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Influenza Vaccination Coverage Among English-Speaking Asian Americans

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Abstract

Introduction: English-speaking non-Hispanic Asians (Asians) in the U.S. include populations with multiple geographic origins and ethnicities (e.g., Asian Indian, Chinese, Filipino, Japanese, Korean, and Vietnamese). Health behaviors and outcomes can differ widely among Asian ethnicities, and highlight the importance of subgroup analysis. Aggregating Asians may mask differences in influenza vaccination across various ethnicities.

Methods: Combined data from 2013 to 2015 Behavioral Risk Factor Surveillance System, a population-based, telephone survey of the non-institutionalized, U.S. population aged ≥ 18 years, were analyzed in 2017 to assess influenza vaccination among Asians. Weighted proportions were calculated. Multivariable logistic regression was used to determine independent associations between sociodemographic factors and receipt of influenza vaccination.

Results: Influenza vaccination varied widely among Asian ethnicities, both nationally and by state. Overall, 42.1% of Asians reported having received an influenza vaccine, similar to vaccination among whites (42.4%). Coverage ranged from 36.1% among Koreans to 50.9% among Japanese. Factors independently associated with influenza vaccination among some or all Asian ethnicities included age (≥ 50 years), female, never married, high school or higher education, annual household income ≥ $75,000, possession of medical insurance and personal healthcare provider, routine checkup in the previous year, and presence of certain chronic conditions.

Conclusions: Though Asians and whites had similar overall influenza vaccination coverage, differences existed between Asian ethnicities, both nationally and by state. This information may help community-based, state-level, and national-level public health agencies to support targeted approaches for outreach to these populations, such as improving cultural and linguistic access to care, to improve influenza vaccination.

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INTRODUCTION

Adult vaccination coverage remains low for influenza and other vaccines routinely recommended for adults, and below the *Healthy People* 2020 targets.[1–7] Though modest progress has been made in increasing influenza vaccination uptake among adults, racial and ethnic disparities in adult vaccination remain.[1–7] Overall influenza vaccination has been reported to be the highest among non-Hispanic whites (whites) and non-Hispanic Asians (Asians), whereas coverage among non-Hispanic black, Hispanic, and adults identifying as non-Hispanic other/multiple races has been historically low compared with white adults.[1,4,5,8–11] Though white and Asian adults have had similar overall influenza vaccination coverage in recent years, it has been suggested that comparability in overall coverage between Asians and whites could be a result of estimates for Asians being reported in aggregate rather than by Asian ethnicities (i.e., by specific nationalities, such as Asian Indian and Chinese).[12]

Asians in the U.S. comprise populations with multiple geographic origins and ethnicities (e.g., Asian Indian, Chinese, Filipino, Japanese, Korean, and Vietnamese). Depending on the survey data source, sample sizes, and intent of the investigator, respondents who have self-identified as Asian, American Indian/Alaska Native, Native Hawaiian or other Pacific Islander, or multiple races may have been aggregated into an “other race” category for analyses.

Differences among Asian subpopulations in the use of preventive services like vaccination have been described in other reports. When analyzed as a subgroup, Vietnamese Americans aged 50 years and older had higher influenza vaccination compared with Asians and whites overall.[12] A study assessing influenza vaccination across Asian ethnic groups in Canada found higher coverage among Canadians of Filipino, Japanese, and Chinese descent than among white Canadians.[13] Similarly, low influenza vaccination among Asian Indians also has been reported.[14] Several factors have been reported to explain differences in vaccination observed across Asian subgroups, including differences in healthcare access and delivery[12–14]; nativity (foreign-born or born in the U.S.)[15]; income and health insurance coverage[16,17]; inability to speak and understand English[12,18]; SES; cultural, linguistic, and other barriers faced by foreign-born adults in accessing healthcare and preventive services, including vaccination[19]; and health examination not being a priority for less acculturated Asians.[20]

These studies illustrate that health behaviors and outcomes can differ widely among Asian subpopulations, and highlight the importance of subgroup analysis. Aggregating various Asian ethnicities into one group for estimation of coverage may mask differences in influenza vaccination across subgroups. Information about influenza vaccination by Asian subpopulations on both a national and a state level can help community-based, state-level, and national-level public health agencies tailor vaccination interventions to help improve influenza vaccination in this population.

This study explores associations of sociodemographic and access-to-care factors with influenza vaccination, and assesses state-level estimates of vaccination among English-speaking Asian ethnicities.

METHODS

Study Sample

Combined data from the 2013–2015 BRFSS for individuals aged ≥ 18 years were analyzed in 2017. The BRFSS is a continuous, population-based, random-digit-dialed telephone survey of the non-institutionalized U.S. population aged ≥ 18 years conducted in English only by state health departments in collaboration with the Centers for Disease Control and Prevention (CDC). The BRFSS collects uniform, state-specific data on self-reported preventive health practices and risk behaviors. Individuals are randomly selected using a multistage cluster design.[21] The median state response rate, based on the American Association for Public Opinion Research response rate 4 formula,[22] was 46.4% in 2013,[23] 47.0% in 2014,[24] and 47.2% in 2015.[25] Effective sample sizes for 2013, 2014, and 2015 survey years were 491,773 (376,451 whites, 9,510 Asians), 464,664 (356,808 whites, 9,314 Asians), and 441,352 (353,984 whites, 9,753 Asians), respectively.

Measures

To determine influenza vaccination status, respondents were asked: *During the past 12 months, have you had either a flu shot or a flu vaccine that was sprayed in your nose?* Those with an affirmative answer to this question were considered to have received the influenza vaccine. Respondents who did not know or were not sure about their vaccination status (0.21% in 2013, 0.26% in 2014, and 0.24% in 2015) and those who refused to answer the question (0.61% in 2013, 0.49% in 2014, and 0.53% in 2015) were excluded from the analysis.

Race/ethnicity was categorized as Hispanic/Latino, black, white, Asian, and “other.” People identified as Hispanic/Latino might be of any race. People identified as black, white, Asian, or other race are non-Hispanic. “Other” includes American Indian/Alaska Native and individuals who identified multiple races. The five racial/ethnic categories are mutually exclusive. The English-speaking Asian ethnicities were defined as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and other Asian. Influenza vaccination was stratified by Asian ethnicities.

Statistical Analysis

SUDAAN was used to calculate point estimates for coverage and 95% CIs. Data were weighted by age, sex, and, in certain states, race/ethnicity, to reflect the estimated adult population in each area. BRFSS uses raking weighting methodology,[26] which serves as a blanket adjustment for non-coverage and nonresponse. The percentage of respondents who reported influenza vaccination in the past 12 months was calculated overall for whites and English-speaking Asians and by Asian ethnicities using a simple weighted proportion. Comparisons of covariates within each characteristic ethnicity, between whites and Asians, and across Asian ethnicities and coverage differences between demographic and other

characteristics, between whites and Asians, and between Asian ethnicities, were performed using *t*-tests, with statistical significance set at $p<0.05$.

Predictive marginals under multivariable logistic regression models were conducted to calculate adjusted coverage and prevalence differences adjusted for demographic and access-to-care characteristics, and to identify factors independently associated with receipt of influenza vaccination. Comparisons were also performed for the covariates within each characteristic to test differences in adjusted coverage compared with appropriate reference groups. Separate regression models were run for each Asian ethnicity. State-level and HHS region-level influenza vaccination among the various Asian ethnicities were estimated. The BRFSS survey was designated as non-research by the review board of CDC and was exempt from IRB review.

RESULTS

The sample characteristics of the study population are reported in Table 1. A total of 28,577 English-speaking Asians aged ≥ 18 years from the 2013–2015 BRFSS were included in the study. Overall, among Asians, specific ethnicities included other Asians (27.0%), Asian Indian (21.7%), Chinese (20.2%), Filipino (14.0%), Japanese (6.7%), Korean (5.5%), and Vietnamese (4.9%). Differences were observed in the distribution of a number of demographic and access-to-care characteristics among the Asian ethnicities (Table 1). For example, compared with Chinese, Filipinos and Japanese were more likely to be married, have a high school education or some college, have a personal healthcare provider, and report having certain chronic conditions, but were less likely to have a college degree or higher education or report excellent or good perceived health. Differences between Asian subgroups and whites in demographic and access-to-care characteristics were also observed (Table 1).

Overall influenza vaccination coverage among Asians was 42.1%, similar to coverage among whites (42.4%) (Table 2). However, compared with whites, overall unadjusted coverage among Filipinos and Japanese was higher than that for whites; lower among Chinese and Koreans compared with whites; and similar among Asian Indians, Vietnamese, and other Asians compared to whites (Table 2).

Characteristics associated with greater likelihood of influenza vaccination for each of the Asian ethnicities and differences in coverage across the ethnicities are shown in Table 2. Vaccination among the Asian ethnicities ranged from 36.1% for Koreans to 50.9% for Japanese. Except for Filipinos and Koreans, coverage in Asian ethnicities was higher among adults aged ≥ 50 years. For all Asian ethnicities, coverage was higher among those with a personal healthcare provider. Coverage among Asian ethnicities was higher among those who reported having health insurance, except for Vietnamese. Conversely, coverage was higher among Asian ethnicities whose reported time since their last routine checkup was <1 year, except for Koreans. For all Asian ethnicities, coverage was lower among those who were never married (Table 2).

After controlling for demographic and access-to-care characteristics, overall influenza vaccination coverage among Asians was higher than whites (Table 3). However, compared with whites, overall adjusted coverage among Filipinos and Vietnamese was higher; lower among Chinese compared with whites; and similar among Asian Indians, Japanese, Koreans, and other Asians compared to whites. Except for Filipinos and Koreans, age ≥ 65 years was associated with greater likelihood of vaccination among Asian ethnicities. For all but three of the Asian ethnicities (Asian Indian, Japanese, and Korean), having a personal healthcare provider was associated with greater likelihood of vaccination. Other factors associated with greater likelihood of vaccination among at least three of the seven Asian ethnicities were having medical insurance and reporting <1 year since last routine checkup. Characteristics associated with greater likelihood of vaccination for each of the Asian ethnicities are shown in Table 3.

State-specific and HHS region-specific influenza vaccination coverage varied widely for Asians. Among all Asians, influenza vaccination ranged from 53.1% in Colorado to 29.3% in Florida (Table 4). Also, among all Asians, vaccination ranged from 35.0% in HHS Region 4 to 47.5% in HHS Region 8. The weighted distribution of Asians also varied widely by HHS Region, ranging from 1.3% in Region 8 to 42.3% in Region 9. No apparent association was observed with vaccination by the state/region population size of Asians or Asian ethnicities. Coverage by state and HHS Region for each of the Asian ethnicities are shown in Table 4. Unadjusted coverage distribution pattern between whites and Asian subgroups by HHS Region was similar to the national unadjusted coverage distribution pattern, as detailed in Table 2.

DISCUSSION

Differences in influenza vaccination among English-speaking Asian ethnicities in the U.S. were explored and factors associated with coverage were identified. Aggregated coverage among English-speaking Asians was similar to that for whites. However, coverage across English-speaking Asian ethnicities varied widely, with some, such as Japanese and Filipinos, having higher; Asian Indians, Vietnamese, and other Asians having similar; and Chinese and Koreans having lower coverage compared with whites. Koreans and Chinese had the lowest coverage among Asian ethnicities with estimates 6.3 and 5.3 percentage points lower than those for whites, respectively. Filipinos and Japanese had the highest coverage with estimates 3.8 and 4.9 percentage points higher than those for whites, respectively. No differences in coverage were observed among other Asian ethnicities compared with whites. These findings illustrate how aggregating Asian ethnicities for estimation of coverage might mask differences in influenza vaccination across subgroups, and highlights the importance of subgroup analysis. In addition to subgroup coverage differences, various sociodemographic factors and access-to-care factors were significantly associated with likelihood of influenza vaccination. Differences in influenza vaccination and coverage for other vaccinations among Asian ethnicities, along with differences in healthcare access and delivery have been reported previously.[12–14,18,27–36] Racial and ethnic differences in coverage have been reported to persist even when controlling for culturally driven perceptions related to vaccine effectiveness and safety.[37]

Earlier studies examining racial and ethnic disparities in influenza vaccination found that coverage among Asians was similar or higher compared with whites.[1–5,12,27] These reports studied Asians in aggregate rather than on a subgroup level, so coverage for the Asian ethnicities included in these studies could not be reported. Subgroup analyses of English-speaking Asians carried out in this study indicated that, although overall influenza vaccination of Asians was similar to that for whites, select ethnicities had higher or lower coverage. A previous study[28] reported similar differences in coverage among the selected Asian ethnicities, but identified Koreans and Vietnamese as more likely to receive the influenza vaccine than whites. This finding is in contrast to this study, where Koreans had lower coverage than whites and Vietnamese had similar coverage to whites. Nativity may help explain some of these observed differences between whites and Asian ethnicities. A study[15] reported nativity to have a negative effect on receiving influenza vaccination, where foreign-born individuals had lower odds of receiving the vaccine. It has been reported that coverage among the foreign-born in the U. S. depends on the vaccinations received as children or adults pre-migration, during migration, post-migration, or during return visits to their country of origin.[19] Also, vaccination and immunization schedules vary by country and even by regions within countries.[30–40] All of these items and the extent to which different countries promote (influenza) vaccination, could influence the intent to get vaccinated among various Asian ethnicities. These data were not available and could not be assessed in this study.

Associations of several sociodemographic and access-to-care factors, such as being aged 50 years and older, having high school or higher education, having health insurance, having a personal healthcare provider, having last routine checkup less than 1 year earlier, and having certain chronic conditions, with influenza vaccination were not found to be consistent across the subgroups. Although having health insurance among the English-speaking Asian ethnicities in this study ranged from 84.8% among other Asians to 94.6% among Japanese, this alone may not explain the differences found in the association of health insurance and likelihood of influenza vaccination in this study. It has been suggested[16,17] that income and health insurance are important factors associated with likelihood of vaccination, and that regardless of health insurance, adults earning less than $35,000/year are less likely to be vaccinated than higher earners.[17] An association of greater likelihood of vaccination with high income was not observed in this study, except among other Asians. The fewer differences in coverage across income and education strata (compared with whites) observed in this study and having health insurance being associated with either increased or decreased likelihood of influenza vaccination in various Asian subgroups, suggest that access-to-care factors or health literacy may not necessarily be strong predictors of coverage in these populations. Other factors may explain the differences in coverage observed across the Asian ethnicities in this study, including immigration status, inability to speak and understand English,[12,18] SES, cultural, linguistic, and other barriers faced by foreign-born adults to accessing healthcare and preventive services, including vaccinations,[19] health examination not being a priority for less acculturated Asians,[20] and coming from a cultural context that may not always view preventative healthcare, such as vaccination, as integral to well-being (especially true of foreign-born Asian Indians).[41,42] Being a member of a minority race/ethnic group also has been reported to contribute substantially to the

underutilization of the influenza vaccine in the U.S.[42] The variation in selected health behaviors, access, health status, and uptake of influenza vaccination among Asian subpopulations on both national and state levels, as observed in this study, can help community-based, state-level, and national-level public health agencies tailor vaccination interventions to help improve influenza vaccination in this population.

This study found wide state variability in influenza vaccination among Asian ethnicities. Factors contributing to state variability in influenza vaccination are not well understood.[43] Variation in state coverage could be because of differing population distributions of Asians; degrees of programmatic and provider implementation of influenza recommendations; Asian adults' awareness, attitudes, and access to influenza vaccination services; medical care delivery infrastructure; SES factors; state laws; effectiveness of state and local vaccination programs among states; and other factors.[44–47] Further study is needed to understand the variability in influenza vaccination between states among Asians by including this population in their public health assessment, evaluation, and outreach programs that target diverse groups.[48] The coverage distribution patterns were "similar" when HHS regional estimates derived from samples with sufficient size for robust subgroup comparisons were compared with those from bivariate comparisons. This indicates that these comparisons are reliable, despite the smaller sample sizes.

Limitations

The findings of this study are subject to several limitations. First, influenza vaccination status and chronic conditions were self-reported and not validated with medical records, and may be subject to recall bias. However, self-reported influenza vaccination status among adults has been shown to be sensitive and specific,[49–52] and recall bias in BRFSS survey items has been reported to be relatively uniform among racial/ethnic groups.[53] Second, the BRFSS survey was conducted in English only, which might have resulted in non- or under-representation of those who speak or prefer other languages, and findings may not be representative of these groups. This could introduce considerable bias in the estimates, if the characteristics and vaccination rates of those who did not participate in the survey because they preferred a different language differ from study participants. It has been reported, however, that the inability to conduct interviews because of language problems is not common; during 2004−2006, only about 1% of National Health Interview Survey interviews were not conducted because of issues with language.[14] Third, weighting in BRFSS is intended to represent the general population, not populations specifically defined by Asian subgroups. Therefore, estimates among the Asian subgroups in this study might not be generalizable to all Asian subgroups in the U.S. Even though each respondent in the BRFSS is assigned the final weight by raking the design weight to eight to 12 margins defined by respondent demographic characteristics and geographical region, because Asian responders in this study were disproportionately young, more educated, and with higher income than the U.S. Asian (general) population, weighting alone might not adjust for major differences in language, education, income, and perhaps, assimilation. Thus, the subgroup-level influenza coverage estimates reported in this study should be interpreted with caution. Fourth, although information on education and income was available, and these are factors known to impact vaccination practices among the general population, the fewer differences in

coverage across income and education strata (compared with whites) observed in this study suggest that these factors may not necessarily be strong predictors of coverage in these populations. Fifth, information on nativity, U.S. citizenship status among foreign-born immigrants, and length of acculturation, which have been reported[19,20,41,42] to play a role in utilization of preventive healthcare services (i.e., vaccination among immigrants), was not available for this study. Sixth, despite combining 3 years of data for a larger sample size, the number of Vietnamese adults was still relatively small when stratified across multiple covariate categories, which might cause some estimates to be uncertain. Finally, some bias may remain after weighting adjustments designed to minimize nonresponse and non-coverage bias, particularly in analyses among racial/ethnic subgroups.

CONCLUSIONS

Influenza vaccination coverage within English-speaking Asian ethnicities in the U.S. varied widely, with some Asian ethnicities, such as Filipinos and Japanese having higher; Asian Indians, Vietnamese, and other Asians having similar; and Chinese and Koreans having lower coverage compared with whites. The findings suggest the need for disaggregating Asian populations into the various ethnicities for other health studies. Conducting subgroup analyses when applicable can provide information to support targeted approaches to outreach in these populations, such as improving cultural and linguistic access to care,[54] to improve influenza vaccination and reduce health disparities overall.

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AS conceived the study, performed the statistical analysis, and wrote the first draft of the manuscript and led revisions of all subsequent versions. AS had access to all data and takes the responsibility for their integrity. AO also contributed to the conception of the study, data analysis, and critical revision of the manuscript. PL and WWW participated in data interpretation and revising of the manuscript. All authors have reviewed and approved the submitted version of the manuscript.

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Table 1.

Sociodemographic and Access-to-Care Characteristics of Asians, U.S., BRFSS, 2013–2015

Characteristics	White, n[a] (%)[b]	Asian,[c] n (%)	Asian Indian, n (%)	Chinese, n (%)	Filipino, n(%)	Japanese, n (%)	Korean, n(%)	Vietnamese, n (%)	Other Asian, n(%)
Total	1,069,243 (100.0)	28,577 (100.0)	5,487 (21.7)	4,259 (20.2)	5,443 (14.0)	4,638 (6.7)	1,320 (5.5)	889 (4.9)	6,541 (27.0)
Age									
18–49 years	320,302 (48.0)	16,830 (71.1)[d]	4,020 (76.2)[d]	2,594 (71.6)[d,e]	2,950 (58.6)[d,e,f]	1,117 (36.6)[d,e,f,g]	904 (81.4)[d,e,f,g,h]	692 (80.0)[d,f,g,h]	4,553 (77.9)[d,e,g,h]
50–64 years	341,838 (28.5)	6,399 (18.9)[d]	888 (16.8)[d]	995 (20.2)[d,e]	1,456 (25.7)[e,f]	1,459 (27.8)[e,f]	239 (11.9)[d,e,f,g,h]	136 (15.5)[d,h]	1,226 (15.7)[d,f,g,h,i]
≥65 years	397,329 (23.5)	4,896 (10.1)[d]	482 (7.0)[d]	593 (8.2)[d]	980 (15.7)[d,e,f]	1,999 (35.6)[d,e,f,g]	160 (6.7)[d,g,h]	52 (4.5)[d,f,g,h]	630 (6.4)[d,g,h]
Sex									
Male	445,667 (48.6)	14,170 (49.7)	3,349 (57.5)[d]	2,108 (47.5)[e]	2,201 (41.0)[d,e,f]	2,038 (41.6)[d,e,f]	582 (49.2)[e,g,h]	504 (51.5)[e,g,h]	3,388 (51.4)[d,e,f,g,h]
Female	623,576 (51.4)	14,407 (50.3)	2,138 (42.5)	2,151 (52.5)	3,242 (59.0)	2,600 (58.4)	738 (50.8)	385 (48.5)	3,153 (48.6)
Marital status									
Married	596,997 (56.5)	16,929 (56.8)	4,058 (70.5)[d]	2,291 (50.2)[d,e]	3,284 (56.9)[e,f]	2,468 (56.5)[e,f]	642 (45.2)[d,e,g,h]	416 (43.0)[d,e,f,g,h]	3,770 (55.4)[e,f,i,j]
Divorced/widowed/separated	310,864 (20.8)	3,633 (8.8)[d]	294 (4.2)[d]	425 (7.6)[d,e]	853 (14.0[d,e,f]	1,157 (20.1)[e,f,g]	179 (5.9)[d,g,h]	85 (11.4)[d,e,h,i]	640 (8.0)[d,e,g,h]
Never married	155,464 (22.7)	7,762 (34.4)[d]	1,090 (25.3)[d]	1,501 (42.2)[d,e]	1,279 (29.0)[d,f]	982 (23.4)[f,g]	486 (48.9)[d,e,g,h]	381 (45.6)[d,e,g,h]	2,043 (36.6)[d,e,f,g,h,i,j]
Education level									
Less than high school	59,120 (9.1)	939 (5.4)[d]	106 (5.1)[d]	77 (3.4)[d]	316 (7.5)[f]	102 (4.5)[d]	36 (2.7)[d,e,g]	40 (8.4)[i]	262 (6.4)[d,f,i]
High school graduate	302,170 (29.0)	4,747 (17.0)[d]	433 (12.8)[d]	453 (12.9)[d]	1,348 (19.4)[d,e,f]	924 (20.6)[d,e,f]	218 (13.9)[d,h]	180 (23.5)[e,f,i]	1,191 (20.7)[d,e,f,i]
Some college/technical school	296,070 (32.7)	5,706 (25.3)[d]	557 (16.6)[d]	689 (23.7)[d,e]	1,403 (32.7)[e,f]	1,196 (29.3)[e,f]	302 (29.0)[e,f]	254 (31.0)[e,f]	1,305 (27.0)[d,e,f,g]
College degree/higher education	407,663 (29.2)	16,883 (52.3)[d]	4,322 (65.5)[d]	2,994 (60.0)[d,e]	2,345 (40.5)[d,e,f]	2,385 (45.6)[d,e,f]	745 (54.5)[d,e,f,g,h]	403 (37.1)[d,e,f,h,i]	3,689 (45.9)[d,e,f,g,i,j]
Employment									
Employed	543,935 (58.7)	18,175 (64.7)[d]	3,982 (72.3)[d]	2,553 (62.6)[d,e]	3,701 (66.4)[d,e]	2,230 (51.1)[d,e,f,g]	796 (59.5)[e,g,h]	605 (62.1)[e,h]	4,308 (64.3)[d,e,h]
Unemployed	21,045 (2.6)	785 (3.3)[d]	139 (2.4)	112 (3.1)	173 (3.1)	75 (2.4)	37 (3.1)	35 (6.6)	214 (3.9)[d,e]
Not in work force	497,206 (38.7)	9,154 (32.0)	1,260 (25.3)[d]	1,525 (34.3)[d,e]	1,515 (30.5)[d,e]	2,296 (46.5)[d,e,f,g]	468 (37.3)[e,g,h]	234 (31.3)[d,e,h]	1,856 (31.7)[d,e,h,i]
Annual household income									
<$20,000	136,689 (14.2)	3,545 (15.1)[d]	379 (9.3)[d]	458 (15.1)[e]	1,114 (21.5)[d,e,f]	388 (9.2)[d,e,g]	160 (12.8)[g,h]	127 (20.8)[d,e,f,h,i]	919 (17.6)[d,e,g,h,i]
$20,000–$49,999	314,402 (32.5)	7,149 (26.7)[d]	822 (19.7)[d]	872 (23.4)[d,e]	1,891 (30.5)[e,f]	1,278 (26.3)[d,e]	321 (27.0)[d,e]	272 (38.1)[d,f,g,h,i]	1,693 (31.1)[e,f,h,j]
$50,000–$74,999	154,586 (17.0)	3,694 (14.1)[d]	754 (14.3)[d]	492 (13.5)[d]	641 (13.6)[d]	763 (14.8)[e,g]	155 (13.5)	105 (12.9)	784 (14.8)[d]
≥$75,000	298,637 (36.3)	9,642 (44.0)[d]	2,676 (56.7)[d]	1,700 (48.1)[d,e]	1,032 (34.4)[e,f]	1,581 (49.7)[d]	465 (46.7)[d,e,g]	236 (28.2)[d,e,f,h,i]	1,952 (36.5)[e,f,h,i,j]

Characteristics	White, n[a] (%)[b]	Asian,[c] n (%)	Asian Indian, n (%)	Chinese, n (%)	Filipino, n(%)	Japanese, n (%)	Korean, n(%)	Vietnamese, n (%)	Other Asian, n(%)
Perceived health									
Excellent/very good/good	885,794 (84.6)	25,537 (90.8)[d]	5,149 (93.0)[d]	3,916 (93.2)[d]	4,705 (86.6)[e,f]	3,981 (90.4)[d,e,f,g]	1,186 (92.3)[d,g]	781 (89.1)[d,e,f]	5,819 (89.3)[d,e,f,i]
Fair	126,124 (11.0)	2,288 (7.1)[d]	231 (5.1)[d]	278 (5.6)[d]	546 (10.2)[e,f]	519 (7.1)[d,e,g]	94 (6.3)[d,g]	88 (9.4)[e,f]	532 (7.8)[d,e,f]
Poor	54,142 (4.5)	670 (2.2)[d]	93 (1.8)[d]	58 (1.2)[d]	179 (3.2)[f]	133 (2.5)[d,f]	35 (1.4)[d,g]	16 (1.5)[d,g]	156 (2.9)[d,e,f,i,j]
Have medical insurance									
Yes	993,484 (90.6)	25,610 (88.9)[d]	5,087 (91.8)	3,903 (91.5)	4,669 (88.5)[e]	4,444 (94.6)[d,e,f,g]	1,111 (85.7)[d,e,f,h]	762 (85.1)[d,e,f,g]	5,634 (84.8)[d,e,f,g,h]
No	72,233 (9.4)	2,814 (11.1)	380 (8.2)	327 (8.5)	748 (11.5)	187 (5.4)	194 (14.3)	121 (14.9)	857 (15.2)
Have personal healthcare provider									
Yes	925,645 (82.3)	22,209 (74.4)[d]	4,185 (76.9)[d]	3,178 (74.2)[d]	4,420 (79.4)[d,f]	4,247 (86.9)[d,e,f,g]	908 (61.6)[d,e,f,g,h]	620 (69.3)[d,e,g,h]	4,651 (70.2)[d,e,f,g,h,i]
No	139,966 (17.7)	6,136 (25.6)	1,252 (23.1)	1,039 (25.8)	991 (20.6)	381 (13.1)	389 (38.4)	257 (30.7)	1,827 (29.8)
Time since last routine checkup									
<1 year	783,694 (70.8)	19,584 (68.7)[d]	3,813 (71.1)	2,819 (67.2)[d,e]	3,875 (72.7)[f]	3,497 (74.4)[f]	803 (58.3)[d,e,f,g,h]	552 (64.4)[d,e,g,h]	4,225 (67.1)[d,e,g,h,i]
≥1 year	263,996 (29.2)	8,027 (31.3)	1,479 (28.9)	1,270 (32.8)	1,418 (27.3)	1,073 (25.6)	460 (41.7)	306 (35.6)	2,021 (32.9)
Influenza vaccination status									
Yes	491,059 (42.4)	11,343 (42.1)	2,050 (42.3)	1,542 (37.1)[d,e]	2,114 (48.5)[d,e,f]	2,412 (50.9)[d,e,f]	495 (36.1)[d,e,g,h]	303 (41.9)[h]	2,427 (41.1)[f,g,i]
No	504,508 (57.6)	13,700 (57.9)	2,687 (57.7)	2,215 (62.9)	2,597 (51.5)	1,885 (49.1)	637 (63.9)	446 (58.1)	3,233 (58.9)
Certain chronic conditions[k]									
Yes	372,073 (30.1)	5,381 (16.8)[d]	862 (15.3)[d]	611 (11.6)[d,e]	1,222 (29.4)[e,f]	1,356 (29.5)[e,f]	183 (10.0)[d,e,g,h]	94 (11.2)[d,h]	1,053 (14.6)[d,f,g,h,i]
No	685,479 (69.9)	22,553 (83.2)	4,543 (84.7)	3,500 (88.4)	4,109 (70.6)	3,214 (70.5)	1,107 (90.0)	763 (88.8)	5,317 (85.4)

[a] Unweighted sample size.

[b] Weighted percentage.

[c] Refers to aggregated data across all Asian ethnicities. Race/ethnicity was categorized as Hispanic or Latino, black, white, Asian, and "other." Persons identified as Hispanic or Latino might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and persons who identified multiple races. The five racial/ethnic categories are mutually exclusive. Asian ethnicities were defined as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian.

[d] $p < 0.05$ by *t*-test (comparing against white).

[e] $p < 0.05$ by *t*-test (comparing against Asian Indian).

[f] $p < 0.05$ by *t*-test (comparing against Chinese).

[g] $p < 0.05$ by *t*-test (comparing against Filipino).

[h] $p < 0.05$ by *t*-test (comparing against Japanese).

[i] $p < 0.05$ by t-test (comparing against Korean).

[j] $p < 0.05$ by t-test (comparing against Vietnamese).

[k] People with certain chronic conditions include those with asthma, diabetes, heart disease, chronic obstructive pulmonary disease, or cancers other than skin cancer. BRFSS, Behavioral Risk Factor Surveillance System.

Table 2.

Unadjusted Influenza Vaccination Coverage Among Asians, U.S., BRFSS, 2013–2015

Characteristics	White, % (95% CI)	Asian,[a] % (95% CI)	Asian Indian, % (95% CI)	Chinese, % (95% CI)	Filipino, % (95% CI)	Japanese, % (95% CI)	Korean, % (95% CI)	Vietnamese, % (95% CI)	Other Asian, % (95% CI)
Overall	42.4 (42.2, 42.6)	42.1 (40.8,43.3)	42.3 (40.0, 44.7)	37.1 (34.3, 40.0)[b,c]	48.5 (44.7, 52.3)[b,c,d]	50.9 (46.1, 55.8)[b,c,d]	36.1 (31.4, 41.1)[b,c,e,f]	41.9 (35.5, 48.6)[f]	41.1 (38.8, 43.6)[d,e,f]
Age									
18–49[g]-years	31.6 (31.3, 31.9)	37.0 (35.6, 38.5)[c]	38.3 (35.6, 40.9)	31.4 (28.5, 34.5)[h]	43.0 (38.4, 47.7)	31.9 (25.8, 38.6)	34.8 (29.6, 40.4)	38.2 (31.1,45.7)	38.5 (35.8, 41.2)
50–64 years	**43.8*** (43.5, 44.1)**	**48.4*** (45.3, 51.4)**[c]	**49.1** (43.2, 55.1)**	**43.1** (36.4, 50.1)**	51.2 (43.0, 59.2)	**53.3*** (45.4, 61.0)**	37.2 (24.6, 51.9)	**58.2* (40.2, 74.3)**	**47.9** (41.8, 54.1)**
≥65 years	**62.2*** (61.9, 62.5)**	**65.0*** (60.9, 68.8)**	**68.4*** (58.9, 76.5)**	**67.2*** (56.6, 76.4)**	**66.1*** (56.6, 74.5)**	**66.5*** (57.6, 74.4)**	**55.9* (36.3, 73.8)**	**67.9** (46.3, 83.8)**	**57.3*** (48.1, 66.0)**
Sex									
Male[g]	38.6 (38.3, 38.9)	38.2 (36.7, 39.8)	39.7 (37.0, 42.6)	32.4 (29.0, 36.0)[h]	46.0 (40.5, 51.7)[h]	46.0 (39.1, 53.1)	31.3 (25.4, 37.8)[h]	39.3 (31.8, 47.3)	37.2 (34.2, 40.2)
Female	**46.0*** (45.7, 46.2)**	**45.9*** (44.0, 47.8)**	**45.9* (42.0, 50.0)**	**41.4** (37.1, 45.7)**	50.2 (45.1, 55.3)	54.4 (47.6, 61.0)[h]	40.5 (33.4, 48.0)	45.2 (34.7, 56.2)	**45.4*** (41.7, 49.2)**
Marital status									
Married[g]	45.9 (45.7, 46.2)	47.0 (45.3, 48.6)	44.7 (42.0, 47.4)	42.7 (38.5,46.9)	56.8 (52.0, 61.5)[h]	56.9 (50.2, 63.4)[h]	42.6 (35.4, 50.1)	50.9 (40.6, 61.2)	44.6 (41.5, 47.8)
Divorced/widowed/separated	46.3 (45.9, 46.6)	47.1 (42.5, 51.7)	51.9 (39.7, 63.8)	42.9 (32.7,53.6)	49.3 (38.3, 60.4)	55.2 (45.4, 64.6)	45.6 (28.8, 63.5)	48.5 (29.6, 67.7)	40.0 (30.9, 49.8)
Never married	**30.0*** (29.6, 30.4)**	**33.1*** (31.1,35.2)**[c]	**34.6*** (29.5, 40.0)**	**30.2*** (26.3, 34.4)**	**32.4*** (26.6, 38.7)**	**33.5*** (25.8, 42.1)**	**29.8* (23.6,36.8)**	**31.7** (23.7, 40.8)**	**36.2** (32.3,40.3)**
Education level									
Less than high school[g]	36.4 (35.7, 37.2)	42.5 (35.1,50.2)	35.5 (23.0, 50.4)	54.0 (31.1, 75.4)	49.4 (32.5, 66.4)	30.5 (13.9, 54.5)[i]	36.0 (14.0, 66.0)[i]	36.8 (11.6, 72.1)[i]	42.4 (31.1, 54.6)
High school graduate	**38.2*** (37.9,38.6)**	39.4 (36.2, 42.8)	42.3 (34.6, 50.4)	33.1 (25.5, 41.8)	36.2 (29.0, 44.0)	49.6 (38.0, 61.2)	30.3 (19.4, 43.9)	45.5 (31.1, 60.6)	39.8 (34.2, 45.6)
Some college/technical school	**41.0*** (40.7, 41.4)**	37.6 (34.8, 40.6)[c]	37.5 (30.1, 45.4)	33.9 (27.0, 41.5)	39.8 (33.2,46.7)	52.2 (42.8, 61.4)[h]	25.6 (17.7, 35.5)[h]	33.8 (24.5, 44.5)	37.9 (32.7, 43.3)
College degree/higher education	**49.7*** (49.5, 50.0)**	45.1 (43.6,46.6)[c]	44.1 (41.7, 46.5)	38.2 (35.2, 41.2)[h]	61.1 (56.0, 66.0)[h]	**53.2* (46.9, 59.4)**[h]	43.6 (37.3, 50.2)	48.9 (40.4, 57.4)	43.9 (41.0, 46.9)
Employment									
Employed[g]	36.7 (36.4, 36.9)	41.9 (40.4, 43.4)[c]	41.9 (39.3, 44.6)	37.6 (34.1, 41.2)	48.3 (43.8, 52.7)[h]	41.8 (36.1, 47.7)	37.8 (31.9, 44.0)	44.8 (37.4, 52.3)	42.0 (39.2, 44.9)
Unemployed	**30.2*** (29.1, 31.4)**	**31.4** (24.5, 39.4)**	34.3 (23.5, 46.9)	33.2 (20.5, 48.9)	**25.0* (11.4, 46.4)**[i]	27.1 (7.7, 62.3)[i]	37.2 (15.7, 65.3)[i]	42.1 (12.3, 79.0)[i]	**28.1* (18.2, 40.8)**
Not in workforce	**51.9*** (51.6, 52.2)**	43.5 (41.1, 45.9)[c]	44.3 (39.0, 49.8)	36.8 (31.9, 42.0)[h]	50.8 (43.4, 58.1)	**62.1*** (54.3, 69.4)**[h]	33.2 (25.6, 41.8)[h]	35.8 (25.0,48.1)	41.1 (36.6, 45.8)
Annual household income									
<$20,000[g]	36.8 (36.3, 37.3)	36.0 (32.4, 39.6)	42.2 (33.1, 51.9)	30.6 (23.2,39.2)	39.2 (29.7, 49.7)	55.3 (41.2, 68.6)	30.1 (19.1, 43.9)	37.6 (25.0, 52.2)	32.2 (26.7, 38.2)
$20,000–$49,999	**40.8*** (40.5, 41.1)**	38.2 (35.7, 40.8)	38.5 (32.7,44.7)	31.8 (25.3,39.1)	45.5 (39.1, 52.0)	45.0 (36.5, 53.9)	25.3 (18.3, 34.0)[h]	32.0 (22.4, 43.5)	39.3 (34.8, 44.0)
$50,000–$74,999	**42.2*** (41.8, 42.7)**	39.6 (36.3, 43.1)	38.8 (33.0, 44.9)	41.2 (32.3, 50.6)	50.6 (40.7, 60.5)[h]	48.5 (38.0, 59.1)	36.2 (23.8, 50.8)	48.5 (30.9, 66.5)	31.4 (26.0, 37.4)
≥$75,000	**45.7*** (45.4, 46.0)**	**48.6*** (46.6, 50.6)**[c]	45.0 (41.7, 48.3)	**41.8* (37.8, 45.9)**	**58.6** (51.7, 65.2)**[h]	56.6 (48.9, 64.1)[h]	43.8 (35.4,52.7)	52.6 (42.5, 62.6)	**52.5*** (48.1, 56.9)**[h]

Characteristics	White, % (95% CI)	Asian,[a] % (95% CI)	Asian Indian, % (95% CI)	Chinese, % (95% CI)	Filipino, % (95% CI)	Japanese, % (95% CI)	Korean, % (95% CI)	Vietnamese, % (95% CI)	Other Asian, % (95% CI)
Perceived health									
Excellent/very good/good	**41.6*** (41.4, 41.8)**	**41.8** (40.5, 43.2)**	41.9 (39.5, 44.3)	37.2 (34.3, 40.3)[h]	48.1 (44.1, 52.1)[h]	50.4 (45.2, 55.6)[h]	36.5 (31.5, 41.7)	41.2 (34.3, 48.5)	**41.2** (38.7, 43.8)**
Fair	**46.1*** (45.6, 46.6)**	**40.8** (36.3, 45.4)**[c]	47.4 (36.3, 58.8)	33.1 (23.9, 43.9)	49.9 (37.2, 62.5)	54.4 (43.0, 65.4)	31.7 (16.7, 51.7)	44.1 (28.6,60.9)	**32.8** (25.3, 41.3)**[h]
Poor[g]	49.2 (48.4, 50.1)	56.1 (46.9, 64.9)	55.7 (36.6, 73.2)	44.5 (19.6, 72.5)[i]	54.3 (30.6, 76.2)	60.6 (37.5, 79.7)	35.4 (9.5, 74.2)[i]	41.3 (14.7, 74.1)[i]	62.4 (47.3, 75.4)
Have medical insurance									
Yes	**45.1*** (45.0, 45.3)**	**44.5*** (43.2,45.8)**	**43.8*** (41.4, 46.3)**	**39.3*** (36.3,42.4)**[h]	**51.6*** (47.5, 55.6)**[h]	**53.0*** (48.0, 58.0)**[h]	**39.3** (34.0,44.9)**	44.1 (37.1, 51.4)	**44.0*** (41.4, 46.7)**
No[g]	16.3 (15.8,16.8)	23.4 (20.4,26.6)[c]	27.9 (20.7, 36.4)	16.0 (10.1, 24.6)[h]	22.0 (15.1, 30.9)	14.9 (5.9, 33.0)[i]	20.0 (11.6, 32.2)	29.6 (17.6, 45.2)	25.2 (20.2, 30.8)
Have personal healthcare provider									
Yes	**46.9*** (46.7, 47.1)**	**47.8*** (46.3, 49.3)**	**46.7*** (44.1, 49.4)**	**43.6*** (40.2, 47.1)**	**53.7*** (49.4, 57.9)**[h]	**53.7** (48.4, 58.9)**[h]	**43.6*** (37.5, 50.0)**	**50.8*** (42.8, 58.8)**	**47.0*** (44.1, 49.9)**
No[g]	21.3 (20.9, 21.7)	25.5 (23.4, 27.8)[c]	28.3 (23.4, 33.8)	18.7 (15.2, 22.8)[h]	28.7 (21.7, 36.9)	33.6 (23.1, 46.0)	24.3 (17.7, 32.3)	24.5 (16.5, 34.7)	26.6 (22.9, 30.5)
Time since last routine checkup									
<1year	**49.6*** (49.4, 49.8)**	**48.2*** (46.7, 49.8)**	**45.9*** (43.2, 48.7)**	**42.5*** (38.9, 46.2)**	**55.9*** (51.4, 60.3)**[h]	**56.9*** (51.0, 62.6)**[h]	40.7 (34.3, 47.5)	**48.4* (39.8, 57.2)**	**48.9*** (45.9, 52.0)**
≥1 year[g]	26.0 (25.7, 26.3)	30.6 (28.5,32.7)[c]	35.1 (30.4,40.1)	27.4 (23.3, 32.0)[h]	30.7 (24.6, 37.6)	38.8 (31.3, 46.9)	31.5 (24.4, 39.6)	31.9 (23.7, 41.5)	27.3 (23.6, 31.3)[h]
Certain chronic conditionsj									
Yes[g]	52.8 (52.4, 53.1)	54.7 (51.2, 58.0)	53.1 (46.9,59.2)	54.7 (46.1, 63.0)	51.4 (43.3, 59.5)	66.4 (56.9, 74.7)[h]	35.0 (23.4, 48.7)[h]	50.0 (25.9, 74.1)	55.8 (49.0, 62.3)
No	**38.0*** (37.8, 38.2)**	**39.8*** (38.5, 41.2)**[c]	**40.9*** (38.3, 43.4)**	**34.9*** (31.9, 38.0)**[h]	47.9 (43.7, 52.2)[h]	**44.5*** (39.2, 50.0)**	35.3 (30.4, 40.7)	41.3 (34.8, 48.2)	**38.9*** (36.4, 41.5)**

Note: Boldface indicates statistical significance (*p<0.05, **p<0.01, ***p<0.001) by t-test comparing sociodemographic and access-to-care variables to their respective reference levels.

[a] Refers to aggregated data across all Asian ethnicities. Race/ethnicity was categorized as Hispanic or Latino, black, white, Asian, and "other." Persons identified as Hispanic or Latino might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and persons who identified multiple races. The five racial/ethnic categories are mutually exclusive. Asian ethnicities were defined as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian.

[b] $p < 0.05$ by t-test (comparing against Asian Indian).

[c] $p < 0.05$ by t-test (comparing against white).

[d] $p < 0.05$ by t-test (comparing against Chinese).

[e] $p < 0.05$ by t-test (comparing against Filipino).

[f] $p < 0.05$ by t-test (comparing against Japanese).

[g] Reference level.

[h] $p < 0.05$ by t-test (comparing demographic and access-to-care variables across all other Asian ethnicities against Asian Indian).

[i] Estimate is not reliable due to small sample size (n<30) or relative SE (SE/estimates) >0.3 or CI half-width >10.

[j] People with certain chronic conditions include those with asthma, diabetes, heart disease, chronic obstructive pulmonary disease, or cancers other than skin cancer. BRFSS, Behavioral Risk Factor Surveillance System.

Table 3.

Adjusted[a] Prevalence Differences Among Asians, U.S., BRFSS, 2013–2015

Characteristics	White, % (95% CI)	Asian,[b] % (95% CI)	Asian Indian, % (95% CI)	Chinese, % (95% CI)	Filipino, % (95% CI)	Japanese, % (95% CI)	Korean, % (95% CI)	Vietnamese, % (95% CI)	Other Asian, % (95% CI)
Overall	42.5 (42.3, 42.7)	46.0 (44.7, 47.4)[c]	42.7 (39.9, 45.4)	38.9 (35.8, 42.0)[c]	48.2 (44.3, 52.1)[c,d,e]	44.0 (39.2, 48.8)	41.7 (35.9, 47.7)	49.5 (42.7, 56.4)[c,e]	45.1 (42.5, 47.8)[e]
Age									
18–49 years	ref	ref	ref	ref	ref	ref	ref	ref	ref
50–64 years	**6.1 (5.6,6.6)**	**5.3 (1.7,9.0)**	**7.8 (0.7,15.0)**	6.7 (−1.3,14.8)	−0.8 (−10.3,8.8)	**11.8 (0.9,22.8)**[f]	−1.7 (−19.2, 15.9)[f]	9.3 (−8.2, 26.9)[f]	3.1 (−3.9, 10.1)
≥ 65 years	**18.3 (17.7,18.9)**	**20.1 (14.5,25.6)**	**24.6 (12.6,36.6)**[f]	**27.7 (13.8,41.6)**[f]	3.8 (−11.7,19.4)[f]	**19.2 (5.1,33.3)**[f]	19.9 (−6.2, 45.9)[f]	**27.0 (0.7, 53.2)**[f]	**13.5 (2.9, 24.1)**[f]
Sex									
Male	ref	ref	ref	ref	ref	ref	ref	ref	ref
Female	**3.9 (3.5,4.2)**	**6.3 (3.4,9.3)**	5.1 (−0.5, 10.8)	5.4 (−0.4, 11.3)	0.2 (−7.6,7.9)	8.1 (−0.1,16.4)	10.9 (−0.3, 22.1)[f]	−2.8 (−15.2,9.5)[f]	**8.4 (3.4,13.4)**
Marital status									
Married	ref	ref	ref	ref	ref	ref	ref	ref	ref
Divorced/widowed/separated	**−1.8 (−2.3, −1.3)**	−3.3 (−8.4, 1.9)	3.0 (−9.3, 15.4)[f]	−1.5 (−13.3, 10.2)[f]	−5.8 (−17.7,6.0)[f]	−8.1 (−19.4,3.2)[f]	5.1 (−14.5,24.6)[f]	1.3 (−20.6, 23.3)[f]	−5.8 (−15.9,4.3)[f]
Never married	**−3.2 (−3.8, −2.6)**	−1.8 (−5.1,1.5)	−1.9 (−8.6, 4.9)	1.9 (−5.6, 9.3)	−7.5 (−17.4,2.3)	**−10.7 (−21.3, −0.0)**[f]	5.3 (−7.2,17.7)[f]	−7.8 (−21.5,5.8)[f]	1.3 (−4.4, 7.1)
Education level									
Less than high school	ref	ref	ref	ref	ref	ref	ref	ref	ref
High school graduate	**1.6 (0.7,2.5)**	−0.6 (−9.4, 8.2)	10.6 (−4.7, 25.9)[f]	−14.7 (−37.0,7.5)[f]	**−18.5 (−36.4, −0.6)**[f]	3.0 (−22.4,28.3)[f]	−6.7 (−47.2,33.7)[f]	**33.6 (12.0,55.2)**[f]	−2.3 (−16.7,12.0)[f]
Some college/technical school	**5.3 (4.4,6.2)**	−3.6 (−12.1,5.0)	5.0 (−10.8,20.7)[f]	−17.9 (−39.7, 3.9)[f]	**−17.1 (−34.3, 0.0)**[f]	13.6 (−10.9,38.2)[f]	−14.7 (−55.0, 25.6)[f]	15.6 (−4.7, 36.0)[f]	−5.2 (−19.1,8.6)[f]
College degree/higher education	**12.7 (11.8,13.6)**	−0.2 (−8.4, 8.1)	8.7 (−4.7, 22.0)[f]	−14.3 (−34.7, 6.0)[f]	−3.8 (−20.2, 12.6)[f]	10.2 (−14.6,34.9)[f]	2.1 (−37.8,42.1)[f]	**25.2 (5.7,44.8)**[f]	−3.3 (−16.7,10.1)[f]
Employment									
Employed	ref	ref	ref	ref	ref	ref	ref	ref	ref
Unemployed	−1.1 (−2.5, 0.4)	−6.8 (−14.5,1.0)	−8.4 (−22.7, 5.9)[f]	3.6 (−13.5, 20.7)[f]	4.6 (−16.6,25.8)[f]	5.6 (−24.5,35.7)[f]	8.6 (−19.9,37.0)[f]	−21.7 (−46.5, 3.2)[f]	**−15.0 (−28.3, −1.7)**[f]
Not in work force	**3.4 (2.9,3.9)**	0.0 (−3.5, 3.6)	4.8 (−2.5, 12.1)	−3.8 (−11.4, 3.8)	4.1 (−6.2, 14.4)[f]	7.5 (−3.4, 18.5)[f]	−0.8 (−13.7, 12.2)[f]	−4.6 (−20.5, 11.3)[f]	−0.9 (−7.0,5.3)
Annual household income									
<$20,000	ref	ref	ref	ref	ref	ref	ref	ref	ref
$20,000–$49,999	**1.2 (0.6,1.9)**	0.8 (−4.0, 5.5)	0.9 (−11.1,12.8)[f]	−4.9 (−16.7,6.8)[f]	4.3 (−6.6, 15.2)[f]	−1.2 (−16.3,14.0)[f]	−11.3 (−28.0, 5.4)[f]	−8.7 (−27.5,10.1)[f]	5.2 (−2.7, 13.1)
$50,000–$74,999	**2.2 (1.4,2.9)**	0.5 (−4.8, 5.7)	2.9 (−9.6, 15.4)[f]	−0.6 (−13.1,12.0)[f]	3.6 (−9.6, 16.7)[f]	3.4 (−12.7, 19.4)[f]	−0.6 (−22.6, 21.4)[f]	−1.9 (−24.5,20.7)[f]	−5.0 (−14.0,4.0)
≥$75,000	**4.4 (3.6,5.2)**	**7.2 (2.2,12.2)**	6.8 (−5.6, 19.1)[f]	3.6 (−8.2, 15.3)[f]	10.1 (−1.8, 22.1)[f]	2.1 (−14.4,18.6)[f]	2.2 (−16.1,20.5)[f]	2.1 (−19.5,23.6)[f]	**12.6 (3.7,21.5)**
Perceived health									

Characteristics	White, % (95% CI)	Asian,[b] % (95% CI)	Asian Indian, % (95% CI)	Chinese, % (95% CI)	Filipino, % (95% CI)	Japanese, % (95% CI)	Korean, % (95% CI)	Vietnamese, % (95% CI)	Other Asian, % (95% CI)
Excellent/very good/good	**−2.7 (−3.7, −1.8)**	−4.0 (−14.3,6.3)[f]	−6.4 (−30.0, 17.2)[f]	3.9 (−35.6, 43.5)[f]	2.6 (−16.8,21.9)[f]	−4.6 (−21.2,12.1)[f]	−21.0 (−65.9, 24.0)[f]	−19.1 (−61.1,22.9)[f]	−3.2 (−19.4,12.9)[f]
Fair	**−1.3 (−2.3, −0.2)**	−8.0 (−19.2,3.1)[f]	−11.8 (−37.5,13.9)[f]	−3.1 (−44.3, 38.2)[f]	5.4 (−16.3,27.0)[f]	−5.0 (−23.5, 13.4)[f]	−27.9 (−77.5,21.7)[f]	−7.8 (−54.4, 38.8)[f]	−14.8 (−32.3, 2.7)[f]
Poor	ref	ref	ref	ref	ref	ref	ref	ref	ref
Have medical insurance									
Yes	**14.4 (13.6,15.2)**	**11.6 (6.9,16.3)**	4.2 (−6.4, 14.8)[f]	**22.8 (14.5,31.2)**	**18.7 (6.7,30.6)**[f]	21.1 (−3.3, 45.5)[f]	7.1 (−9.3, 23.5)[f]	−4.2 (−23.5, 15.1)[f]	**10.4 (2.3,18.4)**
No	ref	ref	ref	ref	ref	ref	ref	ref	ref
Have personal healthcare provider									
Yes	**9.5 (8.9,10.2)**	**11.6 (8.1,15.2)**	7.1 (−0.5, 14.8)	**12.4 (5.0,19.9)**	**16.1 (5.1,27.1)**[f]	−1.2 (−14.1,11.7)[f]	12.4 (−0.7, 25.4)[f]	**16.7 (2.7,30.8)**[f]	**12.9 (6.5,19.3)**
No	Ref	ref	ref	ref	ref	ref	ref	ref	ref
Time since last routine checkup									
<1 year	**13.1 (12.6,13.5)**	**9.6 (6.5,12.6)**	**7.6 (1.6,13.6)**	6.1 (−0.4,12.6)	**16.7 (8.0,25.4)**	4.2 (−4.9,13.3)	4.5 (−7.2,16.2)[f]	10.4 (−2.0,22.8)[f]	**12.7 (7.0,18.4)**
≥1 year	ref	ref	ref	ref	ref	ref	ref	ref	ref
Certain chronic conditions[g]									
Yes	ref	ref	ref	ref	ref	ref	ref	ref	ref
No	**−6.5 (−7.0,−6.1)**	**−5.8 (−9.7,−1.9)**	−3.3 (−10.8,4.2)	**−13.3 (−23.0,−3.6)**	2.0 (−7.3,11.3)	**−17.7 (−27.7, −7.7)**[f]	**14.7 (1.6,27.9)**[f]	7.5 (−12.4,27.5)[f]	**−8.8 (−16.2,−1.5)**

Note: Boldface indicates statistical significance ($p<0.05$) by *t*-test comparing sociodemographic and access-to-care variables to their respective reference levels.

[a] Adjusted for all sociodemographic and access-to-care variables included in the table using muitivariabie logistic regression model (s).

[b] Refers to aggregated data across all Asian ethnicities. Race/ethnicity was categorized as Hispanic or Latino, black, white, Asian, and "other." Persons identified as Hispanic or Latino might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and persons who identified multiple races. The five racial/ethnic categories are mutually exclusive. Asian ethnicities were defined as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian.

[c] $p<0.05$ by *t*-test (comparing against white).

[d] $p<0.05$ by *t*-test (comparing against Asian Indian).

[e] $p<0.05$ by *t*-test (comparing against Chinese).

[f] Estimate is not reliable because CI half-width is >10.

[g] People with certain chronic conditions include those with asthma, diabetes, heart disease, chronic obstructive pulmonary disease, or cancers other than skin cancer. BRFSS, Behavioral Risk Factor Surveillance System.

Table 4.

Unadjusted[a] Influenza Coverage Among Asians by State—U.S., BRFSS, 2013–2015

	White		Asian[b]								
State	**Sample size (wtd %)**	**% (95% CI)**	**Sample size (wtd %)**	**% (95% CI)**	**Japanese, % (95% CI)**	**Filipino, % (95% CI)**	**Asian Indian, % (95% CI)**	**Vietnamese, % (95% CI)**	**Other Asian, % (95% CI)**	**Chinese, % (95% CI)**	**Korean, % (95% CI)**
National	1,069,243 (100.0)	42.4 (42.2,42.6)	28,577 (100.0)	42.1 (40.8, 43.3)	50.9 (46.1, 55.8)	48.5 (44.7, 52.3)	42.3 (40.0, 44.7)	41.9 (35.3, 48.5)	41.1 (38.8, 43.5)	37.1 (34.3, 40.0)	36.1 (31.2, 40.9)
HHS Region 1	130,156 (5.8)	45.9 (45.4, 46.4)	2,235 (3.7)	41.7 (38.5, 44.9)	37.2 (23.2, 51.1)[c]	63.0 (50.2, 75.7)[c,d]	42.9 (37.5, 48.3)	28.2 (16.0, 40.5)[c,d]	37.2 (30.0, 44.5)[d]	44.0 (37.8, 50.2)	39.2 (24.9, 53.5)[c]
Connecticut	21,100 (1.3)	46.0 (45.0, 47.0)	620 (0.8)	37.9 (32.0, 43.7)	—[e]	69.3 (48.8, 89.9)[c]	36.1 (28.1, 44.0)	—	37.0 (21.9, 52.1)[c]	37.0 (23.1, 50.9)[c]	-
Maine	24,960 (0.6)	43.6 (42.7, 44.5)	102 (0.1)	49.3 (35.7, 62.9)[c]	—	—	—	—	47.4 (21.8, 73.1)[c]	—	—
Massachusetts	31,786 (2.6)	46.8 (45.9, 47.7)	1,012 (2.5)	42.9 (38.6, 47.1)	—	62.5 (42.3, 82.7)[c]	46.2 (38.7, 53.7)	24.9 (11.5, 38.3)[c]	35.9 (25.8, 46.0)[c]	46.0 (38.6, 53.4)	—
New Hampshire	18,319 (0.6)	43.3 (42.3, 44.4)	177 (0.1)	47.3 (36.9, 57.6)[c]	—	—	41.1 (26.5, 55.6)[c]	—	—	26.9 (8.2, 45.6)[c]	—
Rhode Island	15,898 (0.4)	48.3 (47.1, 49.5)	219 (0.2)	36.8 (28.2, 45.3)	—	—	34.1 (16.8, 51.4)[c]	—	33.9 (20.3, 47.5)[c]	44.9 (26.2, 63.6)[c]	—
Vermont	18,093 (0.3)	44.5 (43.5, 45.4)	105 (0.0)	42.9 (30.0, 55.8)[c]	—	—	—	—	—	—	—
HHS Region 2	44,579 (8.1)	42.5 (41.8, 43.2)	2,569 (15.4)	40.6 (37.8, 43.5)	—	66.1 (56.7, 75.6)[d]	42.6 (38.2, 47.0)	24.4 (6.1, 42.7)[c]	40.1 (34.1, 46.2)	33.8 (27.6, 39.9)[d]	32.5 (22.1, 42.9)[c]
New Jersey	25,690 (2.6)	40.9 (40.0, 41.9)	1,414 (5.0)	39.4 (35.8, 43.1)	—	67.4 (57.2, 77.5)[c]	39.7 (34.8, 44.6)	—	24.6 (16.7, 32.6)	32.3 (23.9, 40.8)	40.5 (24.0, 56.9)[c]
New York	18,792 (5.6)	43.3 (42.3, 44.2)	1,149 (10.4)	41.2 (37.3, 45.1)	—	64.8 (48.0, 81.5)[c]	45.1 (38.1, 52.1)	—	43.1 (36.1, 50.1)	34.3 (26.6, 42.0)	28.5 (15.6, 41.5)[c]
Puerto Rico	97 (0.0)	19.7 (10.5, 28.8)	6 (0.0)	—	—	—	—	—	—	—	
Virgin Islands	N/A[f]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
HHS Region 3	102,682 (10.7)	44.5 (44.0, 45.0)	2,231 (7.2)	45.8 (42.5, 49.1)	45.6 (28.1,63.1)[c]	47.1 (36.6, 57.6)[c]	44.6 (39.4, 49.8)	42.3 (23.0, 61.7)[c]	49.1 (42.3, 55.9)	44.6 (36.8, 52.3)	44.4 (31.7, 57.1)[c]
Delaware	9,698 (0.3)	46.5 (45.0, 47.9)	205 (0.2)	44.1 (34.8, 53.4)	—	—	44.7 (31.7, 57.7)[c]	—	—	38.0 (16.1, 59.9)[c]	—
District of Columbia	5,594 (0.1)	48.0 (45.5, 50.6)	232 (0.2)	36.4 (26.0, 46.8)[c]	—	43.4 (17.0, 69.8)[c]	35.1 (16.7, 53.5)[c]	—	32.1 (8.9, 55.3)[c]	40.1 (17.2, 63.1)[c]	—
Maryland	26,876 (1.6)	47.9 (46.8, 49.0)	838 (2.3)	45.7 (40.7, 50.6)	—	49.0 (34.3, 63.8)[c]	43.6 (35.9,51.4)	—	43.4 (32.1, 54.7)[c]	48.0 (36.1, 59.9)[c]	56.3 (34.3, 78.4)[c]
Pennsylvania	23,855 (5.1)	41.6 (40.7, 42.5)	375 (2.1)	46.5 (39.3, 53.8)	—	—	52.4 (40.6, 64.2)[c]	—	52.5 (42.0, 62.9)[c]	35.2 (18.6, 51.8)[c]	-
Virginia	19,760 (2.7)	46.7 (45.8, 47.7)	518 (2.4)	46.2 (40.2, 52.1)	—	49.1 (32.2, 66.0)[c]	40.3 (30.8, 49.8)	—	51.2 (36.1, 66.2)[c]	51.7 (37.1, 66.3)[c]	41.2 (20.7, 61.7)[c]
West Virginia	16,899 (0.9)	47.4 (46.5, 48.3)	63 (0.1)	37.9 (24.4, 51.3)	—	—	—	—	31.3 (14.4,48.2)[c]	—	—
HHS Region 4	158,235 (20.1)	42.5 (42.2, 42.9)	1,698 (6.8)	35.0 (31.5, 38.5)	38.5 (19.257.7)[c]	48.0 (36.0, 60.1)[c]	39.0 (31.9, 46.1)	38.6 (17.9, 59.3)[c]	33.6 (28.5, 38.8)[d]	24.2 (14.7,33.7)"	26.4 (13.0, 39.8)[c,d]
Alabama	16,056 (1.6)	43.0 (42.0, 44.1)	95 (0.3)	36.1 (23.5, 48.6)[c]	—	—	—	—	36.9 (22.0, 51.7)[c]	—	—
Florida	40,646 (5.8)	37.2 (36.4, 38.0)	598 (2.5)	29.3 (23.8, 34.8)	—	40.0 (23.1, 56.9)[c]	34.0 (23.0, 45.0)[c]	—	27.0 (18.4, 35.7)	24.4 (10.4, 38.4)[c]	—

State	White		Asian[b]								
	Sample size (wtd %)	% (95% CI)	Sample size (wtd %)	% (95% CI)	Japanese, % (95% CI)	Filipino, % (95% CI)	Asian Indian, % (95% CI)	Vietnamese, % (95% CI)	Other Asian, % (95% CI)	Chinese, % (95% CI)	Korean, % (95% CI)
Georgia	12,352 (2.7)	39.3 (38.1, 40.5)	238 (1.7)	34.4 (26.0, 42.9)	—	—	34.0 (21.4, 46.5)[c]	—	37.0 (15.3, 58.7)[c]	—	—
Kentucky	26,612 (1.9)	44.3 (43.3, 45.2)	122 (0.2)	34.1 (22.6, 45.6)[c]	—	—	—	—	22.4 (10.1, 34.8)[c]	—	—
Mississippi	10,956 (0.9)	44.1 (42.8, 45.5)	62 (0.1)	50.9 (32.0, 69.8)[c]	—	—	—	—	50.6 (29.8, 71.4)[c]	—	—
North Carolina	15,412 (3.2)	49.6 (48.6, 50.6)	285 (1.3)	42.0 (34.6, 49.3)	—	—	55.9 (38.7, 73.0)[c]	—	39.3 (30.1, 48.5)	—	—
South Carolina	22,334 (1.6)	43.5 (42.6, 44.4)	206 (0.3)	32.0 (23.5, 40.6)	—	—	39.3 (18.8, 59.8)[c]	—	29.0 (16.5, 41.5)[c]	—	—
Tennessee	13,867 (2.5)	46.2 (45.0, 47.5)	92 (0.5)	46.4 (30.6, 62.1)[c]	—	—	—	—	38.6 (21.4, 55.7)[c]	—	—
HHS Region 5	150,977 (19.8	39.9 (39.5, 40.3)	2,347 (9.1)	39.7 (36.6, 42.8)	33.6 (17.0,50.2)[c]	51.0 (39.0, 63.0)[c]	39.5 (34.0, 45.0)	43.4 (28.7, 58.1)[c]	39.9 (34.7, 45.1)	32.4 (24.5, 40.3)	47.9 (36.3, 59.6)[c]
Illinois	12,180 (4.1)	40.0 (38.8, 41.1)	460 (3.9)	35.3 (29.7, 40.9)	—	—	33.6 (22.2, 45.0)[c]	—	36.3 (28.4, 44.2)	19.2 (4.9, 33.5)[c]	—
Indiana	24,270 (2.6)	38.7 (37.8, 39.6)	260 (0.5)	36.2 (28.6, 43.7)	—	—	36.6 (22.9, 50.3)[c]	—	37.1 (24.8, 49.3)[c]	32.7 (14.9, 50.5)[c]	—
Michigan	24,743 (3.8)	37.7 (37.0, 38.5)	411 (1.4)	37.8 (32.0, 43.6)	—	31.2 (12.2, 50.1)[c]	43.3 (34.4, 52.1)	—	50.7 (34.5, 67.0)[c]	24.5 (13.3, 35.6)[c]	—
Minnesota	42,376 (2.2)	46.6 (45.9, 47.3)	769 (1.4)	48.3 (43.5, 53.2)	—	58.6 (35.8, 81.4)[c]	44.0 (35.0, 53.0)	55.5 (38.2, 72.7)[c]	46.8 (39.1, 54.5)	52.2 (38.8, 65.6)[c]	45.5 (28.3, 62.8)[c]
Ohio	30,167 (4.6)	39.9 (39.0, 40.8)	291 (1.1)	45.2 (36.5, 53.9)	—	—	43.4 (30.5, 56.2)[c]	—	49.6 (32.2, 67.0)[c]	35.7 (11.8, 59.5)[c]	—
Wisconsin	17,241 (2.4)	38.2 (37.1, 39.3)	156 (0.8)	44.2 (33.7, 54.7)[c]	—	—	45.3 (24.4, 66.3)[c]	—	37.7 (21.4, 54.0)[c]	—	—
HHS Region 6	78,059 (10.0)	44.2 (43.5, 44.9)	1,388 (8.0)	43.7 (38.8, 48.7)	45.2 (18.3, 72.1)[c]	41.5 (21.2, 61.8)[c]	45.0 (34.3, 55.6)[c]	43.1 (25.8, 60.4)[c]	47.1 (40.1, 54.0)	25.1 (12.6, 37.6)[c,d]	25.8 (2.3, 49.3)[c]
Arkansas	12,099 (1.1)	43.3 (41.9, 44.7)	72 (0.1)	37.0 (21.0, 52.9)[c]	—	—	—	—	—	—	—
Louisiana	11,073 (1.4)	43.1 (41.8, 44.4)	107 (0.3)	32.8 (20.9, 44.6)[c]	—	—	—	—	36.2 (21.4, 51.1)[c]	—	—
New Mexico	13,060 (0.4)	41.0 (39.7, 42.4)	158 (0.2)	38.7 (27.2, 50.2)[c]	—	—	—	—	39.8 (22.2, 57.4)[c]	—	—
Oklahoma	17,750 (1.3)	46.2 (45.2, 47.2)	212 (0.5)	39.7 (31.1, 48.2)	—	—	41.4 (23.5, 59.3)[c]	—	45.4 (32.4, 58.4)[c]	—	—
Texas	24,077 (5.8)	44.5 (43.4, 45.6)	839 (6.9)	44.8 (39.1, 50.5)	—	44.3 (19.6, 69.1)[c]	45.4 (33.6, 57.2)[c]	47.7 (27.7, 67.8)[c]	48.3 (40.3, 56.3)	26.3 (11.7, 40.8)[c]	—
HHS Region 7	141,114 (5.5)	46.0 (45.4. 46.5)	1.243 (1.4)	40.4 (35.4, 45.4)	44.8 (20.9, 68.7)[c]	33.2 (14.8. 51.6)[c]	50.1 (37.3,63.0)[c]	45.8 (24.1, 67.5)[c]	37.1 (30.7, 43.5)	29.4 (16.1, 42.8)[c,d]	62.8 (41.8, 83.8)[c]
Iowa	20,947 (1.4)	47.8 (46.9, 48.7)	149 (0.3)	42.8 (32.3. 53.3)[c]	—	—	—	—	40.9 (26.8, 55.1)[c]	-	—
Kansas	51,424 (1.1)	42.9 (42.4, 43.5)	648 (0.4)	38.5 (33.7, 43.3)	—	—	41.1 (28.8, 53.5)[c]	—	38.4 (32.4, 44.5)	24.9 (10.4, 39.4)[c]	—
Missouri	16,824 (2.2)	46.0 (44.9, 47.1)	151 (0.5)	39.2 (28.6, 49.9)[c]	—	—	—	—	31.6 (16.7, 46.6)[c]	—	—
Nebraska	51,919 (0.8)	47.0 (46.2, 47.7)	295 (0.2)	44.2 (36.1, 52.3)	—	—	54.0 (34.9, 73.1)[c]	—	41.2 (27.7, 54.7)[c]	—	—
HHS Region 8	140,034 (4.3)	43.2 (42.8, 43.6)	1.319 (1.3)	47.5 (43.5, 51.5)	45.9 (34.1, 57.7)[c]	57.8 (44.2, 71.3)[c,d]	47.2 (38.1, 56.3)	63.9 (46.3, 81.6)[c,d]	46.3 (40.2. 52.5)[d]	45.5 (34.3, 56.6)[c]	36.8 (19.5, 54.2)[c]

State	White		Asian[b]								
	Sample size (wtd %)	% (95% CI)	Sample size (wtd %)	% (95% CI)	Japanese, % (95% CI)	Filipino, % (95% CI)	Asian Indian, % (95% CI)	Vietnamese, % (95% CI)	Other Asian, % (95% CI)	Chinese, % (95% CI)	Korean, % (95% CI)
Colorado	31,820 (1.9)	45.9 (45.1, 46.7)	561 (0.8)	53.1 (47.1, 59.0)	49.4 (32.5, 66.3)[c]	63.6 (43.7, 83.4)[c]	52.5 (40.3, 64.7)[c]	—	51.7 (41.9, 61.5)	54.9 (39.1, 70.8)[c]	38.2 (12.9, 63.6)[c]
Montana	20,036 (0.4)	39.6 (38.6, 40.6)	80 (0.0)	37.3 (21.4, 53.2)[c]	—	—	—	—	38.7 (16.0, 61.4)[c]	—	—
North Dakota	19,022 (0.3)	42.2 (41.2, 43.3)	100 (0.1)	30.3 (18.2, 42.4)[c]	—	—	—	—	—	—	—
South Dakota	18,408 (0.4)	52.3 (51.0, 53.5)	85 (0.1)	46.4 (27.8, 65.1)[c]	—	—	—	—	39.0 (17.2, 60.8)[c]	—	—
Utah	34,183 (1.1)	39.2 (38.6. 39.9)	427 (0.4)	40.8 (34.8, 46.7)	37.1 (20.7, 53.6)[c]	—	35.1 (19.1, 51.0)[c]	—	43.1 (34.4. 51.7)	27.0 (13.1, 40.9)[c]	—
Wyoming	16,565 (0.2)	35.7 (34.6, 36.9)	66 (0.0)	34.4 (18.4, 50.5)[c]	—	—	—	—	—	—	—
HHS Region 9	53,916 (10.7)	39.7 (38.9, 40.4)	11,805 (42.3)	43.1 (40.7, 45.5)	54.5 (48.2, 60.8)[d]	46.0 (40.9, 51.2)[d]	40.0 (33.5, 46.5)	45.9 (34.1, 57.7)[c]	41.1 (34.9, 47.2)	38.4 (33.7,43.2)	34.3 (24.6, 44.0)
Arizona	12,099 (1.1)	36.7 (35.5, 37.9)	403 (1.2)	34.0 (25.9, 42.1)	22.9 (7.2, 38.6)[c]	33.1 (11.3, 54.9)[c]	32.8 (18.2, 47.3)[c]	-	34.5 (18.5, 50.5)[c]	45.9 (25.3, 66.4)[c]	—
California	17,740 (7.8)	40.9 (39.9, 41.9)	2,511 (35.8)	43.1 (40.3, 46.0)	54.5 (44.6, 64.4)	48.1 (41.7,54.5)	40.4 (33.2, 47.7)	47.4 (35.1, 59.7)[c]	42.2 (35.0, 49.5)	37.8 (32.6, 43.0)	33.8 (23.2, 44.4)[c]
Hawaii	6,946 (0.2)	40.2 (38.4, 42.0)	6.769 (3.6)	51.9 (50.2. 53.6)	57.1 (54.8, 59.4)	46.2 (42.8, 49.6)	—	30.4 (11.1, 49.8)[c]	47.0 (41.5, 52.5)	52.3 (47.2, 57.4)	50.1 (39.5, 60.6)[c]
Nevada	8,589 (0.8)	35.8 (34.2, 37.5)	307 (1.4)	29.9 (22.8, 37.1)	—	22.7 (9.4, 35.9)[c]	—	—	28.4 (17.4, 39.5)[c]	30.9 (12.2, 49.6)[c]	—
American Samoa	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Commonwealth of the Northern Mariana Islands	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Federated States of Micronesia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guam	550 (0.001)	40.5 (34.6, 46.4)	1.815 (0.2)	28.8 (25.9,31.7)	23.4 (10.8, 36.1)[c]	30.2 (27.0, 33.5)	—	—	26.3 (14.4, 38.1)[c]	13.8 (4.9, 22.7)[c]	11.4 (1.2, 21.7)[c]
Marshall Islands	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Republic of Palau	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
HHS Region 10	69,491 (5.0)	40.4 (39.8, 40.9)	1,742 (4.8)	43.5 (40.3, 46.6)	42.3 (34.9, 49.6)	59.3 (51.1, 67.6)[d]	49.6 (41.1, 58.0)[d]	35.4 (23.5, 47.4)[c]	39.9 (32.0, 47.8)	39.7 (33.4, 46.0)	32.5 (22.2, 42.7)[c]
Alaska	9,113 (0.2)	35.1 (33.6, 36.5)	236 (0.3)	33.9 (25.3, 42.6)	—	42.0 (25.9, 58.1)[c]	—	—	25.2 (10.8, 39.7)[c]	—	—
Idaho	15,156 (0.6)	35.4 (34.3, 36.5)	94 (0.1)	37.3 (23.9, 50.8)[c]	—	—	—	—	—	—	—
Oregon	14,059 (1.6)	38.4 (37.3, 39.4)	218 (0.8)	44.7 (36.4, 53.0)	56.5 (39.2, 73.8)[c]	—	—	—	—	39.7 (23.1, 56.3)[c]	—
Washington	31,163 (2.5)	43.3 (42.5, 44.0)	1,194 (3.7)	44.1 (40.4, 47.7)	39.2 (30.8, 47.5)	67.2 (57.5, 76.9)	50.7 (41.5, 59.9)	33.9 (20.9, 46.9)[c]	39.9 (30.2, 49.6)	40.0 (33.0, 47.0)	31.2 (18.8, 43.6)[c]

[a] The Asian ethnicities are organized by descending prevalence of influenza vaccination estimate.

[b] Refers to aggregated data across all Asian ethnicities. Race/ethnicity was categorized as Hispanic or Latino, black, white, Asian, and "other." Persons identified as Hispanic or Latino might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and persons who identified multiple races. The five racial/ethnic categories are mutually exclusive. Asian ethnicities were defined as Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian.

[c] Estimate might be unreliable because CI half-width is >10.

[d] $p<0.05$ by *t*-test (comparing against white).

[e] Estimate not reported because unweighted sample size for the denominator was <30.

[f] Estimate not available as data were not available.

BRFSS, Behavioral Risk Factor Surveillance System; wtd, weighted.