.1 (11.0)	53.0 (10.3)
Female	41.3 (11.8)	52.1 (11.1)
Korean	42.8 (10.0)	49.1 (10.5)
Male	44.2 (9.4)	50.2 (10.0)
Female	41.3 (10.4)	48.2 (10.9)
Vietnamese	38.7 (10.4)	47.7 (10.7)
Male	40.0 (10.0)	47.8 (10.7)
Female	37.2 (10.8)	47.6 (10.6)
Other Asian	37.9 (11.5)	47.4 (12.2)
Male	39.4 (11.4)	47.9 (12.2)
Female	36.4 (11.5)	46.9 (12.2)
Multi-Asian	38.3 (11.3)	49.1 (11.8)
Male	38.4 (11.2)	48.5 (11.9)
Female	38.2 (11.4)	49.5 (11.8)
NHOPI	36.0 (11.8)	45.1 (13.1)
Male	36.4 (11.8)	45.1 (13.2)
Female	35.7 (11.8)	45.1 (13.1)
Native Hawaiian	38.6 (11.6)	48.2 (12.8)
Male	38.2 (11.4)	47.0 (13.5)
Female	39.1 (11.8)	49.3 (12.2)
Guamanian or Chamorro	37.7 (13.2)	47.3 (13.4)
Male	38.7 (11.7)	45.4 (15.0)
Female	36.7 (14.7)	49.2 (11.5)
Samoan	34.1 (11.7)	43.6 (11.6)
Male	33.6 (12.4)	43.0 (11.0)
Female	34.6 (11.0)	44.1 (12.2)
Other Pacific Islander	35.1 (11.7)	43.8 (13.2)
Male	36.0 (11.8)	44.4 (13.2)
Female	34.4 (11.5)	43.4 (13.2)
Multi-Pacific Islander	34.8 (11.1)	45.9 (12.6)
Male	33.7 (11.8)	46.5 (12.8)
Female	35.6 (10.6)	45.4 (12.5)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). The HOS health status measures are the physical component summary (PCS) score and the mental component summary (MCS) score. These scores are calculated from the VR-12 (Questions 1-7 in the 2015 HOS 3.0) which asks respondents about their usual activities and how they would rate their health.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 26: Self-rated general health for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Excellent to Good n (%)	Fair or Poor n (%)
<b>HOS Total</b>	<b>498,200 (67.0%)</b>	<b>245,363 (33.0%)</b>
Male	214,622 (67.8%)	101,784 (32.2%)
Female	283,578 (66.4%)	143,579 (33.6%)
<b>Asian</b>	<b>15,479 (66.3%)</b>	<b>7,855 (33.7%)</b>
Male	7,307 (68.5%)	3,355 (31.5%)
Female	8,172 (64.5%)	4,500 (35.5%)
Asian Indian	1,976 (67.6%)	947 (32.4%)
Male	1,187 (71.8%)	467 (28.2%)
Female	789 (62.2%)	480 (37.8%)
Chinese	3,505 (60.9%)	2,255 (39.1%)
Male	1,792 (64.3%)	996 (35.7%)
Female	1,713 (57.6%)	1,259 (42.4%)
Filipino	3,949 (69.9%)	1,702 (30.1%)
Male	1,424 (70.8%)	588 (29.2%)
Female	2,525 (69.4%)	1,114 (30.6%)
Japanese	2,356 (75.5%)	766 (24.5%)
Male	965 (77.3%)	284 (22.7%)
Female	1,391 (74.3%)	482 (25.7%)
Korean	1,240 (73.2%)	453 (26.8%)
Male	638 (76.4%)	197 (23.6%)
Female	602 (70.2%)	256 (29.8%)
Vietnamese	1,112 (56.1%)	869 (43.9%)
Male	629 (58.9%)	439 (41.1%)
Female	483 (52.9%)	430 (47.1%)
Other Asian	861 (58.1%)	620 (41.9%)
Male	465 (62.5%)	279 (37.5%)
Female	396 (53.7%)	341 (46.3%)
Multi-Asian	480 (66.4%)	243 (33.6%)
Male	207 (66.3%)	105 (33.7%)
Female	273 (66.4%)	138 (33.6%)
<b>NHOPI</b>	<b>1,411 (50.6%)</b>	<b>1,380 (49.4%)</b>
Male	628 (50.8%)	609 (49.2%)
Female	783 (50.4%)	771 (49.6%)
Native Hawaiian	452 (63.1%)	264 (36.9%)
Male	186 (56.0%)	146 (44.0%)
Female	266 (69.3%)	118 (30.7%)
Guamanian or Chamorro	37 (55.2%)	30 (44.8%)
Male	18 (52.9%)	16 (47.1%)
Female	19 (57.6%)	14 (42.4%)
Samoan	102 (55.1%)	83 (44.9%)
Male	46 (48.9%)	48 (51.1%)
Female	56 (61.5%)	35 (38.5%)
Other Pacific Islander	761 (44.3%)	958 (55.7%)
Male	353 (48.2%)	380 (51.8%)
Female	408 (41.4%)	578 (58.6%)
Multi-Pacific Islander	59 (56.7%)	45 (43.3%)
Male	25 (56.8%)	19 (43.2%)
Female	34 (56.7%)	26 (43.3%)

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 27: Physical health compared to one year ago for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Much Better to About the Same n (%)	Slightly Worse or Much Worse n (%)
<b>HOS Total</b>	<b>519,524 (71.0%)</b>	<b>212,062 (29.0%)</b>
Male	223,104 (71.8%)	87,799 (28.2%)
Female	296,420 (70.5%)	124,263 (29.5%)
<b>Asian</b>	<b>16,721 (71.4%)</b>	<b>6,697 (28.6%)</b>
Male	7,755 (72.5%)	2,945 (27.5%)
Female	8,966 (70.5%)	3,752 (29.5%)
Asian Indian	2,142 (73.3%)	780 (26.7%)
Male	1,268 (76.6%)	388 (23.4%)
Female	874 (69.0%)	392 (31.0%)
Chinese	3,711 (64.0%)	2,084 (36.0%)
Male	1,861 (66.3%)	946 (33.7%)
Female	1,850 (61.9%)	1,138 (38.1%)
Filipino	4,594 (80.6%)	1,105 (19.4%)
Male	1,664 (81.8%)	370 (18.2%)
Female	2,930 (79.9%)	735 (20.1%)
Japanese	2,408 (77.3%)	706 (22.7%)
Male	998 (80.4%)	243 (19.6%)
Female	1,410 (75.3%)	463 (24.7%)
Korean	1,151 (68.4%)	532 (31.6%)
Male	567 (68.2%)	264 (31.8%)
Female	584 (68.5%)	268 (31.5%)
Vietnamese	1,236 (62.0%)	758 (38.0%)
Male	683 (63.5%)	392 (36.5%)
Female	553 (60.2%)	366 (39.8%)
Other Asian	976 (65.2%)	520 (34.8%)
Male	510 (67.7%)	243 (32.3%)
Female	466 (62.7%)	277 (37.3%)
Multi-Asian	503 (70.3%)	212 (29.7%)
Male	204 (67.3%)	99 (32.7%)
Female	299 (72.6%)	113 (27.4%)
<b>NHOPI</b>	<b>1,879 (67.1%)</b>	<b>921 (32.9%)</b>
Male	838 (67.7%)	399 (32.3%)
Female	1,041 (66.6%)	522 (33.4%)
Native Hawaiian	530 (74.4%)	182 (25.6%)
Male	239 (72.0%)	93 (28.0%)
Female	291 (76.6%)	89 (23.4%)
Guamanian or Chamorro	50 (74.6%)	17 (25.4%)
Male	*	*
Female	*	*
Samoan	131 (70.8%)	54 (29.2%)
Male	68 (73.1%)	25 (26.9%)
Female	63 (68.5%)	29 (31.5%)
Other Pacific Islander	1,096 (63.3%)	636 (36.7%)
Male	472 (64.2%)	263 (35.8%)
Female	624 (62.6%)	373 (37.4%)
Multi-Pacific Islander	72 (69.2%)	32 (30.8%)
Male	30 (68.2%)	14 (31.8%)
Female	42 (70.0%)	18 (30.0%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 28: Mental health compared to one year ago for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Much Better to About the Same n (%)	Slightly Worse or Much Worse n (%)
<b>HOS Total</b>	<b>604,427 (83.9%)</b>	<b>116,277 (16.1%)</b>
Male	260,076 (84.7%)	47,121 (15.3%)
Female	344,351 (83.3%)	69,156 (16.7%)
<b>Asian</b>	<b>19,124 (82.2%)</b>	<b>4,135 (17.8%)</b>
Male	8,818 (82.8%)	1,827 (17.2%)
Female	10,306 (81.7%)	2,308 (18.3%)
Asian Indian	2,420 (83.6%)	474 (16.4%)
Male	1,410 (85.9%)	232 (14.1%)
Female	1,010 (80.7%)	242 (19.3%)
Chinese	4,489 (77.9%)	1,277 (22.1%)
Male	2,229 (79.8%)	563 (20.2%)
Female	2,260 (76.0%)	714 (24.0%)
Filipino	4,895 (86.9%)	740 (13.1%)
Male	1,757 (87.1%)	261 (12.9%)
Female	3,138 (86.8%)	479 (13.2%)
Japanese	2,728 (88.5%)	353 (11.5%)
Male	1,111 (90.2%)	121 (9.8%)
Female	1,617 (87.5%)	232 (12.5%)
Korean	1,360 (80.8%)	323 (19.2%)
Male	663 (80.2%)	164 (19.8%)
Female	697 (81.4%)	159 (18.6%)
Vietnamese	1,494 (75.0%)	498 (25.0%)
Male	819 (76.1%)	257 (23.9%)
Female	675 (73.7%)	241 (26.3%)
Other Asian	1,146 (77.0%)	343 (23.0%)
Male	580 (77.3%)	170 (22.7%)
Female	566 (76.6%)	173 (23.4%)
Multi-Asian	592 (82.3%)	127 (17.7%)
Male	249 (80.8%)	59 (19.2%)
Female	343 (83.5%)	68 (16.5%)
<b>NHOPI</b>	<b>2,121 (76.4%)</b>	<b>655 (23.6%)</b>
Male	922 (75.1%)	306 (24.9%)
Female	1,199 (77.5%)	349 (22.5%)
Native Hawaiian	573 (81.3%)	132 (18.7%)
Male	256 (78.3%)	71 (21.7%)
Female	317 (83.9%)	61 (16.1%)
Guamanian or Chamorro	*	*
Male	*	*
Female	*	*
Samoan	140 (76.1%)	44 (23.9%)
Male	69 (74.2%)	24 (25.8%)
Female	71 (78.0%)	20 (22.0%)
Other Pacific Islander	1,270 (74.0%)	447 (26.0%)
Male	534 (73.1%)	197 (26.9%)
Female	736 (74.6%)	250 (25.4%)
Multi-Pacific Islander	79 (77.5%)	23 (22.5%)
Male	*	*
Female	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 29: Pain interfering with daily activities for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Not at all to Somewhat n (%)	Quite a bit or Very much n (%)
<b>HOS Total</b>	<b>562,197 (78.4%)</b>	<b>154,568 (21.6%)</b>
Male	245,943 (80.8%)	58,615 (19.2%)
Female	316,254 (76.7%)	95,953 (23.3%)
<b>Asian</b>	<b>19,279 (83.6%)</b>	<b>3,774 (16.4%)</b>
Male	9,141 (86.6%)	1,413 (13.4%)
Female	10,138 (81.1%)	2,361 (18.9%)
Asian Indian	2,334 (80.1%)	580 (19.9%)
Male	1,406 (85.3%)	243 (14.7%)
Female	928 (73.4%)	337 (26.6%)
Chinese	4,859 (86.1%)	782 (13.9%)
Male	2,454 (89.7%)	282 (10.3%)
Female	2,405 (82.8%)	500 (17.2%)
Filipino	4,538 (80.9%)	1,069 (19.1%)
Male	1,678 (83.7%)	326 (16.3%)
Female	2,860 (79.4%)	743 (20.6%)
Japanese	2,790 (90.9%)	280 (9.1%)
Male	1,141 (92.5%)	93 (7.5%)
Female	1,649 (89.8%)	187 (10.2%)
Korean	1,470 (88.7%)	188 (11.3%)
Male	741 (91.1%)	72 (8.9%)
Female	729 (86.3%)	116 (13.7%)
Vietnamese	1,585 (80.7%)	380 (19.3%)
Male	886 (83.0%)	182 (17.0%)
Female	699 (77.9%)	198 (22.1%)
Other Asian	1,119 (75.6%)	361 (24.4%)
Male	586 (78.6%)	160 (21.4%)
Female	533 (72.6%)	201 (27.4%)
Multi-Asian	584 (81.3%)	134 (18.7%)
Male	249 (81.9%)	55 (18.1%)
Female	335 (80.9%)	79 (19.1%)
<b>NHOPI</b>	<b>1,816 (65.5%)</b>	<b>957 (34.5%)</b>
Male	815 (66.4%)	413 (33.6%)
Female	1,001 (64.8%)	544 (35.2%)
Native Hawaiian	542 (76.6%)	166 (23.4%)
Male	236 (71.3%)	95 (28.7%)
Female	306 (81.2%)	71 (18.8%)
Guamanian or Chamorro	51 (76.1%)	16 (23.9%)
Male	*	*
Female	*	*
Samoan	117 (63.6%)	67 (36.4%)
Male	57 (62.0%)	35 (38.0%)
Female	60 (65.2%)	32 (34.8%)
Other Pacific Islander	1,035 (60.6%)	674 (39.4%)
Male	467 (64.2%)	260 (35.8%)
Female	568 (57.8%)	414 (42.2%)
Multi-Pacific Islander	71 (67.6%)	34 (32.4%)
Male	30 (66.7%)	15 (33.3%)
Female	41 (68.3%)	19 (31.7%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 30: Positive depression screen for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Positive Depression Screen n (%)	Negative Depression Screen n (%)
<b>HOS Total</b>	<b>123,594 (17.8%)</b>	<b>572,641 (82.2%)</b>
Male	50,163 (16.9%)	246,695 (83.1%)
Female	73,431 (18.4%)	325,946 (81.6%)
<b>Asian</b>	<b>3,512 (15.6%)</b>	<b>19,036 (84.4%)</b>
Male	1,483 (14.3%)	8,874 (85.7%)
Female	2,029 (16.6%)	10,162 (83.4%)
Asian Indian	510 (18.1%)	2,314 (81.9%)
Male	248 (15.4%)	1,361 (84.6%)
Female	262 (21.6%)	953 (78.4%)
Chinese	729 (13.1%)	4,827 (86.9%)
Male	299 (11.1%)	2,395 (88.9%)
Female	430 (15.0%)	2,432 (85.0%)
Filipino	833 (15.2%)	4,649 (84.8%)
Male	306 (15.6%)	1,660 (84.4%)
Female	527 (15.0%)	2,989 (85.0%)
Japanese	290 (9.6%)	2,718 (90.4%)
Male	103 (8.4%)	1,116 (91.6%)
Female	187 (10.5%)	1,602 (89.5%)
Korean	229 (14.0%)	1,408 (86.0%)
Male	93 (11.5%)	716 (88.5%)
Female	136 (16.4%)	692 (83.6%)
Vietnamese	407 (21.3%)	1,505 (78.7%)
Male	206 (19.8%)	832 (80.2%)
Female	201 (23.0%)	673 (77.0%)
Other Asian	364 (25.2%)	1,081 (74.8%)
Male	165 (22.7%)	563 (77.3%)
Female	199 (27.8%)	518 (72.2%)
Multi-Asian	150 (21.9%)	534 (78.1%)
Male	63 (21.4%)	231 (78.6%)
Female	87 (22.3%)	303 (77.7%)
<b>NHOPI</b>	<b>854 (31.7%)</b>	<b>1,844 (68.3%)</b>
Male	384 (32.0%)	816 (68.0%)
Female	470 (31.4%)	1,028 (68.6%)
Native Hawaiian	135 (19.6%)	554 (80.4%)
Male	77 (23.6%)	249 (76.4%)
Female	58 (16.0%)	305 (84.0%)
Guamanian or Chamorro	21 (31.8%)	45 (68.2%)
Male	*	*
Female	*	*
Samoan	77 (42.3%)	105 (57.7%)
Male	38 (41.8%)	53 (58.2%)
Female	39 (42.9%)	52 (57.1%)
Other Pacific Islander	586 (35.2%)	1,080 (64.8%)
Male	246 (34.5%)	468 (65.5%)
Female	340 (35.7%)	612 (64.3%)
Multi-Pacific Islander	35 (36.8%)	60 (63.2%)
Male	*	*
Female	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. A positive depression screen is defined as scoring 3 points or greater on the sum total of the two depression questions.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 31: Feeling down, depressed, or hopeless in past two weeks (depression screen) for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Not at all n (%)	Several days n (%)	More than half the days n (%)	Nearly every day n (%)
<b>HOS Total</b>	<b>486,028 (68.7%)</b>	<b>132,249 (18.7%)</b>	<b>48,078 (6.8%)</b>	<b>40,946 (5.8%)</b>
Male	214,886 (71.4%)	50,827 (16.9%)	19,292 (6.4%)	16,051 (5.3%)
Female	271,142 (66.7%)	81,422 (20.0%)	28,786 (7.1%)	24,895 (6.1%)
<b>Asian</b>	<b>16,140 (70.7%)</b>	<b>4,120 (18.0%)</b>	<b>1,579 (6.9%)</b>	<b>1,000 (4.4%)</b>
Male	7,669 (73.4%)	1,709 (16.3%)	649 (6.2%)	427 (4.1%)
Female	8,471 (68.4%)	2,411 (19.5%)	930 (7.5%)	573 (4.6%)
Asian Indian	2,053 (71.6%)	428 (14.9%)	230 (8.0%)	156 (5.4%)
Male	1,236 (76.2%)	209 (12.9%)	112 (6.9%)	66 (4.1%)
Female	817 (65.7%)	219 (17.6%)	118 (9.5%)	90 (7.2%)
Chinese	3,965 (70.9%)	1,118 (20.0%)	348 (6.2%)	161 (2.9%)
Male	2,021 (74.7%)	484 (17.9%)	133 (4.9%)	69 (2.5%)
Female	1,944 (67.4%)	634 (22.0%)	215 (7.5%)	92 (3.2%)
Filipino	4,067 (73.2%)	859 (15.5%)	388 (7.0%)	245 (4.4%)
Male	1,454 (73.2%)	294 (14.8%)	140 (7.1%)	97 (4.9%)
Female	2,613 (73.1%)	565 (15.8%)	248 (6.9%)	148 (4.1%)
Japanese	2,414 (79.0%)	439 (14.4%)	107 (3.5%)	96 (3.1%)
Male	1,015 (82.3%)	145 (11.8%)	39 (3.2%)	35 (2.8%)
Female	1,399 (76.8%)	294 (16.1%)	68 (3.7%)	61 (3.3%)
Korean	1,118 (67.4%)	379 (22.9%)	102 (6.2%)	59 (3.6%)
Male	589 (71.9%)	170 (20.8%)	39 (4.8%)	21 (2.6%)
Female	529 (63.1%)	209 (24.9%)	63 (7.5%)	38 (4.5%)
Vietnamese	1,195 (61.5%)	451 (23.2%)	195 (10.0%)	102 (5.2%)
Male	685 (65.3%)	217 (20.7%)	98 (9.3%)	49 (4.7%)
Female	510 (57.0%)	234 (26.2%)	97 (10.9%)	53 (5.9%)
Other Asian	846 (57.9%)	322 (22.0%)	160 (11.0%)	133 (9.1%)
Male	457 (62.2%)	143 (19.5%)	74 (10.1%)	61 (8.3%)
Female	389 (53.6%)	179 (24.7%)	86 (11.8%)	72 (9.9%)
Multi-Asian	482 (68.6%)	124 (17.6%)	49 (7.0%)	48 (6.8%)
Male	212 (70.2%)	47 (15.6%)	14 (4.6%)	29 (9.6%)
Female	270 (67.3%)	77 (19.2%)	35 (8.7%)	19 (4.7%)
<b>NHOPI</b>	<b>1,404 (51.1%)</b>	<b>663 (24.1%)</b>	<b>346 (12.6%)</b>	<b>334 (12.2%)</b>
Male	635 (52.2%)	270 (22.2%)	152 (12.5%)	160 (13.1%)
Female	769 (50.3%)	393 (25.7%)	194 (12.7%)	174 (11.4%)
Native Hawaiian	451 (64.0%)	140 (19.9%)	56 (7.9%)	58 (8.2%)
Male	202 (61.4%)	59 (17.9%)	32 (9.7%)	36 (10.9%)
Female	249 (66.2%)	81 (21.5%)	24 (6.4%)	22 (5.9%)
Guamanian or Chamorro	38 (55.1%)	13 (18.8%)	*	*
Male	17 (50.0%)	*	*	*
Female	21 (60.0%)	*	*	*
Samoan	86 (46.7%)	42 (22.8%)	27 (14.7%)	29 (15.8%)
Male	39 (42.9%)	26 (28.6%)	11 (12.1%)	15 (16.5%)
Female	47 (50.5%)	16 (17.2%)	16 (17.2%)	14 (15.1%)
Other Pacific Islander	775 (45.9%)	438 (26.0%)	247 (14.6%)	227 (13.5%)
Male	350 (48.5%)	173 (24.0%)	100 (13.9%)	98 (13.6%)
Female	425 (44.0%)	265 (27.4%)	147 (15.2%)	129 (13.4%)
Multi-Pacific Islander	54 (52.9%)	30 (29.4%)	*	*
Male	27 (64.3%)	*	*	*
Female	27 (45.0%)	*	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.



**Table 32: Little interest or pleasure in doing things in past two weeks (depression screen) for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Not at all n (%)	Several days n (%)	More than half the days n (%)	Nearly every day n (%)
<b>HOS Total</b>	<b>443,396 (62.7%)</b>	<b>139,348 (19.7%)</b>	<b>64,334 (9.1%)</b>	<b>60,373 (8.5%)</b>
Male	193,756 (64.3%)	56,012 (18.6%)	26,582 (8.8%)	24,756 (8.2%)
Female	249,640 (61.4%)	83,336 (20.5%)	37,752 (9.3%)	35,617 (8.8%)
<b>Asian</b>	<b>14,432 (63.1%)</b>	<b>4,834 (21.1%)</b>	<b>2,106 (9.2%)</b>	<b>1,510 (6.6%)</b>
Male	6,925 (66.0%)	2,059 (19.6%)	855 (8.1%)	659 (6.3%)
Female	7,507 (60.6%)	2,775 (22.4%)	1,251 (10.1%)	851 (6.9%)
Asian Indian	1,834 (64.1%)	477 (16.7%)	305 (10.7%)	247 (8.6%)
Male	1,136 (69.8%)	223 (13.7%)	144 (8.8%)	125 (7.7%)
Female	698 (56.5%)	254 (20.6%)	161 (13.0%)	122 (9.9%)
Chinese	3,423 (60.7%)	1,444 (25.6%)	498 (8.8%)	275 (4.9%)
Male	1,753 (64.0%)	655 (23.9%)	212 (7.7%)	117 (4.3%)
Female	1,670 (57.5%)	789 (27.2%)	286 (9.9%)	158 (5.4%)
Filipino	3,663 (65.8%)	1,048 (18.8%)	498 (8.9%)	360 (6.5%)
Male	1,354 (67.8%)	334 (16.7%)	165 (8.3%)	143 (7.2%)
Female	2,309 (64.6%)	714 (20.0%)	333 (9.3%)	217 (6.1%)
Japanese	2,305 (75.7%)	427 (14.0%)	157 (5.2%)	157 (5.2%)
Male	960 (78.0%)	168 (13.6%)	52 (4.2%)	51 (4.1%)
Female	1,345 (74.1%)	259 (14.3%)	105 (5.8%)	106 (5.8%)
Korean	1,029 (62.3%)	402 (24.3%)	138 (8.4%)	83 (5.0%)
Male	549 (67.6%)	178 (21.9%)	53 (6.5%)	32 (3.9%)
Female	480 (57.1%)	224 (26.7%)	85 (10.1%)	51 (6.1%)
Vietnamese	1,008 (52.0%)	544 (28.1%)	244 (12.6%)	141 (7.3%)
Male	586 (55.8%)	265 (25.2%)	121 (11.5%)	79 (7.5%)
Female	422 (47.6%)	279 (31.5%)	123 (13.9%)	62 (7.0%)
Other Asian	773 (52.5%)	344 (23.4%)	188 (12.8%)	168 (11.4%)
Male	418 (56.3%)	165 (22.2%)	84 (11.3%)	75 (10.1%)
Female	355 (48.6%)	179 (24.5%)	104 (14.2%)	93 (12.7%)
Multi-Asian	397 (56.6%)	148 (21.1%)	78 (11.1%)	79 (11.3%)
Male	169 (56.1%)	71 (23.6%)	24 (8.0%)	37 (12.3%)
Female	228 (56.9%)	77 (19.2%)	54 (13.5%)	42 (10.5%)
<b>NHOPI</b>	<b>1,242 (45.1%)</b>	<b>676 (24.5%)</b>	<b>415 (15.1%)</b>	<b>423 (15.3%)</b>
Male	568 (46.5%)	287 (23.5%)	178 (14.6%)	188 (15.4%)
Female	674 (43.9%)	389 (25.3%)	237 (15.4%)	235 (15.3%)
Native Hawaiian	407 (58.5%)	151 (21.7%)	74 (10.6%)	64 (9.2%)
Male	179 (54.6%)	77 (23.5%)	35 (10.7%)	37 (11.3%)
Female	228 (62.0%)	74 (20.1%)	39 (10.6%)	27 (7.3%)
Guamanian or Chamorro	34 (51.5%)	16 (24.2%)	*	*
Male	15 (48.4%)	*	*	*
Female	19 (54.3%)	*	*	*
Samoan	65 (35.1%)	45 (24.3%)	29 (15.7%)	46 (24.9%)
Male	33 (35.5%)	21 (22.6%)	16 (17.2%)	23 (24.7%)
Female	32 (34.8%)	24 (26.1%)	13 (14.1%)	23 (25.0%)
Other Pacific Islander	694 (40.5%)	445 (26.0%)	290 (16.9%)	283 (16.5%)
Male	319 (43.8%)	175 (24.0%)	118 (16.2%)	117 (16.0%)
Female	375 (38.1%)	270 (27.5%)	172 (17.5%)	166 (16.9%)
Multi-Pacific Islander	42 (43.3%)	*	14 (14.4%)	*
Male	22 (55.0%)	*	*	*
Female	20 (35.1%)	*	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 33: Pain interfering with socializing for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Never to Sometimes n (%)	Often or Always n (%)
HOS Total	621,040 (86.8%)	94,150 (13.2%)
Male	269,061 (88.5%)	34,879 (11.5%)
Female	351,979 (85.6%)	59,271 (14.4%)
Asian	20,567 (89.4%)	2,449 (10.6%)
Male	9,614 (91.1%)	941 (8.9%)
Female	10,953 (87.9%)	1,508 (12.1%)
Asian Indian	2,486 (85.3%)	430 (14.7%)
Male	1,464 (88.8%)	185 (11.2%)
Female	1,022 (80.7%)	245 (19.3%)
Chinese	5,143 (91.4%)	482 (8.6%)
Male	2,562 (93.6%)	176 (6.4%)
Female	2,581 (89.4%)	306 (10.6%)
Filipino	4,973 (88.9%)	624 (11.1%)
Male	1,810 (90.3%)	195 (9.7%)
Female	3,163 (88.1%)	429 (11.9%)
Japanese	2,897 (94.5%)	169 (5.5%)
Male	1,173 (94.7%)	66 (5.3%)
Female	1,724 (94.4%)	103 (5.6%)
Korean	1,511 (91.1%)	148 (8.9%)
Male	758 (93.0%)	57 (7.0%)
Female	753 (89.2%)	91 (10.8%)
Vietnamese	1,708 (87.1%)	254 (12.9%)
Male	949 (89.4%)	113 (10.6%)
Female	759 (84.3%)	141 (15.7%)
Other Asian	1,218 (82.4%)	260 (17.6%)
Male	627 (84.5%)	115 (15.5%)
Female	591 (80.3%)	145 (19.7%)
Multi-Asian	631 (88.5%)	82 (11.5%)
Male	271 (88.9%)	34 (11.1%)
Female	360 (88.2%)	48 (11.8%)
NHOPI	2,100 (75.5%)	682 (24.5%)
Male	943 (76.8%)	285 (23.2%)
Female	1,157 (74.5%)	397 (25.5%)
Native Hawaiian	606 (85.6%)	102 (14.4%)
Male	276 (83.6%)	54 (16.4%)
Female	330 (87.3%)	48 (12.7%)
Guamanian or Chamorro	57 (82.6%)	12 (17.4%)
Male	*	*
Female	*	*
Samoan	134 (73.2%)	49 (26.8%)
Male	68 (74.7%)	23 (25.3%)
Female	66 (71.7%)	26 (28.3%)
Other Pacific Islander	1,222 (71.0%)	498 (29.0%)
Male	537 (73.6%)	193 (26.4%)
Female	685 (69.2%)	305 (30.8%)
Multi-Pacific Islander	81 (79.4%)	21 (20.6%)
Male	*	*
Female	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 34: Top seven chronic conditions for Asian and NHOPI groups<sup>1</sup> by gender**

Race	Hypertension n (%)	Arthritis - Hip or Knee n (%)	Arthritis - Hand or Wrist n (%)	Diabetes n (%)	Sciatica n (%)	Osteoporosis n (%)	Depression n (%)
<b>HOS Total</b>	<b>477,813 (66.2%)</b>	<b>315,244 (44.0%)</b>	<b>262,354 (36.7%)</b>	<b>203,748 (28.3%)</b>	<b>187,873 (26.3%)</b>	<b>140,240 (19.7%)</b>	<b>181,862 (25.4%)</b>
Male	200,921 (65.6%)	111,840 (36.7%)	91,125 (29.9%)	92,705 (30.3%)	74,476 (24.5%)	19,427 (6.4%)	64,464 (21.2%)
Female	276,892 (66.7%)	203,404 (49.4%)	171,229 (41.7%)	111,043 (26.8%)	113,397 (27.7%)	120,813 (29.5%)	117,398 (28.5%)
<b>Asian</b>	<b>15,163 (65.1%)</b>	<b>8,765 (38.0%)</b>	<b>7,329 (31.9%)</b>	<b>7,698 (33.2%)</b>	<b>5,451 (23.8%)</b>	<b>6,079 (26.6%)</b>	<b>3,555 (15.4%)</b>
Male	6,798 (63.9%)	3,245 (30.8%)	2,537 (24.0%)	3,758 (35.5%)	2,160 (20.6%)	1,214 (11.6%)	1,413 (13.4%)
Female	8,365 (66.1%)	5,520 (44.1%)	4,792 (38.5%)	3,940 (31.3%)	3,291 (26.4%)	4,865 (39.2%)	2,142 (17.1%)
Asian Indian	1,843 (62.9%)	1,262 (43.4%)	877 (30.3%)	1,230 (42.1%)	720 (25.0%)	601 (20.8%)	495 (17.0%)
Male	1,011 (61.3%)	579 (35.2%)	385 (23.5%)	737 (44.6%)	350 (21.4%)	138 (8.5%)	241 (14.7%)
Female	832 (65.1%)	683 (54.0%)	492 (39.2%)	493 (38.7%)	370 (29.6%)	463 (37.0%)	254 (20.1%)
Chinese	3,568 (62.2%)	2,169 (38.4%)	1,747 (31.0%)	1,597 (28.2%)	1,363 (24.2%)	1,913 (34.1%)	657 (11.6%)
Male	1,736 (62.6%)	872 (31.9%)	640 (23.4%)	812 (29.5%)	531 (19.4%)	517 (19.1%)	246 (8.9%)
Female	1,832 (61.9%)	1,297 (44.4%)	1,107 (38.1%)	785 (27.0%)	832 (28.7%)	1,396 (48.1%)	411 (14.0%)
Filipino	4,227 (74.4%)	2,445 (43.5%)	2,114 (37.7%)	2,099 (37.2%)	1,380 (24.7%)	1,420 (25.4%)	813 (14.4%)
Male	1,457 (71.8%)	697 (34.5%)	593 (29.4%)	812 (40.2%)	416 (20.8%)	145 (7.2%)	296 (14.7%)
Female	2,770 (75.9%)	1,748 (48.6%)	1,521 (42.4%)	1,287 (35.6%)	964 (26.9%)	1,275 (35.6%)	517 (14.3%)
Japanese	1,915 (61.7%)	824 (26.7%)	807 (26.2%)	847 (27.3%)	483 (15.7%)	791 (25.8%)	366 (11.8%)
Male	780 (62.6%)	253 (20.4%)	230 (18.4%)	383 (30.7%)	198 (16.0%)	82 (6.6%)	119 (9.6%)
Female	1,135 (61.1%)	571 (31.0%)	577 (31.4%)	464 (24.9%)	285 (15.4%)	709 (38.8%)	247 (13.3%)
Korean	888 (53.0%)	451 (27.1%)	412 (24.9%)	431 (25.7%)	313 (18.9%)	346 (20.9%)	243 (14.6%)
Male	428 (52.3%)	169 (20.8%)	128 (15.8%)	238 (29.1%)	128 (15.8%)	64 (7.9%)	76 (9.4%)
Female	460 (53.6%)	282 (33.2%)	284 (33.6%)	193 (22.5%)	185 (21.9%)	282 (33.5%)	167 (19.6%)
Vietnamese	1,341 (68.0%)	740 (37.8%)	629 (32.2%)	620 (31.4%)	582 (30.1%)	517 (27.1%)	421 (21.6%)
Male	731 (68.8%)	329 (31.2%)	271 (25.7%)	341 (32.1%)	277 (26.7%)	155 (15.1%)	189 (18.1%)
Female	610 (67.1%)	411 (45.4%)	358 (39.7%)	279 (30.6%)	305 (34.0%)	362 (41.0%)	232 (25.7%)
Other Asian	925 (62.6%)	595 (40.5%)	517 (35.2%)	580 (39.3%)	429 (29.4%)	307 (21.1%)	420 (28.6%)
Male	466 (62.6%)	254 (34.3%)	219 (29.3%)	296 (39.9%)	188 (25.6%)	71 (9.7%)	191 (25.9%)
Female	459 (62.7%)	341 (46.7%)	298 (41.3%)	284 (38.7%)	241 (33.2%)	236 (32.6%)	229 (31.3%)
Multi-Asian	456 (63.7%)	279 (39.1%)	226 (31.8%)	294 (41.1%)	181 (25.5%)	184 (26.2%)	140 (19.5%)
Male	189 (62.2%)	92 (30.3%)	71 (23.4%)	139 (45.6%)	72 (23.7%)	42 (14.0%)	55 (18.1%)
Female	267 (64.8%)	187 (45.6%)	155 (38.1%)	155 (37.8%)	109 (26.8%)	142 (35.3%)	85 (20.5%)
<b>NHOPI</b>	<b>2,017 (72.3%)</b>	<b>1,335 (48.1%)</b>	<b>1,142 (41.2%)</b>	<b>1,178 (42.3%)</b>	<b>987 (35.9%)</b>	<b>565 (20.6%)</b>	<b>936 (33.7%)</b>
Male	874 (70.8%)	510 (41.7%)	432 (35.4%)	550 (44.6%)	415 (34.0%)	120 (9.8%)	408 (33.0%)
Female	1,143 (73.5%)	825 (53.2%)	710 (45.8%)	628 (40.5%)	572 (37.4%)	445 (29.1%)	528 (34.3%)
Native Hawaiian	519 (73.0%)	237 (33.2%)	240 (33.5%)	278 (39.0%)	181 (25.6%)	97 (13.7%)	163 (23.0%)
Male	239 (72.0%)	101 (30.6%)	95 (28.8%)	131 (39.3%)	83 (25.4%)	21 (6.4%)	81 (24.3%)
Female	280 (73.9%)	136 (35.5%)	145 (37.6%)	147 (38.7%)	98 (25.9%)	76 (20.1%)	82 (21.9%)
Guamanian or Chamorro	43 (63.2%)	26 (38.8%)	26 (37.7%)	28 (41.2%)	19 (27.9%)	11 (16.2%)	22 (31.9%)
Male	19 (55.9%)	11 (33.3%)	11 (32.4%)	15 (45.5%)	*	*	*
Female	24 (70.6%)	15 (44.1%)	15 (42.9%)	13 (37.1%)	*	*	*
Samoan	132 (71.7%)	100 (54.3%)	75 (41.7%)	82 (45.3%)	72 (40.2%)	28 (15.6%)	52 (28.3%)
Male	61 (66.3%)	48 (51.1%)	34 (37.4%)	43 (46.2%)	41 (44.6%)	*	30 (32.6%)
Female	71 (77.2%)	52 (57.8%)	41 (46.1%)	39 (44.3%)	31 (35.6%)	*	22 (23.9%)
Other Pacific Islander	1,245 (72.2%)	927 (54.2%)	761 (44.6%)	748 (43.5%)	685 (40.4%)	410 (24.2%)	661 (38.7%)
Male	520 (70.9%)	330 (45.5%)	273 (37.7%)	343 (46.9%)	267 (36.9%)	81 (11.2%)	269 (36.7%)
Female	725 (73.1%)	597 (60.6%)	488 (49.7%)	405 (40.9%)	418 (43.0%)	329 (33.9%)	392 (40.1%)
Multi-Pacific Islander	78 (75.7%)	45 (44.6%)	40 (39.6%)	42 (41.2%)	30 (29.7%)	*	38 (37.3%)
Male	35 (79.5%)	20 (47.6%)	19 (44.2%)	18 (40.9%)	16 (36.4%)	*	16 (37.2%)
Female	43 (72.9%)	25 (42.4%)	21 (36.2%)	24 (41.4%)	14 (24.6%)	13 (23.2%)	22 (37.3%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Total for "yes" responses reported for each chronic condition.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 35: Number of chronic conditions for Asian and NHOPI groups<sup>1</sup> by gender**

Race	No conditions n (%)	One condition n (%)	Two or three conditions n (%)	Four or more conditions n (%)
<b>HOS Total</b>	<b>58,762 (8.1%)</b>	<b>107,958 (14.8%)</b>	<b>249,448 (34.2%)</b>	<b>312,527 (42.9%)</b>
Male	30,058 (9.7%)	51,848 (16.8%)	108,664 (35.1%)	118,642 (38.4%)
Female	28,704 (6.8%)	56,110 (13.4%)	140,784 (33.6%)	193,885 (46.2%)
<b>Asian</b>	<b>2,726 (11.6%)</b>	<b>4,345 (18.4%)</b>	<b>8,492 (36.0%)</b>	<b>8,026 (34.0%)</b>
Male	1,543 (14.3%)	2,254 (20.9%)	3,844 (35.7%)	3,133 (29.1%)
Female	1,183 (9.2%)	2,091 (16.3%)	4,648 (36.3%)	4,893 (38.2%)
Asian Indian	300 (10.1%)	503 (17.0%)	1,097 (37.1%)	1,057 (35.7%)
Male	203 (12.1%)	331 (19.8%)	616 (36.9%)	521 (31.2%)
Female	97 (7.5%)	172 (13.4%)	481 (37.4%)	536 (41.7%)
Chinese	775 (13.3%)	1,163 (20.0%)	1,950 (33.5%)	1,933 (33.2%)
Male	447 (15.9%)	638 (22.7%)	947 (33.6%)	784 (27.8%)
Female	328 (10.9%)	525 (17.5%)	1,003 (33.4%)	1,149 (38.2%)
Filipino	448 (7.8%)	881 (15.3%)	2,184 (38.0%)	2,230 (38.8%)
Male	218 (10.6%)	343 (16.7%)	791 (38.5%)	700 (34.1%)
Female	230 (6.2%)	538 (14.6%)	1,393 (37.7%)	1,530 (41.5%)
Japanese	421 (13.4%)	651 (20.7%)	1,207 (38.4%)	862 (27.4%)
Male	197 (15.7%)	291 (23.1%)	488 (38.8%)	282 (22.4%)
Female	224 (11.9%)	360 (19.1%)	719 (38.2%)	580 (30.8%)
Korean	312 (18.5%)	397 (23.5%)	605 (35.8%)	375 (22.2%)
Male	184 (22.3%)	224 (27.1%)	277 (33.5%)	141 (17.1%)
Female	128 (14.8%)	173 (20.0%)	328 (38.0%)	234 (27.1%)
Vietnamese	221 (11.0%)	381 (19.0%)	711 (35.4%)	693 (34.5%)
Male	146 (13.5%)	236 (21.8%)	375 (34.6%)	326 (30.1%)
Female	75 (8.1%)	145 (15.7%)	336 (36.4%)	367 (39.8%)
Other Asian	167 (11.1%)	254 (16.9%)	482 (32.1%)	597 (39.8%)
Male	98 (13.0%)	146 (19.3%)	239 (31.7%)	272 (36.0%)
Female	69 (9.3%)	108 (14.5%)	243 (32.6%)	325 (43.6%)
Multi-Asian	82 (11.2%)	115 (15.7%)	256 (35.0%)	279 (38.1%)
Male	50 (16.0%)	45 (14.4%)	111 (35.5%)	107 (34.2%)
Female	32 (7.6%)	70 (16.7%)	145 (34.6%)	172 (41.1%)
<b>NHOPI</b>	<b>210 (7.4%)</b>	<b>337 (11.9%)</b>	<b>862 (30.4%)</b>	<b>1,427 (50.3%)</b>
Male	113 (9.0%)	160 (12.8%)	409 (32.7%)	570 (45.5%)
Female	97 (6.1%)	177 (11.2%)	453 (28.6%)	857 (54.1%)
Native Hawaiian	73 (10.1%)	94 (13.0%)	255 (35.2%)	302 (41.7%)
Male	42 (12.5%)	44 (13.1%)	116 (34.5%)	134 (39.9%)
Female	31 (8.0%)	50 (12.9%)	139 (35.8%)	168 (43.3%)
Guamanian or Chamorro	*	*	28 (40.6%)	28 (40.6%)
Male	*	*	15 (44.1%)	12 (35.3%)
Female	*	*	13 (37.1%)	16 (45.7%)
Samoan	17 (9.0%)	14 (7.4%)	62 (33.0%)	95 (50.5%)
Male	*	*	27 (28.7%)	50 (53.2%)
Female	*	*	35 (37.2%)	45 (47.9%)
Other Pacific Islander	108 (6.2%)	211 (12.1%)	484 (27.6%)	948 (54.1%)
Male	54 (7.3%)	100 (13.5%)	240 (32.3%)	349 (47.0%)
Female	54 (5.4%)	111 (11.0%)	244 (24.2%)	599 (59.4%)
Multi-Pacific Islander	*	*	33 (31.7%)	54 (51.9%)
Male	*	*	11 (24.4%)	25 (55.6%)
Female	*	*	22 (37.3%)	29 (49.2%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent. Total for "yes" responses reported for each chronic condition. Number of chronic conditions based on 15 measures collected by the HOS.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 36: Days with activity limitations during the past 30 days for Asian and NHOPI groups<sup>1</sup> by gender**

Race	None n (%)	1-13 Unhealthy Days n (%)	14-30 Unhealthy Days n (%)
<b>HOS Total</b>	<b>443,903 (63.7%)</b>	<b>115,147 (16.5%)</b>	<b>138,184 (19.8%)</b>
Male	194,688 (65.4%)	46,485 (15.6%)	56,374 (18.9%)
Female	249,215 (62.4%)	68,662 (17.2%)	81,810 (20.5%)
<b>Asian</b>	<b>15,173 (66.9%)</b>	<b>4,148 (18.3%)</b>	<b>3,355 (14.8%)</b>
Male	7,211 (69.4%)	1,846 (17.8%)	1,338 (12.9%)
Female	7,962 (64.8%)	2,302 (18.7%)	2,017 (16.4%)
Asian Indian	1,902 (67.1%)	479 (16.9%)	455 (16.0%)
Male	1,158 (72.0%)	239 (14.9%)	211 (13.1%)
Female	744 (60.6%)	240 (19.5%)	244 (19.9%)
Chinese	3,963 (69.9%)	956 (16.9%)	749 (13.2%)
Male	2,012 (73.3%)	454 (16.5%)	279 (10.2%)
Female	1,951 (66.7%)	502 (17.2%)	470 (16.1%)
Filipino	3,616 (66.3%)	1,028 (18.9%)	808 (14.8%)
Male	1,315 (66.9%)	369 (18.8%)	281 (14.3%)
Female	2,301 (66.0%)	659 (18.9%)	527 (15.1%)
Japanese	2,296 (76.3%)	363 (12.1%)	352 (11.7%)
Male	934 (77.5%)	153 (12.7%)	118 (9.8%)
Female	1,362 (75.4%)	210 (11.6%)	234 (13.0%)
Korean	1,099 (67.2%)	350 (21.4%)	186 (11.4%)
Male	568 (71.2%)	157 (19.7%)	73 (9.1%)
Female	531 (63.4%)	193 (23.1%)	113 (13.5%)
Vietnamese	1,093 (56.5%)	524 (27.1%)	318 (16.4%)
Male	635 (60.5%)	260 (24.8%)	155 (14.8%)
Female	458 (51.8%)	264 (29.8%)	163 (18.4%)
Other Asian	783 (53.8%)	299 (20.5%)	373 (25.6%)
Male	416 (56.7%)	149 (20.3%)	169 (23.0%)
Female	367 (50.9%)	150 (20.8%)	204 (28.3%)
Multi-Asian	421 (61.5%)	149 (21.8%)	114 (16.7%)
Male	173 (59.7%)	65 (22.4%)	52 (17.9%)
Female	248 (62.9%)	84 (21.3%)	62 (15.7%)
<b>NHOPI</b>	<b>1,289 (48.1%)</b>	<b>527 (19.7%)</b>	<b>863 (32.2%)</b>
Male	553 (46.7%)	235 (19.9%)	395 (33.4%)
Female	736 (49.2%)	292 (19.5%)	468 (31.3%)
Native Hawaiian	407 (59.1%)	121 (17.6%)	161 (23.4%)
Male	170 (52.6%)	66 (20.4%)	87 (26.9%)
Female	237 (64.8%)	55 (15.0%)	74 (20.2%)
Guamanian or Chamorro	34 (53.1%)	*	*
Male	15 (50.0%)	*	*
Female	19 (55.9%)	*	*
Samoan	77 (43.3%)	39 (21.9%)	62 (34.8%)
Male	35 (39.3%)	22 (24.7%)	32 (36.0%)
Female	42 (47.2%)	17 (19.1%)	30 (33.7%)
Other Pacific Islander	723 (43.9%)	336 (20.4%)	588 (35.7%)
Male	314 (45.0%)	135 (19.3%)	249 (35.7%)
Female	409 (43.1%)	201 (21.2%)	339 (35.7%)
Multi-Pacific Islander	48 (47.5%)	22 (21.8%)	31 (30.7%)
Male	19 (44.2%)	*	*
Female	29 (50.0%)	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 37: Physically unhealthy days during the past 30 days for Asian and NHOPI groups<sup>1</sup> by gender**

Race	None n (%)	1-13 Unhealthy Days n (%)	14-30 Unhealthy Days n (%)
<b>HOS Total</b>	<b>340,788 (49.0%)</b>	<b>174,850 (25.1%)</b>	<b>179,737 (25.8%)</b>
Male	154,384 (52.0%)	70,019 (23.6%)	72,530 (24.4%)
Female	186,404 (46.8%)	104,831 (26.3%)	107,207 (26.9%)
<b>Asian</b>	<b>12,157 (53.8%)</b>	<b>6,246 (27.6%)</b>	<b>4,187 (18.5%)</b>
Male	5,979 (57.7%)	2,689 (25.9%)	1,698 (16.4%)
Female	6,178 (50.5%)	3,557 (29.1%)	2,489 (20.4%)
Asian Indian	1,500 (53.1%)	737 (26.1%)	586 (20.8%)
Male	954 (59.6%)	383 (23.9%)	264 (16.5%)
Female	546 (44.7%)	354 (29.0%)	322 (26.4%)
Chinese	3,155 (55.9%)	1,508 (26.7%)	984 (17.4%)
Male	1,647 (60.3%)	680 (24.9%)	405 (14.8%)
Female	1,508 (51.7%)	828 (28.4%)	579 (19.9%)
Filipino	2,845 (52.3%)	1,603 (29.5%)	995 (18.3%)
Male	1,099 (56.0%)	531 (27.1%)	332 (16.9%)
Female	1,746 (50.2%)	1,072 (30.8%)	663 (19.0%)
Japanese	1,935 (65.0%)	597 (20.1%)	443 (14.9%)
Male	804 (67.1%)	236 (19.7%)	158 (13.2%)
Female	1,131 (63.6%)	361 (20.3%)	285 (16.0%)
Korean	946 (57.9%)	446 (27.3%)	242 (14.8%)
Male	506 (62.9%)	204 (25.4%)	94 (11.7%)
Female	440 (53.0%)	242 (29.2%)	148 (17.8%)
Vietnamese	822 (42.3%)	737 (37.9%)	386 (19.8%)
Male	475 (45.2%)	382 (36.3%)	195 (18.5%)
Female	347 (38.9%)	355 (39.8%)	191 (21.4%)
Other Asian	631 (43.8%)	409 (28.4%)	402 (27.9%)
Male	347 (47.7%)	195 (26.8%)	185 (25.4%)
Female	284 (39.7%)	214 (29.9%)	217 (30.3%)
Multi-Asian	323 (47.4%)	209 (30.7%)	149 (21.9%)
Male	147 (50.7%)	78 (26.9%)	65 (22.4%)
Female	176 (45.0%)	131 (33.5%)	84 (21.5%)
<b>NHOPI</b>	<b>1,036 (38.6%)</b>	<b>670 (25.0%)</b>	<b>977 (36.4%)</b>
Male	463 (39.1%)	284 (24.0%)	437 (36.9%)
Female	573 (38.2%)	386 (25.8%)	540 (36.0%)
Native Hawaiian	338 (49.7%)	163 (24.0%)	179 (26.3%)
Male	144 (45.3%)	74 (23.3%)	100 (31.4%)
Female	194 (53.6%)	89 (24.6%)	79 (21.8%)
Guamanian or Chamorro	27 (42.2%)	15 (23.4%)	22 (34.4%)
Male	13 (41.9%)	*	*
Female	14 (42.4%)	*	*
Samoan	61 (34.1%)	49 (27.4%)	69 (38.5%)
Male	29 (31.9%)	23 (25.3%)	39 (42.9%)
Female	32 (36.4%)	26 (29.5%)	30 (34.1%)
Other Pacific Islander	572 (34.4%)	417 (25.1%)	672 (40.5%)
Male	259 (36.9%)	169 (24.1%)	273 (38.9%)
Female	313 (32.6%)	248 (25.8%)	399 (41.6%)
Multi-Pacific Islander	38 (38.4%)	26 (26.3%)	35 (35.4%)
Male	*	*	15 (34.9%)
Female	*	*	20 (35.7%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 38: Mentally unhealthy days during the past 30 days for Asian and NHOPI groups<sup>1</sup> by gender**

Race	None n (%)	1-13 Unhealthy Days n (%)	14-30 Unhealthy Days n (%)
<b>HOS Total</b>	<b>427,906 (61.3%)</b>	<b>150,235 (21.5%)</b>	<b>119,620 (17.1%)</b>
Male	194,434 (65.4%)	56,224 (18.9%)	46,714 (15.7%)
Female	233,472 (58.3%)	94,011 (23.5%)	72,906 (18.2%)
<b>Asian</b>	<b>14,575 (64.4%)</b>	<b>5,029 (22.2%)</b>	<b>3,011 (13.3%)</b>
Male	7,019 (67.8%)	2,109 (20.4%)	1,225 (11.8%)
Female	7,556 (61.6%)	2,920 (23.8%)	1,786 (14.6%)
<b>Asian Indian</b>	<b>1,939 (68.6%)</b>	<b>481 (17.0%)</b>	<b>405 (14.3%)</b>
Male	1,177 (73.5%)	236 (14.7%)	188 (11.7%)
Female	762 (62.3%)	245 (20.0%)	217 (17.7%)
<b>Chinese</b>	<b>3,586 (63.3%)</b>	<b>1,314 (23.2%)</b>	<b>763 (13.5%)</b>
Male	1,830 (66.9%)	607 (22.2%)	299 (10.9%)
Female	1,756 (60.0%)	707 (24.2%)	464 (15.9%)
<b>Filipino</b>	<b>3,623 (66.4%)</b>	<b>1,198 (21.9%)</b>	<b>637 (11.7%)</b>
Male	1,320 (67.5%)	399 (20.4%)	237 (12.1%)
Female	2,303 (65.8%)	799 (22.8%)	400 (11.4%)
<b>Japanese</b>	<b>2,189 (73.6%)</b>	<b>497 (16.7%)</b>	<b>289 (9.7%)</b>
Male	940 (78.9%)	161 (13.5%)	90 (7.6%)
Female	1,249 (70.0%)	336 (18.8%)	199 (11.2%)
<b>Korean</b>	<b>1,065 (65.2%)</b>	<b>387 (23.7%)</b>	<b>181 (11.1%)</b>
Male	569 (70.9%)	163 (20.3%)	71 (8.8%)
Female	496 (59.8%)	224 (27.0%)	110 (13.3%)
<b>Vietnamese</b>	<b>1,052 (54.0%)</b>	<b>595 (30.5%)</b>	<b>302 (15.5%)</b>
Male	621 (58.9%)	287 (27.2%)	146 (13.9%)
Female	431 (48.2%)	308 (34.4%)	156 (17.4%)
<b>Other Asian</b>	<b>740 (51.4%)</b>	<b>383 (26.6%)</b>	<b>316 (22.0%)</b>
Male	395 (54.4%)	187 (25.8%)	144 (19.8%)
Female	345 (48.4%)	196 (27.5%)	172 (24.1%)
<b>Multi-Asian</b>	<b>381 (56.6%)</b>	<b>174 (25.9%)</b>	<b>118 (17.5%)</b>
Male	167 (58.4%)	69 (24.1%)	50 (17.5%)
Female	214 (55.3%)	105 (27.1%)	68 (17.6%)
<b>NHOPI</b>	<b>1,271 (47.5%)</b>	<b>638 (23.9%)</b>	<b>764 (28.6%)</b>
Male	565 (47.9%)	270 (22.9%)	344 (29.2%)
Female	706 (47.3%)	368 (24.6%)	420 (28.1%)
<b>Native Hawaiian</b>	<b>386 (56.8%)</b>	<b>149 (21.9%)</b>	<b>145 (21.3%)</b>
Male	173 (54.7%)	62 (19.6%)	81 (25.6%)
Female	213 (58.5%)	87 (23.9%)	64 (17.6%)
<b>Guamanian or Chamorro</b>	<b>33 (51.6%)</b>	<b>13 (20.3%)</b>	<b>18 (28.1%)</b>
Male	13 (43.3%)	*	*
Female	20 (58.8%)	*	*
<b>Samoan</b>	<b>73 (41.5%)</b>	<b>50 (28.4%)</b>	<b>53 (30.1%)</b>
Male	31 (34.8%)	31 (34.8%)	27 (30.3%)
Female	42 (48.3%)	19 (21.8%)	26 (29.9%)
<b>Other Pacific Islander</b>	<b>733 (44.4%)</b>	<b>401 (24.3%)</b>	<b>517 (31.3%)</b>
Male	327 (46.7%)	157 (22.4%)	216 (30.9%)
Female	406 (42.7%)	244 (25.7%)	301 (31.7%)
<b>Multi-Pacific Islander</b>	<b>46 (45.1%)</b>	<b>25 (24.5%)</b>	<b>31 (30.4%)</b>
Male	21 (47.7%)	11 (25.0%)	12 (27.3%)
Female	25 (43.1%)	14 (24.1%)	19 (32.8%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 39: BMI<sup>1</sup> categories for Asian and NHOPI groups<sup>2</sup> by gender**

Race	Underweight (<18.50) n (%)	Normal (18.50-24.99) n (%)	Overweight (25-29.99) n (%)	Obese (>=30) n (%)
<b>HOS Total</b>	<b>14,319 (2.1%)</b>	<b>195,059 (28.3%)</b>	<b>249,302 (36.2%)</b>	<b>230,357 (33.4%)</b>
Male	4,010 (1.4%)	74,583 (25.3%)	124,379 (42.2%)	91,954 (31.2%)
Female	10,309 (2.6%)	120,476 (30.6%)	124,923 (31.7%)	138,403 (35.1%)
<b>Asian</b>	<b>1,116 (5.1%)</b>	<b>11,705 (53.3%)</b>	<b>6,924 (31.5%)</b>	<b>2,205 (10.0%)</b>
Male	378 (3.8%)	5,212 (51.8%)	3,573 (35.5%)	890 (8.9%)
Female	738 (6.2%)	6,493 (54.6%)	3,351 (28.2%)	1,315 (11.1%)
Asian Indian	87 (3.1%)	1,244 (44.4%)	1,050 (37.5%)	419 (15.0%)
Male	40 (2.5%)	773 (48.3%)	605 (37.8%)	184 (11.5%)
Female	47 (3.9%)	471 (39.3%)	445 (37.1%)	235 (19.6%)
Chinese	322 (6.1%)	3,230 (61.3%)	1,417 (26.9%)	304 (5.8%)
Male	114 (4.5%)	1,537 (60.3%)	768 (30.2%)	128 (5.0%)
Female	208 (7.6%)	1,693 (62.1%)	649 (23.8%)	176 (6.5%)
Filipino	234 (4.4%)	2,569 (47.8%)	1,920 (35.8%)	646 (12.0%)
Male	56 (2.9%)	863 (44.6%)	794 (41.1%)	220 (11.4%)
Female	178 (5.2%)	1,706 (49.7%)	1,126 (32.8%)	426 (12.4%)
Japanese	201 (6.7%)	1,625 (53.9%)	878 (29.1%)	311 (10.3%)
Male	32 (2.7%)	558 (46.4%)	459 (38.2%)	154 (12.8%)
Female	169 (9.3%)	1,067 (58.9%)	419 (23.1%)	157 (8.7%)
Korean	82 (5.1%)	948 (59.5%)	476 (29.9%)	88 (5.5%)
Male	36 (4.6%)	433 (55.3%)	282 (36.0%)	32 (4.1%)
Female	46 (5.7%)	515 (63.5%)	194 (23.9%)	56 (6.9%)
Vietnamese	128 (7.0%)	1,165 (64.0%)	420 (23.1%)	107 (5.9%)
Male	70 (7.1%)	621 (63.0%)	247 (25.1%)	48 (4.9%)
Female	58 (7.0%)	544 (65.2%)	173 (20.7%)	59 (7.1%)
Other Asian	34 (2.4%)	610 (43.7%)	520 (37.3%)	231 (16.6%)
Male	17 (2.4%)	296 (42.0%)	299 (42.4%)	93 (13.2%)
Female	17 (2.5%)	314 (45.5%)	221 (32.0%)	138 (20.0%)
Multi-Asian	28 (4.1%)	314 (45.9%)	243 (35.5%)	99 (14.5%)
Male	13 (4.4%)	131 (44.6%)	119 (40.5%)	31 (10.5%)
Female	15 (3.8%)	183 (46.9%)	124 (31.8%)	68 (17.4%)
<b>NHOPI</b>	<b>50 (1.9%)</b>	<b>604 (23.0%)</b>	<b>889 (33.9%)</b>	<b>1,079 (41.2%)</b>
Male	18 (1.5%)	265 (22.8%)	420 (36.1%)	461 (39.6%)
Female	32 (2.2%)	339 (23.3%)	469 (32.2%)	618 (42.4%)
Native Hawaiian	17 (2.5%)	139 (20.1%)	229 (33.1%)	306 (44.3%)
Male	*	*	110 (34.5%)	146 (45.8%)
Female	*	*	119 (32.0%)	160 (43.0%)
Guamanian or Chamorro	*	15 (23.1%)	27 (41.5%)	*
Male	*	*	12 (37.5%)	*
Female	*	*	15 (45.5%)	*
Samoan	*	*	*	121 (71.6%)
Male	*	*	*	58 (68.2%)
Female	*	*	*	63 (75.0%)
Other Pacific Islander	*	*	580 (36.2%)	578 (36.1%)
Male	*	*	267 (38.8%)	223 (32.4%)
Female	*	*	313 (34.2%)	355 (38.8%)
Multi-Pacific Islander	*	15 (16.0%)	*	52 (55.3%)
Male	*	*	*	22 (56.4%)
Female	*	*	*	30 (54.5%)

\*Not reportable, to preserve beneficiary privacy.

Note: HOS *Baseline Cohorts 16, 17, and 18* (n= 756,253). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> BMI is calculated as: BMI = [weight in pounds / (height in inches)<sup>2</sup>] x 703, which uses the height and weight to produce the standard measure of kg/m<sup>2</sup> units.

<sup>2</sup> Total includes all Asian and NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.



**Table 40: Sleep hours for Asian and NHOPI groups<sup>1</sup> by gender, HOS Baseline Cohort 18**

Race	Less than 5 hours n (%)	5 – 6 hours n (%)	7 – 8 hours n (%)	9 or more hours n (%)
<b>HOS Total</b>	<b>22,798 (10.4%)</b>	<b>82,874 (37.9%)</b>	<b>98,974 (45.2%)</b>	<b>14,216 (6.5%)</b>
Male	9,281 (10.0%)	34,216 (36.8%)	43,413 (46.6%)	6,186 (6.6%)
Female	13,517 (10.7%)	48,658 (38.7%)	55,561 (44.2%)	8,030 (6.4%)
<b>Asian</b>	<b>904 (13.4%)</b>	<b>3,165 (47.0%)</b>	<b>2,383 (35.4%)</b>	<b>283 (4.2%)</b>
Male	385 (12.2%)	1,440 (45.7%)	1,174 (37.3%)	150 (4.8%)
Female	519 (14.5%)	1,725 (48.1%)	1,209 (33.7%)	133 (3.7%)
Asian Indian	113 (12.4%)	371 (40.8%)	381 (41.9%)	45 (4.9%)
Male	*	210 (41.2%)	207 (40.6%)	*
Female	*	161 (40.3%)	174 (43.5%)	*
Chinese	211 (12.3%)	783 (45.8%)	642 (37.5%)	74 (4.3%)
Male	77 (9.4%)	355 (43.1%)	350 (42.5%)	41 (5.0%)
Female	134 (15.1%)	428 (48.3%)	292 (32.9%)	33 (3.7%)
Filipino	214 (14.5%)	784 (53.2%)	433 (29.4%)	43 (2.9%)
Male	73 (13.4%)	282 (51.8%)	170 (31.3%)	19 (3.5%)
Female	141 (15.2%)	502 (54.0%)	263 (28.3%)	24 (2.6%)
Japanese	85 (10.5%)	370 (45.8%)	312 (38.7%)	40 (5.0%)
Male	35 (10.5%)	159 (47.9%)	121 (36.4%)	17 (5.1%)
Female	50 (10.5%)	211 (44.4%)	191 (40.2%)	23 (4.8%)
Korean	51 (9.1%)	262 (47.0%)	226 (40.5%)	19 (3.4%)
Male	*	131 (47.5%)	111 (40.2%)	*
Female	*	131 (46.5%)	115 (40.8%)	*
Vietnamese	120 (19.4%)	326 (52.8%)	159 (25.7%)	13 (2.1%)
Male	*	175 (50.9%)	99 (28.8%)	*
Female	*	151 (55.1%)	60 (21.9%)	*
Other Asian	78 (17.7%)	176 (40.0%)	151 (34.3%)	35 (8.0%)
Male	40 (17.9%)	88 (39.3%)	84 (37.5%)	12 (5.4%)
Female	38 (17.6%)	88 (40.7%)	67 (31.0%)	23 (10.6%)
Multi-Asian	32 (14.7%)	93 (42.7%)	79 (36.2%)	14 (6.4%)
Male	*	40 (41.7%)	32 (33.3%)	*
Female	*	53 (43.4%)	47 (38.5%)	*
<b>NHOPI</b>	<b>166 (19.8%)</b>	<b>373 (44.6%)</b>	<b>248 (29.6%)</b>	<b>50 (6.0%)</b>
Male	69 (18.7%)	149 (40.4%)	126 (34.1%)	25 (6.8%)
Female	97 (20.7%)	224 (47.9%)	122 (26.1%)	25 (5.3%)
Native Hawaiian	*	91 (49.7%)	62 (33.9%)	*
Male	*	43 (45.7%)	34 (36.2%)	*
Female	*	48 (53.9%)	28 (31.5%)	*
Guamanian or Chamorro	*	*	*	*
Male	*	*	*	*
Female	*	*	*	*
Samoan	*	22 (50.0%)	11 (25.0%)	*
Male	*	*	*	*
Female	*	*	*	*
Other Pacific Islander	117 (21.1%)	237 (42.8%)	158 (28.5%)	42 (7.6%)
Male	46 (19.9%)	82 (35.5%)	83 (35.9%)	20 (8.7%)
Female	71 (22.0%)	155 (48.0%)	75 (23.2%)	22 (6.8%)
Multi-Pacific Islander	*	13 (35.1%)	12 (32.4%)	*
Male	*	*	*	*
Female	*	*	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS Baseline Cohort 18 (n= 256,735). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all Asian beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

**Table 41: Sleep quality for Asian and NHOPI groups<sup>1</sup> by gender, HOS Baseline Cohort 18**

Race	Very good n (%)	Fairly good n (%)	Fairly bad n (%)	Very bad n (%)
HOS Total	52,656 (24.0%)	122,581 (55.8%)	33,758 (15.4%)	10,602 (4.8%)
Male	23,008 (24.7%)	52,357 (56.2%)	13,695 (14.7%)	4,159 (4.5%)
Female	29,648 (23.5%)	70,224 (55.6%)	20,063 (15.9%)	6,443 (5.1%)
Asian	1,415 (20.9%)	4,048 (59.7%)	1,056 (15.6%)	265 (3.9%)
Male	660 (20.9%)	1,930 (61.1%)	462 (14.6%)	106 (3.4%)
Female	755 (20.8%)	2,118 (58.4%)	594 (16.4%)	159 (4.4%)
Asian Indian	201 (22.1%)	556 (61.1%)	129 (14.2%)	24 (2.6%)
Male	119 (23.3%)	324 (63.4%)	57 (11.2%)	11 (2.2%)
Female	82 (20.6%)	232 (58.1%)	72 (18.0%)	13 (3.3%)
Chinese	268 (15.6%)	1,017 (59.0%)	346 (20.1%)	92 (5.3%)
Male	133 (16.1%)	514 (62.3%)	143 (17.3%)	35 (4.2%)
Female	135 (15.0%)	503 (56.0%)	203 (22.6%)	57 (6.3%)
Filipino	340 (22.8%)	955 (64.0%)	163 (10.9%)	34 (2.3%)
Male	120 (21.9%)	361 (65.8%)	57 (10.4%)	11 (2.0%)
Female	220 (23.3%)	594 (63.0%)	106 (11.2%)	23 (2.4%)
Japanese	225 (27.7%)	458 (56.5%)	106 (13.1%)	22 (2.7%)
Male	85 (25.7%)	199 (60.1%)	*	*
Female	140 (29.2%)	259 (54.0%)	*	*
Korean	116 (20.5%)	339 (59.9%)	94 (16.6%)	17 (3.0%)
Male	53 (19.2%)	164 (59.4%)	*	*
Female	63 (21.7%)	175 (60.3%)	*	*
Vietnamese	111 (17.8%)	372 (59.6%)	102 (16.3%)	39 (6.3%)
Male	72 (20.8%)	202 (58.4%)	58 (16.8%)	14 (4.0%)
Female	39 (14.0%)	170 (61.2%)	44 (15.8%)	25 (9.0%)
Other Asian	91 (20.6%)	235 (53.3%)	91 (20.6%)	24 (5.4%)
Male	51 (22.7%)	117 (52.0%)	45 (20.0%)	12 (5.3%)
Female	40 (18.5%)	118 (54.6%)	46 (21.3%)	12 (5.6%)
Multi-Asian	63 (29.0%)	116 (53.5%)	25 (11.5%)	13 (6.0%)
Male	27 (28.4%)	49 (51.6%)	*	*
Female	36 (29.5%)	67 (54.9%)	*	*
NHOPI	168 (20.0%)	430 (51.2%)	169 (20.1%)	73 (8.7%)
Male	77 (20.9%)	190 (51.5%)	66 (17.9%)	36 (9.8%)
Female	91 (19.3%)	240 (51.0%)	103 (21.9%)	37 (7.9%)
Native Hawaiian	41 (22.3%)	113 (61.4%)	*	*
Male	20 (21.1%)	59 (62.1%)	*	*
Female	21 (23.6%)	54 (60.7%)	*	*
Guamanian or Chamorro	*	*	*	*
Male	*	*	*	*
Female	*	*	*	*
Samoan	12 (27.9%)	21 (48.8%)	*	*
Male	*	*	*	*
Female	*	*	*	*
Other Pacific Islander	104 (18.7%)	266 (47.8%)	127 (22.8%)	60 (10.8%)
Male	54 (23.3%)	105 (45.3%)	45 (19.4%)	28 (12.1%)
Female	50 (15.4%)	161 (49.5%)	82 (25.2%)	32 (9.8%)
Multi-Pacific Islander	*	20 (54.1%)	*	*
Male	*	*	*	*
Female	*	*	*	*

\*Not reportable, to preserve beneficiary privacy.

Note: HOS Baseline Cohort 18 (n= 256,735). Due to rounding sum of cells may not equal 100 percent.

<sup>1</sup> Total includes all NHOPI beneficiaries who returned a baseline survey and had a physical component summary (PCS) score and/or mental component summary (MCS) score. Beneficiaries who responded in multiple cohorts are counted in the first cohort in which they appear for all table analyses.

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